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EMBODIED GRAMMAR INSTRUCTION IN NIGERIAN ESL CLASSROOMS

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Abstract

This study investigated the effect of embodied grammar instruction on the grammatical performance of Nigerian ESL learners. It arose from the persistent difficulty many Nigerian ESL learners experience in achieving syntactic accuracy despite years of grammar instruction that relies largely on rule memorization and decontextualized drills. Anchored on embodied cognition theory, the study proceeded from the assumption that grammatical knowledge, like other forms of cognition, is grounded in sensorimotor experience rather than confined to abstract symbol manipulation. A quasi-experimental, nonequivalent control group, pretest-posttest design was adopted. The experimental group comprised the entire population of 168 (300 Level) students of the Department of English Language and Literature, Alvan Ikoku Federal University of Education, Owerri, Imo State, taught through embodied strategies, while the control group comprised 15 (300 Level) students of Kingsley Ozumba Mbadiwe University, Ideato, Imo State, taught the same content through the conventional lecture-based method over the same period. Data were generated through a validated Grammar Achievement Test administered before and after a six-week intervention, complemented by a structured questionnaire eliciting the experimental group's perceptions. Data were analyzed using mean, standard deviation, paired-sample t-test, and independent-samples t-test at the 0.05 level of significance. Findings revealed that the experimental group recorded significantly higher post-test scores than the control group, that the experimental group's own improvement was statistically significant, and that students perceived embodied instruction as more engaging and confidence-building than conventional teaching. The study concluded that embodying grammar instruction through gesture, movement, and dramatization holds considerable promise for Nigerian ESL classrooms and recommended its integration into university language curricula.

Keywords: Embodied cognition, Grammar instruction, Gesture-based pedagogy, ESL classrooms, Nigerian universities.

Introduction

Grammar occupies a central position in English as a Second Language (ESL) teaching in Nigeria, where English functions as the official language, the language of education, and the language of inter-ethnic communication (Ella & Mmegwa, 2024, p. 2). Command of grammatical structure enables learners to construct sentences that are both meaningful and

acceptable within Standard English conventions. Yet despite the pride of place grammar occupies in the Nigerian curriculum, undergraduates, including those specializing in English Language and Literature, continue to exhibit noticeable weaknesses in syntactic accuracy, subject-verb agreement, tense consistency, and sentence construction (Nwokoji, 2024, p. 325), raising questions about the adequacy of the instructional methods traditionally employed.

For decades, grammar instruction in Nigerian institutions has been dominated by rule-based, teacher-centered approaches in which learners memorize grammatical paradigms and correct decontextualized sentences (Ella & Mmegwa, 2024, p. 5). This treats grammar as an abstract system divorced from the physical and social experience of the learner, mirroring what Lakoff and Johnson (1999, p. 3) described as the "disembodied" view of mind long dominant in Western linguistics and cognitive science. Contemporary cognitive science increasingly challenges this view: embodied cognition theory holds that human concepts, including linguistic concepts, are grounded in sensorimotor experience, such that understanding and producing language recruit the same neural and bodily systems used in perceiving and acting in the world (Barsalou, 2008, p. 619; Wilson, 2002, p. 625).

This theoretical shift carries practical pedagogical implications. Asher (1969, p. 3) had already shown, through the Total Physical Response method, that language items retained through physical action were recalled more readily than items learned through verbal repetition alone. More recent work reinforces this, Glenberg and Kaschak (2002, p. 561) found comprehension facilitated when readers physically enacted described actions, Tellier (2008, p. 232) found gesture reproduction improved young learners' vocabulary retention, and Macedonia and Knosche (2011, p. 205) reported that gesture-enriched instruction produced deeper, more durable memory traces than speech alone. Together, this research suggests grammar, ordinarily taught as a disembodied rule system in Nigerian classrooms, might instead be taught as an embodied experience involving gesture, movement, dramatization, and role-play.

It is against this background that the present study examined embodied grammar instruction among 300 Level students of the Department of English Language and Literature, AIFUE, Owerri. Having passed through years of conventional grammar teaching, these students represented a population well placed to reveal whether an embodied alternative could produce measurable gains beyond what conventional instruction had achieved. The study contributes to an emerging but still limited body of Nigerian scholarship on embodied and experiential approaches to grammar teaching, most existing Nigerian studies having concentrated on lexical, phonological, or general methodological concerns rather than the cognitive and physical dimensions of grammar acquisition (Ella & Mmegwa, 2024, p. 7; Nwokoji, 2024, p. 328).

