

## META-COGNITIVE INSTRUCTIONAL STRATEGY FOR IMPROVING STUDENTS' PHONOLOGY AND SPELLING IN AN ARTIFICIAL INTELLIGENCE AGE

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### **Abstract**

*The paper investigated the effect of meta-cognitive instructional strategy on students' phonology and spelling among in Ekiti State. Two research hypotheses were generated for the study. Attempts were made to look at copious literature as a source of justifying the essence of this study. The study adopted pre-test post-test, control group quasi experimental design. A total of one hundred and forty students drawn from four schools in Ekiti formed the sample. In each school, 35 students were selected. Two schools were used for experimental (one rural, one urban) and two schools (one urban, one rural) for control group. The only instrument used for the study was titled Vocabulary Achievement Test (VAT). The VAT was validated. Test- retest techniques were used to determine it reliability which yielded 0.9 reliability coefficient at 0.05 level of significance. The result showed that students exposed to metacognitive instructional strategy performed significantly better than those who were taught using the conventional method. It was revealed that the strategy taught students how to become a strategic thinker by processing their thought. As a result of these findings, it was recommended that teachers should encourage students to develop their thinking skill. They should adopt meta- cognitive strategy to teach English vocabulary in the areas of phonology and spelling.*

**Keywords:** Metacognition, Instructional strategy, Artificial Intelligence, Students' Thinking

### **Introduction**

English language occupies a very important place in almost all spheres of life in Nigeria. Within the educational settings, English is one of the core subjects taught and examined at all levels and a credit in English is a requirement for entering into any higher institution in Nigeria.

At the secondary school level, the poor performance of students in English at both internal and external examination has been source of worry to all stakeholders and several factors have been held responsible for this

foremost of which are poor teaching method and strategies.

So, English language as one of the core subjects in junior secondary school, National Examination councils of Nigeria syllabus and its curriculum include the four-language skill which are listening speaking reading and writing listening can be seen as a process of hearing, identifying, understanding, and interpreting spoken language. Speaking is the ability to express one's self clearly in conversational language.

The teaching and learning of vocabulary in junior secondary schools

in Ekiti seems to involve problem ranging from lack of useful facilities, attitude of both teachers and students towards vocabulary precisely in Ekiti State. Observation and experience reveal that teachers rely heavily on traditional ways of teaching vocabulary by asking students to read after them. As a result, students are not given the opportunity to develop their cognitive ability. In ideal situations, students should be given the opportunity to develop their thinking skill in order to make them self-reliant and productive in their learning endeavours.

Metacognitive instructional strategy will enable students to plan, control and evaluate their learning processes, because developing metacognitive awareness may also lead to the development of stronger cognitive skill (Wilson, 2010).

Nevertheless, researches have proved that teachers have not been using metacognitive strategy to teach students on how to develop their thinking skill. One of the reasons for this has been attributed to lack of awareness of this strategy because most teachers based their method on the foundation, they have in their tertiary institutions which do not need further research to enable them to teach pronunciation. It takes a dynamic, teachers to make students speak and pronounce intelligibility when they speak. Ofodu (2012) opines that phonology will enhance speech proficiency among students at all levels.

In the study conducted by Oyinloye (2001) on teaching phonology he observed a dwindling performance among secondary school students in Nigeria. One of the reasons for this has been attributed to teachers' incompetence in handling this aspect of the English language. He added that most universities lack basic equipment like language laboratory, hence the teaching and learning of phonetics

becomes very difficult. Suant (2024) suggests that students should be provided a written record that students can review at their own pace aiding language learning as well as serve the reminder so that they are not misled by orthography of English.

Laufa (2001) explains that, in Nigeria education system, some phonetic problems can be identified as the causes of students' difficulties in learning English vocabulary. One of such conflicts is often referred to as mother tongue interference. Apart from mother tongue interference it was observed that 90% of English words pronounced by average Nigerians are wrongly pronounced:

Chicken/Sikin/instead of tʃikin  
 Father/fada/ instead of f d /  
 Student/stu:dent/ instead of /stju:dnt/  
 Culture/koso/instead of /kʊ tʃʊ/

Having discovered these structural defects in our pronunciation and spelling, there is need for English Language teachers to pay special attention to a productive and meaningful strategy that will guide students to become strategic thinker by processing information and self-evaluation. It appears teachers have been relying on traditional method in teaching pronunciation and spelling in vocabulary teaching and learning. This seems not to assist students to perform well in their terminal examinations. Therefore, this study has to focus on method of teaching and the thrust of this study is meta-cognitive instructional strategy. The purpose of this study was to find out the effect of meta-cognitive instructional strategy on achievement in English vocabulary among junior secondary school students in Ekiti State. The study is expected to find out whether students who are exposed to meta-cognitive instructional strategy will perform significantly better than students taught in the conventional way.

## Research Hypotheses

The following hypotheses were generated for this study:

1. There is no significant difference in the pre-test achievement mean scores of students exposed to meta-cognitive instructional strategy and those taught using the conventional method.
2. There is no significant difference in the post-test achievement mean scores of students exposed to meta-cognitive instructional strategy and those taught using the conventional method in vocabulary building.

