

The Effect of Modelling Instructional Strategies on English Language Achievement of Primary School Pupils'

RESEARCH ARTICLE

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ABSTRACT

The problem of low achievement in public examinations and the low ranking of Nigerian public primary schools in the international evaluation of learning achievement has been attributed to several factors including poor foundation work in English Language. This study was designed as an intervention involving three teaching strategies associated with variations in English Language achievement. The study adopted a pretest-posttest control group design in a quasi-experimental setting with treatment at three levels (modelling, picture-based and conventional teaching). The sample consisted of 360 schoolchildren randomly drawn from six purposively selected public primary schools, three in urban and three in peri-urban locations in Ile. Intact classes were randomly assigned to the three study conditions. The study lasted ten weeks and involved reading comprehension, lexis and structure. Pupils were made to practise, display, manipulate and express their ideas and observations both orally and in structured statements, patterned after those of a trained expert. English Language Achievement Test and a Teaching Guide were used as instruments for the study. Analysis of covariance was used to evaluate the results of this experiment at the .05 level of significance. The results revealed that instructional strategies had significant effects on English Language achievement ($F(2,359) = 84.99, p < .05$). The order of adjusted mean achievement scores was 10.067:7.667:5.142 for modelling, serial picture reading and conventional instructional strategies, respectively. The effects of the teaching strategies were found to vary considerably when used at different school locations. The study showed that modelling instructional strategy is better than conventional strategy in promoting higher achievement and positive attitude change.

Methodology Pretest-posttest control group design with 360 primary school pupils from six schools across urban and peri-urban locations	Key Variables Three instructional strategies: modelling, picture-based teaching, and conventional teaching methods	Main Finding Modelling strategy achieved highest mean scores (10.067) compared to picture-based (7.667) and conventional (5.142) methods
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Keywords: Modelling instruction, English Language achievement, primary school pupils, instructional strategies, reading comprehension

INTRODUCTION

English Language is a crucial core subject in Nigerian primary and secondary education, serving as a medium of instruction from Primary Four (FGN, 2013). Its importance stems from its utilitarian value as the official language of administration, commerce, and science, and its role in unifying Nigeria's multilingual, multi-ethnic society (Iroegbu & Igweike, 2020). Despite government recognition of English as vital for educational attainment and communication, its performance remains a significant concern for learners and educationists.

01	02	03
Foundation Challenges	Academic Performance Issues	Intervention Need
Poor foundational English Language skills in primary school lead to comprehension difficulties and low concept formation in subsequent subjects.	Low achievement in public examinations and poor international rankings of Nigerian primary schools highlight systemic educational concerns.	Effective English Language teaching strategies are essential to address learning difficulties and improve overall academic achievement.

A current educational problem of public interest is the poor level of achievement in public examinations, possibly due to poor resource **utilisation** (Iroegbu V. I. & Olusola, D. J. 2022). This issue persists across subjects like English Language, Science, and Mathematics (Aina et al., 2024; Ikedugwu, 2023), with researchers suspecting poor foundational work in English Language at the primary level as a contributing factor (Mustapha, 2024).

Research consistently shows that English Language inefficiency results in poor academic performance (Iroegbu & Ifedayo, 2020). Adeosun (2019) noted the serious problem of poor primary school performance, with evidence of continued underachievement as pupils progress. This suggests that a poor English Language foundation can lead to inadequate comprehension, concept formation, and low attainment in other subjects taught in English. Poor attainment in English language has been linked to factors such as insufficient learning materials, inadequate models, faulty lexical and structural forms, and weak vocabulary and comprehension development (Afolabi, 2016).

It is imperative that every Nigerian child aspiring to higher education acquire proficiency in both written and spoken English, as most school textbooks and instructional materials are in English. Children in the pre-operational stage comprehend physical models, pictures, and diagrams. Iroegbu (2006) found that models assist learners in acquiring cognitive knowledge of actions and their consequences. Modelling instruction can correct weaknesses of traditional methods like knowledge

fragmentation and learner passivity, by simplifying abstract concepts with familiar models. This study will investigate the effect of modelling on promoting English Language achievement in young primary school children, aiming to reverse poor achievement and attitude towards English Language in schools.