Statement of the Problem

Grammatical competence remains one of the most persistent challenges confronting undergraduate students of English Language and Literature in Nigerian universities. Although these students undergo structured instruction in syntax, morphology, and usage across several semesters, lecturers routinely observe that many 300 Level students still struggle with subject-verb agreement, tense sequencing, correct preposition use, and

construction of complex and compound sentences. This is troubling because these students are expected to graduate as competent users and prospective teachers of English. If, learners specializing in English still exhibit basic grammatical weaknesses at an advanced stage, the implication for the wider Nigerian ESL population, who receive comparatively less sustained instruction, is more serious still.

A plausible explanation lies in the instructional methods that have traditionally dominated Nigerian grammar classrooms: lecture-based exposition, rule memorization, and decontextualized drilling with little connection to embodied, socially situated communication (Ella & Mmegwa, 2024, p. 5). Such methods position the learner as a passive recipient rather than an active participant whose body, gesture, and movement might themselves become resources for learning, a significant omission given growing evidence that language learning is enhanced when instruction engages the learner's physical and sensorimotor systems rather than verbal and visual channels alone (Barsalou, 2008, p. 620; Macedonia & Knosche, 2011, p. 197; Tellier, 2008, p. 233). Despite accumulating international evidence favoring embodied and gesture-based approaches, there is a marked scarcity of Nigerian studies systematically investigating whether such strategies can improve grammatical accuracy among Nigerian ESL learners at the tertiary level, a gap particularly striking given that Nigerian classrooms, with their strong oral, performative, and communal traditions, would appear well suited to such approaches.

Objectives of the Study

The study sought to:

1. Determine the level of grammatical accuracy of 300 Level students of the Department of English Language and Literature, AIFUE, Owerri, before and after exposure to embodied grammar instruction.
2. Examine the difference in students' grammatical performance before and after the intervention.
3. Investigate students' perception of embodied grammar instruction.
4. Compare the post-test performance of the experimental group with that of a conventionally taught control group.

Research Questions

1. What is the level of grammatical accuracy of the students before and after exposure to embodied grammar instruction?
2. What is the significant difference between their pre-test and post-test scores?
3. What is students' perception of embodied grammar instruction?
4. What is the significant difference between the post-test scores of the experimental and control groups?

Hypotheses

HO1: There is no statistically significant difference between the pre-test and post-test grammatical performance scores of students exposed to embodied grammar instruction.

HO2: There is no statistically significant difference between the post-test grammatical performance scores of the experimental and control groups.

Literature Review

Grammar teaching in Nigerian schools and universities has historically leaned toward grammar-translation and structural traditions in which learners are presented with rules and exercises intended to build accuracy through repetition and correction (Ella & Mmegwa, 2024, p. 4). Ella and Mmegwa (2024, p. 6) observed that resource limitations, large class sizes, and inadequately trained personnel compel many Nigerian language teachers to rely on lecture-based instruction rather than communicative or experiential methods, even where more interactive approaches are known to work better. Nwokoji (2024, p. 327) similarly found that Nigerian undergraduates frequently transfer non-standard Nigerian English grammatical patterns into formal academic writing, attributing this partly to instructional approaches emphasizing rule recitation over sustained, meaningful practice.

Outside Nigeria, a substantial body of research has explored how bodily action and gesture influence language learning. Lakoff and Johnson (1999, p. 3) argued that human concepts, including abstract grammatical categories, are structured by recurring patterns of bodily experience. Barsalou (2008, p. 618) extended this through grounded cognition theory, proposing that cognitive processes are implemented through reactivation of modality-specific systems such as vision and action rather than amodal symbolic representation. Wilson (2002, p. 626) reviewed six converging strands of evidence supporting this view. Empirically, Asher (1969, p. 3), through Total Physical Response, found learners who physically enacted commands retained language items more effectively than those exposed only to verbal instruction. Tellier (2008, p. 232) found children who reproduced gestures while learning vocabulary outperformed those taught with static pictures, and Glenberg and Kaschak (2002, p. 560), through the Action-sentence Compatibility Effect, showed that comprehension of action sentences was faster when readers' bodily movements matched the described action. Macedonia and Knosche (2011, p. 203) reported superior long-term retention among learners who studied vocabulary with self-performed gestures, and Kelly, McDevitt, and Esch (2009, as cited in Macedonia, 2019, p. 3) found brief gesture training improved adult word-learning outcomes. Beyond isolated gesture, dramatization and role-play, which require learners to physically enact roles using target structures in communicatively meaningful contexts, are theorized to deepen grammatical encoding beyond decontextualized drilling (Macedonia, 2019, p. 5).