## Methodology

The quasi experimental research design involving pre- test, post-test for data collection was employed. The population for this study consisted of all secondary school students in Ekiti state. A total sample of 140 of JSS students were selected for the study. Intact class was used to prevent unnecessary disruption of normal school programme and class work which could occur when students are selected into groups. The dependent variable has two levels namely phonology and spelling. One instrument was used for this study. The instrument was titled vocabulary Achievement test which was a self-constructed instrument designed to measure students' achievement in vocabulary at the level of pronunciation and spelling.

The VA contains 20 test items and was given to a language expert.

After careful examination some of the items were expunged. The reliability coefficient of the instrument was determined using split-half method was used to determine the reliability of the instrument (VAT) and a reliability coefficient score of 0.9 was obtained at 0 .05 level of significance. Two English teachers were trained in each school to serve as research assistants. They were involved in administration of the VAT and teaching of both control and experimental groups. Data collected were subjected to statistical analysis using inferential statistics of Analysis of Co-Variance (ANCOVA) - All hypotheses were tested at 0.05 level of significance.

## Experimental Procedure

The subject teachers who were trained as assistant teachers assisted in administering a pre-test on the students before the commencement of the experiment. This was to determine whether the subjects were academically homogenous or not. The treatment involved two periods of 40 minutes duration per period and lasted for four weeks. The post-test was administered during the last week. The treatment lasted for six weeks.

## Results

### Testing of Hypotheses

Hypotheses One: There is no significant difference in the post-test achievement mean scores of students exposed to metacognitive instructional strategy and those taught using conventional method in pronunciation and spelling aspect of English Language.

**Table 1: Analysis at covariance (ANCOVA) of pre-test achievement score of students in experiment and control groups.**

Sources	SS	DF	MS	F Cal	Table
Corrected model	25780-654	3	8593.551	92-450	2.60
Covariance(pre-test)	29-330	1	29-330	-316	3.84
Group	25056.370	2	12528.185	134.780	3.00
Error	19148-340	206	92.953		

Corrected total 835025.08 210

**Significant at 0.05 alpha level**

The table shows F.cal (.316) was less than F.tab (3.84) at 0.005 level of significant, this shows that a significant difference between the sample at the commencement of the experiment. The significant different may be as a result of treatment giving to the experimental groups.

The null hypotheses were therefore rejected since there was a

significant difference between the groups.

Hypotheses Two; There is no significant difference in post-test achievement mean scores of students exposed to metacognitive instructional strategy and those taught using the conventional method in phonology and spelling.

**Table 2: t-test analysis of post-test achievement mean scores of experimental and control groups in spelling and phonology aspect of English Language.**

Group	N	Mean	SD	Df	Tea	n	t. significance table
Metacognitive	70	12.60	3.182	138	67.88	1.96	
Control	70	8.86	3.83				

Table 2 above shows t-cal (6.288) is greater than t. table (1.96)

Therefore, there was a significant difference between the post-test mean scores of students exposed to meta-cognitive instructional strategy and those taught using conventional method in phonology and spelling aspect of English language.

**Discussion**

The findings from this study revealed that the achievement level of students in English vocabulary before the treatment was low generally (as attested to by the low achievement mean score in the pre-test) after the treatment, the level of achievement of students exposed to the meta-cognitive instructional strategy as attested to by the higher achievement mean score in the post- test improved drastically and significantly.

This is an indication that meta-cognitive instructional strategy used in the teaching and learning process could improve the level of achievement of students in the teaching and learning process and it could prove the level of

achievement of students in English language. This is in line with the submission Rivers M .L (2020) that meta-cognitive instructional strategy will help to regulate and monitor cognitive activities in process of learning as well as check the outcome of these activities. Moreover, this study shows that there is a significant difference in the post- test mean scores at students in experimental and control groups. This is a confirmation that the offices at the meta-cognitive instructional strategy in the teaching and learning pronunciation and spelling in English vocabulary cannot be over-emphasized. This is not unconnected with the fact that meta-cognitive strategy gives room for student to evaluate their learning process through self-questioning.

Therefore, it is obvious that meta-cognitive strategy gives room for students to evaluate their learning process unlike conventional method, where students are not given the

opportunity to evaluate their cognitive goals in the process of learning.

### Conclusion

Base on the findings of this study it could be concluded that meta-cognitive instructional strategy improves students' performance in English language as at helps teacher to guide students to become strategic thinker -by processing information and also evaluate effectively by way of self-questioning, in contrast to traditional method which does not give room for development of thinking skills.

### Recommendations

Based on the findings at this study the following recommendations were made.

- English Language teacher should help students to develop their thinking skill as a means of enhancing learning to make them productive in their learning endeavors.
- Teachers should adopt meta-cognitive instructional strategy to promote the teaching of vocabulary in English Language
- Future researches could be conducted in other aspects of English
- The Government and curriculum planners should incorporate metacognitive strategy into the English language curriculum.

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