Primary school children, aged 7-12, are in the concrete operational stage, a delicate period for cognitive development (Iroegbu, 2020). At this stage, learners require concrete and familiar examples as a foundational baseline; inappropriate examples can cause cognitive dislocations that are difficult to diagnose and correct (Mason & Tessmer, 2002). Therefore, teaching these learners demands thoughtful, careful, and skilful planning. Employing model building as a concrete cognitive organiser (Greeca & Moreira, 2000) can meet this requirement, as models help learners imitate procedures in subsequent activities, and teaching with three-dimensional objects can enhance long-term memory for patterns in repetition, especially in junior primary school.

This theoretical connection between concrete operational thinking and modelling instruction is empirically supported. Research aligned with Piaget's cognitive development stages consistently shows that concrete, hands-on approaches yield superior learning outcomes for primary school children (Hayat et al., 2024). Studies on instructional scaffolding in early childhood education further indicate that visual and concrete supports, akin to modelling, enhance language development by providing tangible reference points that match children's concrete thinking patterns (PMC, 2025). This effectiveness of concrete instructional approaches is particularly documented in language learning contexts, where abstract concepts become accessible through physical representations and modelling activities (Moughamian et al., 2009). This body of research supports the premise that modelling instruction, by offering concrete, observable examples, directly addresses the cognitive needs of primary school children who are still developing abstract thinking.

Furthermore, Donohue (2015) opined that technology has also revolutionised the way teachers assess and monitor children's progress. Traditional assessment methods, such as paper-based tests and examinations, are often limited in capturing a child's true abilities and understanding. In addition, according to Oladele & Ahsun (2025), technology is used to improve efficiency in literacy, innovation and advancement in various fields of life, especially in the early teens of a child.

Modelling instruction is therefore the representational nature of knowledge (Greeca & Moreira, 2000). It is any implementation or process that brings together information resources and learning activities intended to facilitate mental model building in the learner (Gobert & Buckley, 2000). A model may simply be viewed as a representation on a small or simplified scale, such as a model of a car. This is an example of a physical model. A model may therefore refer to a thing, an imitation of a thing, an example, or a replica. Apart from the physical models which we can see, touch, and feel, there are several other types of models, such as mental models and conceptual or theoretical models (Greeca & Moreira, 2000). The use of models during instruction involves observation and imitation. This study is therefore based on the social learning theory (Bandura, 1971).

DEFINITION OF MODEL

The word 'model' is interpreted in different ways by different people, especially in everyday language, and also by experts in various fields, as well as in the fields of education and research. For example, Webster's Third Dictionary defines a model as:

- A set of plans for a building to be erected, or drawings to scale for a structure already built.
- A person or thing that exactly resembles another; a copy or image.
- A miniature three-dimensional representation of something existing in nature, or constructed in three dimensions in plaster, wood, plastic, or other material, of a surface or solid.
- A pattern of something to be made or reproduced.
- A description, a collection of statistical data, or an analogy used to help visualise, often in a simplified way, something that cannot be directly observed (e.g., an atom).
- A theoretical projection in detail of a possible system of human relationships.

Also, the Dictionary of Education defined a model as:

- A pattern of something to be made or reproduced.
- An example for imitation, such as a standard of performance to be emulated or copied.
- A graphic or three-dimensional scale representation of an object, principle, or idea.
- A set of interrelated factors or variables which together comprise elements that are symbolic of a social system; may either be verbal or mathematical.

Although different views, definitions, and interpretations have been expressed regarding the meaning of a model, in the context of this discourse, the term 'model' would refer to a physical representation of objects or things, such as the model of a car; a pattern of something to be made or reproduced, such as a model sentence. It may also refer to a simplified description of a system to assist prediction and improve efficiency, such as a model poem. A model may therefore refer to a copy of a thing, an imitation of a thing, an example, or a replica of a thing.

The use of models in teaching helps learners to adopt the activity for their own setting. The learner changes from a faulty mental representation to a correct scientific representation, which then prepares the ground for the required proper application of the new learning (Barker, 2000). If a teacher therefore carefully models their presentation in such a way that the pattern is clear to learners, they will most likely copy such patterns for their own use.