This literature suggests embodiment operates through a general cognitive mechanism, richer, multimodal memory traces, rather than a mechanism specific to any single age group or linguistic structure, lending plausibility to extending embodied techniques from vocabulary instruction, where most existing research concentrates, to the comparatively under-researched domain of grammar instruction. Nwokoji's (2024, p. 324) finding that Nigerian undergraduates' grammatical difficulty is not simply a function of insufficient rule exposure, since these students had already received extensive formal instruction, strengthens the rationale for exploring embodied alternatives that target the manner and depth of internalization rather than merely the quantity of rule exposure.

Theoretical Framework

This study was anchored on Embodied Cognition Theory, which emerged from the convergence of cognitive linguistics, cognitive psychology, and neuroscience from the late

twentieth century onward. The theory holds that cognitive processes, including memory, comprehension, and language, are grounded in the sensorimotor systems of the body and its interaction with the environment, rather than confined to abstract symbol manipulation (Barsalou, 2008, p. 617), representing a decisive departure from the classical cognitivist position that treated the mind as an information-processing system operating on arbitrary symbols independent of bodily experience (Lakoff, 2012, p. 774).

Central to the theory is the claim that understanding language involves partial reactivation of the same perceptual and motor systems engaged when a person physically experiences the situation being described (Barsalou, 2008, p. 619). Wilson (2002, p. 625) organized this claim into six related theses, including that offline cognition, reasoning about absent objects or abstract categories, is itself grounded in bodily mechanisms originally evolved for action and perception. This is especially relevant to grammar, since tense, aspect, and modality deal with situations not immediately present to the senses, yet embodied cognition theory suggests such abstract processing is scaffolded by sensorimotor structures built through direct physical experience. Empirical support comes from Glenberg and Kaschak's (2002, p. 561) Action-sentence Compatibility Effect, which implies that grammatical structures may be more effectively internalized when learners physically enact the actions, spatial relationships, or temporal sequences a structure encodes.

The theory has not gone unchallenged; some scholars question whether highly abstract reasoning can plausibly be reduced to sensorimotor grounding and call for a moderate position in which embodiment complements rather than replaces symbolic processing (Lakoff, 2012, p. 776). This moderate reading, in which bodily experience supplements abstract symbolic learning, was sufficient to justify the present study's design, which combined embodied activities with, rather than as a replacement for, explanation of grammatical rules. The theory is also well suited to the Nigerian instructional context, since departments of English Language and Literature already use storytelling, dramatic performance, and oral tradition within literature courses, suggesting receptiveness to extending performative techniques into grammar teaching. In this study, embodied cognition theory was operationalized through an intervention in which students physically enacted grammatical structures: gesture to mark tense and aspect, spatial movement to demonstrate subject-verb agreement, and role-play to practice sentence construction in communicatively meaningful contexts.

Methodology

Research Design: The study adopted a quasi-experimental, nonequivalent control group, pretest-posttest design, complemented by a descriptive survey component.

Population and Sample: The experimental group population comprised all 300 Level students of the Department of English Language and Literature, AIFUE, Owerri, for the session studied; the control group comprised the 300 Level students of the Department of English Language and Literary Studies, Kingsley Ozumba Mbadiwe University (KOMU), Ideato, taught by the researcher during the same period. Both populations were considered appropriate because, by 300 Level, students at both institutions had already completed a substantial sequence of grammar, syntax, and structure courses. Because both populations

were of manageable size, no sampling technique was applied. The experimental group consisted of all 168 students at AIFUE, and the control group of all 15 registered students at KOMU.

Instruments: Two instruments were used. The Grammar Achievement Test (GAT), a researcher-designed test covering subject-verb agreement, tense and aspect, sentence construction, and prepositions and conjunctions, was administered to both groups before and after the six week intervention. The Embodied Grammar Instruction Perception Questionnaire (EGIPQ), a four-point scale from Strongly Agree to Strongly Disagree, was administered only to the experimental group.

Procedure: The GAT was first administered to both groups as a pre-test to establish baseline comparability. Over six weeks, the experimental group was taught selected grammar topics using embodied strategies, gesture for tense and aspect, physical movement for subject-verb agreement and word order, and role-play and dramatization for sentence construction, while the control group was taught the same topics through conventional lecture-based instruction (rule explanation, worked examples, written exercises) without any embodied component. At the end of the six weeks, the GAT was re-administered as a post-test to both groups, and the EGIPQ was administered to the experimental group only.