Researchers have criticised the traditional teaching strategy being used in English Language classrooms (Iroegbu & Igweike, 2020). These authors found the traditional teaching strategy to be domineering in nature. The teacher does all the talking while the learners remain passive in the classroom. It was therefore recommended that an activity classroom, where learners, especially at the primary school level, can make learning fun, should be adopted (Iroegbu, 2020). Such learning activities may include learning with objects, things, photographs, films, and models.

In order to tackle such problems, a research approach should be adopted in finding the causative problem as well as choosing the most appropriate solution.

Statement of the Problem

English Language achievement of most Nigerian primary school pupils is below expectation, probably because of some learner characteristics and teaching strategies adopted. The problem of this study therefore was to determine the effects of the modelling strategy on primary school pupils' learning outcomes in English Language.

Research Question

(1) Will the mode of instruction influence pupils' learning outcomes in English Language?

Core Problems

- Low achievement in English Language
- Poor foundational work in primary schools
- Dominance of traditional teaching methods
- Learner passivity in classrooms

Research Gap

- Limited studies on modelling instruction effectiveness
- Need to examine concrete teaching strategies
- Assessment of intervention outcomes on achievement

METHODOLOGY

This study adopted a pre-test, control group, quasi-experimental research design. The design had treatment (instructional strategy) at three levels, comprising two experimental and one control condition. Variables of the study included instructional strategy at three levels - modelling, picture-reading, and conventional. The treatment for the experimental groups was as follows:

- Presentation of teaching materials
- Learners' utilisation of teaching materials
- Presentation of the reading passage
- Discussion of the reading passage
- Summarising the passage
- Vocabulary building
- Comprehension activity and grammar

For the control groups, the use of teacher talk and demonstration was adopted.

The subjects for this study comprised 360 primary school pupils drawn from six purposively selected public primary schools in Ile-Ife South and Ile-Ife Central Local Government Areas of Osun State. The selection of schools was based on their geographical location to ensure a balanced representation of urban and peri-urban contexts, with three schools selected from urban areas and three from peri-urban areas. This stratified purposive sampling was adopted to capture potential variations in exposure to educational resources, infrastructure, and socio-economic background that might influence the study variables. An equal number of pupils were randomly selected from each school to ensure balanced participation. The pupils ranged in age from 9 to 12 years, with a near-equal distribution of boys and girls, representing diverse socio-economic and ethnic backgrounds typical of the study location.

Two instruments were used for data collection in this study: the English Language Achievement Test (ELAT) and a teacher performance evaluation guide.

The English Language Achievement Test (ELAT) was a 50-item multiple-choice test designed to assess primary school pupils' achievement in English. Each item consisted of one correct option and three distractors. The test covered two main content areas:

(a) Reading comprehension, which included two types of passages—narrative and descriptive. Fifteen questions were derived from these passages to test pupils' understanding and interpretation skills.

Example question: "From the passage, what did Tunde do after school?"

(b) English Language structure, consisting of 35 questions. These included 8 questions on nouns (e.g., "Which of these is a naming word?"), 7 on verbs ("Choose the action word in this sentence: The boy runs fast."), 8 on prepositions ("The cat is ___ the table. What word correctly fills the blank?"), and 12 on sentence construction ("Which sentence is correctly punctuated?").

Test items were constructed using measurable behavioural objectives drawn from the Modular Curriculum for Primary Three English Language (Second Term). A table of specification was employed to ensure balanced coverage of the curriculum content and cognitive levels, specifically, remembering, understanding, and thinking, based on Bloom's taxonomy (Okpala et al., 1993; Iroegbu, 2002).

To ensure validity, the 50 test items were first subjected to expert review by three specialists in language education and educational measurement. Feedback from the review informed revisions before finalising the test. The internal consistency of the ELAT was determined using the Kuder-Richardson Formula 20 (KR-20), yielding a reliability coefficient of 0.87, indicating a high level of consistency.

The Teacher Performance Evaluation Guide was the second instrument. It was a researcher-developed 12-item checklist designed to assess the instructional practices of teachers, focusing on the application of the modelling instructional strategy and picture reading techniques. Items addressed aspects such as teacher preparedness, use of instructional aids, engagement techniques, and alignment with lesson objectives.

Research Design Pretest-posttest control group design with a quasi-experimental setting and three treatment levels	Sample 360 primary school pupils from six schools across urban and peri-urban locations in Osun State	Instruments English Language Achievement Test (ELAT) with 50 multiple-choice items and a teacher evaluation guide
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DATA ANALYSIS AND INTERPRETATION

Table 1: Demographic Distribution of Respondents

Variable	Category	Frequency (n)	Percentage (%)
Gender	Male	182	50.6%
	Female	178	49.4%
Age Group	9 - 10 years	160	44.4%
	11 - 12 years	200	55.6%
School Location	Urban	180	50.0%
	Peri-urban	180	50.0%
Class Level	Primary 4	120	33.3%
	Primary 5	120	33.3%
	Primary 6	120	33.3%

Table 1 presents the demographic characteristics of the 360 primary school pupils who participated in the study. The sample comprised 182 males (50.6%) and 178 females (49.4%). Age distribution included 160 pupils (44.4%) aged 9-10 years and 200 pupils (55.6%) aged 11-12 years. School locations were balanced, with 180 pupils (50%) from urban and 180 (50%) from peri-urban areas. Participants were equally distributed across Primary 4, 5, and 6, each contributing 120 pupils (33.3%). This diverse sample is suitable for analysing research variables across different demographic categories.

Data Analysis

Data were analysed using Analysis of Covariance (ANCOVA). Scheffé’s multiple range comparison was employed where a significant F-ratio was obtained for groups with more than two variables. Descriptive statistics (mean and standard deviation) were also used to explain significant effects.

Table 2: Analysis of Covariance of English Language Achievement Scores by Treatment Groups

Source of Variation	Type III Sum of Squares	Df	Mean Square	F-Ratio	Significance
Corrected Model	11362.766a	3	3787.859	89.499	.000
Intercept	21205.474	1	21205.474	501.075	.000
PRETEST	667.743	1	667.743	15.778	.000
TREATMENT	7194.345	2	3597.172	84.999	.000
Error	15065.898	356	42.320		
Total	270361.000	360			
Corrected Total	26428.664	359			

a. R-Squared = .430 (Adjusted R-Squared = .425)

RESULT

The results in Table 2 show that the type of instructional strategy used had a significant effect on pupils' performance in English Language, even after accounting for their scores before the treatment (pretest scores). The ANCOVA result indicates a statistically significant difference among the three instructional groups, $F(2, 356) = 84.999, p < 0.001$.

In simpler terms, this means that the teaching method used, whether modelling, picture reading, or conventional, had a real and measurable impact on how well pupils performed. The high F-value and very small p-value show that these differences were not due to chance. The R-squared value of 0.430 suggests that about 43 per cent of the improvement in pupils' English Language scores can be explained by the type of instructional strategy they received.

This tells us that how pupils are taught—whether through modelling, picture reading, or conventional methods—has a substantial impact on how well they perform. To determine which teaching method made the greatest difference, further analysis using multiple comparisons was conducted in Table 3.

Table 3: Multiple Comparison of Mean Achievement Scores of Treatment Groups

(I) Treatment Groups	(J) Treatment Groups	Mean Difference (I-J)	Std. Error	Sig.	95% Confidence Interval	
					Lower Bound	Upper Bound
Modelling	Picture Reading	2.4000*	.3621	.000	1.5099	3.2907
	Conventional	4.9250*	.3621	.000	4.0349	5.8151
Picture Reading	Modelling	-2.4000*	.3621	.000	-3.2901	-1.5099
	Conventional	2.5250*	.3621	.000	1.6349	3.4151
Conventional	Modelling	-4.9250*	.3621	.000	-5.8151	-4.0349
	Picture Reading	-2.5250*	.3621	.000	-3.4151	-1.6349