Validity, Reliability, and Ethics: Both instruments were validated by three experts in English Language, Applied Linguistics, and Measurement and Evaluation, whose observations were incorporated into the final versions. Trial-testing on thirty comparable 300 Level students yielded a Cronbach's alpha of .82 for the EGIPQ and a test-retest reliability coefficient of .79 for the GAT, both considered adequate. Departmental approval was obtained before data collection; students in both groups were briefed on the study's purpose, assured participation would not affect their assessment or examination scores, and informed that responses would remain confidential and that the intervention formed part of their regular grammar lessons.

Data Analysis: Mean and standard deviation answered research question one. A paired-sample t-test determined whether the experimental group's pre-test/post-test difference was significant (research question two, HO1). Independent-samples t-tests compared the two groups' pre-test scores (baseline equivalence) and post-test scores (research question four, HO2), with Cohen's d computed alongside the latter to estimate effect size independent of the disparity in group size (Cohen, 1988). Mean and standard deviation, with a criterion mean of 2.50, answered research question three.

Data Presentation, Analysis and Results

Table 1 shows that students' mean GAT score rose from 42.36 (SD = 8.72) at pre-test to 68.94 (SD = 7.15) at post-test, an increase of 26.58 points. The narrower post-test standard deviation indicates the intervention not only raised average accuracy but reduced the spread of performance, suggesting a more uniform improvement across students of varying initial ability.

Table 1a: Mean and SD of Students' Pre-test and Post-test Grammar Achievement Scores (N = 168)

Test	N	Mean	SD	Remark

Pre-test	168	42.36	8.72	Low grammatical accuracy
Post-test	168	68.94	7.15	High grammatical accuracy

Disaggregated by sub-skill (Table 1b), improvement was fairly even, ranging from 25.6 percentage points in subject-verb agreement to 26.9 in sentence construction, the sub-skill most directly rehearsed through role-play and dramatization.

Table 1b: Pre-test and Post-test Mean Percentage Scores by Grammatical Sub-skill (N = 168)

Sub-skill	Pre-test Mean (%)	Post-test (%)	Gain (%)
Subject-verb agreement	46.2	71.8	25.6
Tense and aspect	39.5	65.3	25.8
Sentence construction	41.0	67.9	26.9
Prepositions and conjunctions	44.8	70.6	25.8

The control group's mean also rose, from 41.80 (SD = 9.05) to 50.20 (SD = 8.60), a gain of 8.40 points, real but considerably smaller than the experimental group's 26.58-point gain.

Table 1c: Mean and SD of the Control Group's Pre-test and Post-test Scores (N = 15)

Test	N	Mean	SD	Remark
Pre-test	15	41.80	9.05	Low grammatical accuracy
Post-test	15	50.20	8.60	Moderate grammatical accuracy

An independent-samples t-test confirmed no significant difference between the two groups at pre-test ($t = 0.24$, $df = 181$, $p = .81$), establishing baseline equivalence.

Table 1d: Independent-samples t-test Comparing Pre-test Scores

Group	N	Mean	SD	df	t-calc	t-crit	p	Decision
Experimental (AIFUE)	168	42.36	8.72	181	0.24	1.97	.81	Not significant
Experimental (AIFUE)	15	41.80	9.05					

A paired-sample t-test showed the experimental group's pre-test/post-test difference was statistically significant ($t = 31.47$, $df = 167$, $p < .001$), leading to rejection of HO1.

Table 2: Paired-sample t-test of Pre-test and Post-test Scores

Test	N	Mean	SD	df	t-calc	t-crit	p	Decision
Pre-test	168	42.36	8.72	167	31.47	1.96	$p < .001$	Significant

Post-test 168 68.94 7.15

An independent-samples t-test comparing post-test scores showed the experimental group significantly outperformed the control group ($t = 9.68$, $df = 181$, $p < .001$), with a Cohen's d of 2.62 indicating a very large effect size (Cohen, 1988); HO2 was rejected.

Table 5: Independent-samples t-test Comparing Post-test Scores

Group	N	Mean	SD	df	t-calc	t-crit	p	d	Decision
Experimental (AIFUE)	168	68.94	7.15	181	9.68	1.97	$p < .001$	2.62	Significant
Control (KOMU)	15	50.20	8.60						

Table 3 shows all six perception items recorded means above the 2.50 criterion, with a grand mean of 3.18, indicating students perceived embodied instruction favorably. The highest-rated items concerned increased interest (Mean = 3.42) and improved memorability through gesture and enactment (Mean = 3.35); the item on the additional time and effort demanded, though still above criterion, recorded the lowest score (Mean = 2.61).

Table 3: Mean and SD of Students' Perception of Embodied Grammar Instruction (N = 168)

Item	Mean	SD	Decision
Made grammar lessons more interesting than the conventional method	3.42	0.61	Agree
Acting out/gesturing structures helped memory	3.35	0.66	Agree
Participated more actively in class	3.29	0.70	Agree
Increased confidence in using structures correctly	3.18	0.74	Agree
Would prefer embodied instruction to conventional lecture	3.24	0.78	Agree
More demanding in time and effort than conventional teaching	2.61	0.85	Agree
Grand Mean	3.18	-	Agree

Table 4 shows that 150 of 168 students (89.3%) recorded substantial or moderate improvement, while only 4 (2.4%) showed no improvement or decline, indicating the gain was widely shared rather than concentrated among a few high performers.

Table 4: Distribution of Students by Direction and Magnitude of Score Change (N = 168)

Category	Number	Percentage (%)
Substantial improvement (above 30 points)	61	36.3

Moderate improvement (10–30 points)	89	53.0
Marginal change (below 10 points)	14	8.3
No improvement or decline	4	2.4

Open-ended comments echoed the quantitative pattern: students reported that acting out sentence patterns and gesturing for tense and agreement made abstract rules feel more concrete and easier to recall, and that role-play reduced the anxiety typically associated with grammar lessons. A smaller number noted initial self-consciousness about performing in front of classmates, which most reported diminished as the intervention progressed.

Discussion of Findings

The substantial rise in grammatical accuracy, from a pre-test mean of 42.36 to a post-test mean of 68.94, lends strong empirical support to embodied cognition theory applied to grammar pedagogy. This aligns with Asher's (1969, p. 3) finding that language items paired with physical action were retained more effectively than items learned verbally, extending this insight from vocabulary and command-based learning to grammatical structure. It is also consistent with Barsalou (2008, p. 619) and Wilson (2002, p. 625), who argue that language comprehension and production are grounded in modality-specific sensorimotor systems. The narrowing standard deviation from pre-test to post-test resonates with Glenberg and Kaschak's (2002, p. 561) finding that comprehension is facilitated when bodily movement is congruent with linguistic structure, suggesting embodied instruction created a more level playing field across students of varying ability.

The control group strengthens interpretability. Because the two groups did not differ significantly at pre-test, and both were taught by the same researcher-lecturer over the same period, reducing ordinary threats to internal validity such as maturation and testing effects, the significantly higher post-test performance and very large effect size cannot easily be attributed to pre-existing differences. That the control group's own scores also rose modestly confirms some improvement was expected from continued exposure to grammar content, yet the considerably larger experimental gain indicates embodiment, rather than the mere passage of time, accounted for the additional improvement. Even so, the marked disparity in group size (168 versus 15) and the fact that the two institutions may differ in admission criteria or resources in unmeasured ways represent limitations; Cohen's d was reported precisely because effect size is less sensitive to sample size than significance testing alone, and future replications with larger, more evenly matched control groups across multiple institutions would strengthen confidence in the causal interpretation.

The statistically significant pre-test/post-test difference corroborates international findings on gesture- and enactment-based learning, including Tellier's (2008, p. 232) and Macedonia and Knosche's (2011, p. 203) reports of superior retention among learners taught with self-performed gesture. That this mechanism extended to grammatical structures, rather than only vocabulary as in much prior literature, represents a meaningful contribution, suggesting the benefits of embodiment documented largely in lexical learning may generalize to the syntactic domain. The favorable perception data (grand mean = 3.18) reinforce that embodiment was experientially engaging as well as effective, echoing Macedonia's (2019, p. 4) observation that embodied strategies tend to increase learner motivation, and resonating with the argument

that Nigerian classrooms' oral, performative, and communal traditions make them particularly receptive to gesture and dramatization (Ella & Mmegwa, 2024, p. 6). The comparatively lower, though still positive, score on the time-and-effort item (Mean = 2.61) signals a practical constraint that Nigerian lecturers must weigh, given the large class sizes and constrained instructional time characteristic of many departments (Ella & Mmegwa, 2024, p. 6).