**. The mean difference is significant at the .05 level.*

The results from the multiple comparisons in Table 3 reveal that all three instructional strategies—modelling, picture reading, and the conventional method—produced significantly different outcomes in pupils' English Language achievement. Specifically, pupils in the modelling group outperformed those in both the picture reading and conventional groups, with mean differences of 2.40 and 4.93, respectively ($p < .05$). Similarly, pupils exposed to the picture reading method performed significantly better than those in the conventional group, with a mean difference of 2.53 ($p < .05$). These differences are not due to chance, as all comparisons were statistically significant at the 0.05 level. The confidence intervals for each comparison (e.g., 4.03 to 5.82 for modelling vs. conventional) also confirm the robustness of these differences.

Table 4: Group Mean Scores for Homogeneous Sub-sets

Treatment Groups	N	Subset for Alpha = .05		
		1	2	3
Conventional	120	5.1417		
Picture Reading	120		7.6667	
Modelling	120			10.0667
Sig.		1.000	1.000	1.000

Means for groups in homogeneous subsets are displayed.

a. Uses Harmonic Mean Sample Size = 120.000

Further evidence from the homogeneous subsets presented in Table 4 shows that each instructional strategy falls into a distinct performance category. Pupils taught using the conventional method had the lowest average score ($M = 5.14$), those in the picture reading group had a moderate score ($M = 7.67$), and those taught with the modelling strategy achieved the highest mean score ($M = 10.07$). This suggests a clear ranking in instructional effectiveness: modelling > picture reading > conventional. These findings reinforce the conclusion that the type of instructional strategy used plays a crucial role in shaping pupils' academic success in English Language.

DISCUSSION

The data analysis has revealed that the use of the modelling instructional strategy yielded significantly higher improvements in primary pupils' achievement in English Language compared to both Picture Reading and conventional teaching methods. Specifically, pupils exposed to modelling had a mean achievement score of 10.07, compared to 7.67 for Picture Reading and 5.14 for the conventional group. This result is statistically significant ($F(2, 356) = 84.999, p < .001$), with the instructional strategy accounting for 43% of the variation in achievement ($R^2 = 0.430$). The post-hoc multiple comparison test further confirms that each instructional method had a distinct impact on learning outcomes, with modelling outperforming the other strategies by a substantial margin.

These findings align with previous research (Ezenwafor & Okeke, 2017) demonstrating modelling's effectiveness in early language learning by improving engagement and retention through practical demonstrations. It also supports Vygotsky's social constructivist theory, which emphasises imitation and guided learning. The implication for classroom practice is that modelling, especially when integrated with learner-centred techniques, can significantly improve language performance in Nigerian primary schools. While serial picture reading improved upon conventional methods, it was less impactful than modelling, reinforcing the need for dynamic, interactive strategies in early language education.

This study contributes to knowledge by demonstrating that:

- Modelling instructional strategy effectively engages and enhances primary school pupils' English Language achievement.
- Picture-based instructional strategy can foster a positive attitude towards English Language in primary school pupils.
- Teachers can construct and use modelling and picture-based instructional strategies for improved English Language learning at the primary level.

Based on these findings, the following recommendations are made:

1. Primary school teachers should be provided with varied teaching and learning materials, such as toys and picture story books, to enable interactive learning.
2. Teachers should be encouraged to model good examples for pupils to emulate in writing, reading, speaking, and thinking, as such learning is long-lasting.
3. Teachers should adopt modelling instructional strategy over conventional methods for improved achievement. Where physical models are unavailable, beautifully coloured pictures can serve as an effective, though lesser, substitute.
4. Utilise graphic or three-dimensional representations to convey objects, principles, or ideas effectively.

01

Provide Learning Materials

Teachers should be equipped with varied materials, including toys and picture story books, for interactive learning experiences.

02

Model Good Examples

Provide clear patterns and examples for pupils to emulate in writing, reading, speaking, and thinking processes.

03

Adopt Modelling Strategy

Prioritise modelling instructional strategy over conventional methods, with picture-based alternatives when needed.

04

Use Visual Representations

Implement graphic and three-dimensional representations to support concept understanding and retention.

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CONFLICTS OF INTEREST

The author declares no conflict of interest.

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