The fairly even distribution of gains across all four sub-skills is itself important, since it suggests embodied instruction supports improvement across the broader grammatical system rather than isolated aspects, consistent with Nwokoji's (2024, p. 330) observation that Nigerian undergraduates' difficulties span multiple structural categories simultaneously. That sentence construction recorded the highest gain, being the sub-skill most directly rehearsed through role-play, reinforces the expectation, drawn from Macedonia's (2019, p. 5) discussion of dramatized practice, that embodied enactment of communicatively meaningful scenarios is especially suited to developing productive rather than merely receptive grammatical competence. Because many of the 300 Level students studied are themselves prospective secondary school English teachers, their positive experience carries implications for teacher preparation: exposing pre-service teachers directly to embodied techniques may have a multiplying effect on Nigerian grammar pedagogy as these students proceed into their own classrooms, aligning with Ella and Mmegwa's (2024, p. 7) suggestion that pedagogical change is more likely to be sustained when embedded within teacher preparation itself.

The findings should nonetheless be interpreted with appropriate caution. The nonequivalent control group design, while considerably stronger than a one-group design, does not achieve the rigor of a fully randomized controlled trial, and it remains possible that some unmeasured institutional or cohort-level factor contributed to the observed difference. Because the study focused exclusively on 300 Level English Language and Literature students within two institutions, caution should be exercised in generalizing the findings to other levels, departments, or universities without further empirical confirmation involving larger and more evenly balanced samples. Taken together, however, the convergence of statistically significant performance gains, an even spread of improvement across sub-skills, and favorable learner perception indicates that embodied grammar instruction, grounded in embodied cognition theory, offers a viable and culturally resonant alternative to the largely disembodied, rule-based pedagogy that has traditionally dominated Nigerian ESL classrooms.

Conclusion

This study investigated the effect of embodied grammar instruction on the grammatical accuracy and perceptions of 300 Level students of the Department of English Language and Literature, AIFUE, Owerri. Anchored on embodied cognition theory, it found that students taught through gesture, movement, role-play, and dramatization recorded significantly higher post-test than pre-test scores, and perceived the approach as more engaging, memorable, and confidence-building than conventional lecture-based teaching. These findings suggest that grammatical competence, long treated in Nigerian classrooms as an abstract system to be memorized, may be more effectively cultivated when instruction engages the learner's body alongside the mind. The study contributes empirical, Nigerian-

based evidence to the growing international literature on embodied and gesture-based language learning, and demonstrates the relevance of embodied cognition theory to grammar pedagogy specifically, rather than to vocabulary learning alone. Given the persistent grammatical difficulties observed among Nigerian ESL learners despite years of conventional instruction, embodied grammar instruction represents a promising, evidence-based avenue through which Nigerian language educators might enrich their pedagogical practice, functioning as a practical, classroom-ready complement to existing grammar instruction rather than a wholesale replacement requiring extensive additional resources.

Recommendations

Based on the findings, the following recommendations were made:

1. Lecturers of English Language and Literature in Nigerian universities should incorporate embodied instructional strategies, gesture, role-play, and dramatization into grammar teaching, rather than relying solely on lecture-based exposition and decontextualized drilling.
2. Curriculum planners and heads of department should integrate structured guidance on embodied teaching techniques into methodology courses for undergraduate and postgraduate prospective English language teachers.
3. University management should provide lecturers with adequate instructional time and manageable class sizes, given that students acknowledged embodied instruction demands more time and physical effort than conventional teaching.
4. Professional bodies and teacher-training organizers should design continuing professional development programs exposing serving English teachers to embodied and gesture-based techniques, since many were themselves trained within a predominantly rule-based tradition.
5. Further research should be conducted across a wider range of Nigerian tertiary institutions and student populations, including departments outside English Language and Literature, to test the generalizability of these gains and their long-term retention.
6. Textbook authors and instructional materials developers should design grammar textbooks that explicitly incorporate embodied activities, suggested gestures, role-play scripts, and movement-based exercises, alongside conventional explanations and drills.
7. Because improvement was fairly evenly distributed across all four grammatical sub-skills examined, lecturers should design embodied activities that systematically address the full range of structures in the curriculum rather than restricting the technique to any single category.
8. Because many students in this study are prospective secondary school English teachers, departments of English Language and Literature should embed practical, hands-on exposure to embodied instructional techniques within language teaching methodology courses.

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