

## EFFECTS OF TWO MODES OF COMPUTER ASSISTED INSTRUCTION ON PUPILS' ACHIEVEMENT IN ENGLISH LANGUAGE SPELLING IN NIGER STATE, NIGERIA

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**Abstract:** *The paper investigated the effects of two modes of Computer Assisted Tutorial, Drill and Practice Instructional packages (CAI) on Primary Two Pupils Achievement in English language spelling in Niger State, Nigeria. The study adopted quasi-experimental design. Purposive sampling technique was used to select six schools from seven educational zones in Niger State. The study sample comprised of 87 males and 93 females. Experimental groups were taught with CAI Tutorial, Drill and Practice Instructional packages while Control group was taught with lecture method. Three research questions and three hypotheses guided the study. English Language Achievement Test (ELAT) was used for data collection. The CAI packages and ELAT were face validated by experts while the reliability was established using Kuder Richardson (KR 20) analysis and the reliability coefficient was found to be  $r = 0.74$ . Mean and standard deviation were used to analyze the research questions while analysis of covariance (ANCOVA) was used in testing of the hypotheses. Findings show that teaching English language using CAI mode strategy (packages) enhanced pupils' achievement in spelling. Thus, it is recommended that, curriculum planners should infuse CAI packages into English language programmes so that primary school teachers' can use it to teach English language concepts.*

**Keywords:** *Achievement, CAI Modes, Effects, English Language Spelling, Instructional Packages.*

### Introduction

The role English language plays in the world of communication and scientific advancement cannot be over emphasized. English Language is Nigeria's lingua franca and the medium of instruction in the educational institutions from the primary schools to tertiary institutions. The government of Nigeria considers English language as a core subject in the school curriculum and a major medium of communication both within and outside the school system. The aims of teaching English language especially at the primary school level of education is to understand the four language skills of listening, speaking, reading and writing. The poor performance in English language at all levels of education especially at the primary school level leaves much to be desired. Nigeria as a developing nation requires solid foundation in its education system at the primary school level if it must compete favorably with other nations of the world.

The National Policy on Education (FRN, 2009) stated that pupils' need ability to effectively communicate in English language being foundation of education. Okoro (2000) posits that the problem of poor performance of pupils in English language in Nigeria calls for concern. Kolawole (2002a) also stated that primary school pupils' performance in English language was not encouraging. Kolawole (2002b) noted that the poor performance was due to the use of tribal language in the lower classes of primary school and in most cases English language teachers in the senior primary schools use mother tongue to teach and explain English concepts.

Adama (2009) identified other factors responsible for the poor achievement in English language to include non-utilization of audio-visual instructional materials, poor English language teaching and expression, poor knowledge of the subject by the teacher and lack of textbooks among others. Based on the above fact, it has become imperative for Nigeria and indeed Niger State to integrate and use CAI in teaching English language spelling in primary schools to enhance students' achievement (Onwumere, 2012).

Spelling can be defined as an act of forming words correctly using letters of alphabets. Spelling involves associating letters with certain sounds or words, National Teachers Institute (NTI, 2006).

Wallace (2006) explained that learning to spell involves the use of many sense organs, hence students use their eyes, ears, hands stressing that students will have difficulty with spelling when they rely on one type of sense. To facilitate pupils learning of spelling, the teacher provides range of activities that involves pupils using aural/ visual, thinking and kinaesthetic skills. Some of this activities include:

**Use of Computer:** Computers have ability to locate words with their spelling. Westwood (2010) believed that students with learning difficulties can develop positive attitude towards drill and practice using spelling programs on computer. Pupils' activity on computer could require them to type words on the computer and check spellings, word search, typing of words in alphabetical order, match letters with pictures or words.

**Tutorial** teaches with example and also provides information as guide to complete certain task. Tutorial range from internet computer tutorials to interactive tutorial which gives learner step by step instruction on how to do something. Computer tutorial program assist learner on how to use parts of a software product such as an office suite or any other application. Software tutorials include video tutorial, interactive tutorials and webinars where users participate in real-time lectures or online tutoring. Also closely related to tutorial is drill and practice as reinforcement of material learnt followed by feedback.

**Drill and practice** is an educational strategy that employ the use of repetitive practice in learning. Drill and practice use specific skills such as addition and subtraction or spelling. Its' main purpose is to help learners through repetition master concepts or materials learnt at their own pace. Drill and practice exercises with appropriate software can enhance the daily classroom experience. Drill and practice software packages helps to explain how to get correct answer and provides feedback on students' achievement.

**Achievement** is used to determine what learner achieved either short or long term. Achievement can be assessed through examinations or other forms of assessment. Factors such as test anxiety, environment, motivation and emotion requires consideration when setting questions for achievement. Hence, there is no conclusive results over which factors successfully predict academic achievement (Wikipedia, 2020).

**Gender studies** on achievement of students have not produced conclusive results. Yusuf (2004) explained that some findings showed that differences existed between male and female students performance while others studies noted that gender factor had no influence on students' performance. This contractive evidence in academic achievement due to gender had resulted in the need to verify how computer instructional packages can influence pupils' achievement in English language spelling.

### **Statement of the Problem**

The achievement of pupils in English language has not been encouraging despite its importance to national development. The researcher observed that pupils have serious difficulties in comprehension of English language (spelling) because of non-utilization of instructional materials, poor knowledge of the subject and expression by the teachers, lack of relevant textbooks that contains dictation or spelling activities. Other factors identified as responsible for the poor achievement include the use of tribal language in the lower classes of primary school and in most cases English language teachers in the senior primary schools use mother tongue to teach and explain English concepts, non-utilization of audio-visual instructional materials, poor English language teaching and expression, poor knowledge of the subject by the teacher and lack of textbooks among others. It is against this background that the study investigated the effects of computer tutorial, drill and practice instructional packages on achievement of pupils' in English language spelling in Niger State.

### **Purpose of the Study**

1. Determine the CAI tutorial, computer drill and practice packages and lecture method on pupils' English language spelling achievement using alphabet A-J.

2. Determine the CAI tutorial package on mean achievement scores male and female pupils when taught English language spelling using alphabet A-J.
3. Determine the CAI drill and practice package on mean achievement scores of male and female pupils when taught English language spelling using alphabet A-J.

### Research Questions

The following questions guided the study:

1. What are the mean achievement scores of pupils' when taught English language spelling using CAI tutorial, drill and practice packages and lecture method using alphabet A-J?
2. What are the mean achievement scores of male and female pupils when taught English language spelling using alphabet A-J with CAI tutorial package?
3. What are the mean achievement scores of male and female pupils when taught English language spelling using alphabet A-J with CAI drill and practice package?

### Hypotheses

The following hypotheses were formulated and tested at 0.05 level of significance.

- H<sub>01</sub>:** There is no significant difference in the mean achievement scores of pupils' taught English Language Spelling with CAI tutorial, drill and practice packages and lecture method using alphabet A-J.
- H<sub>02</sub>:** There is no significant difference in the mean achievement scores of male and female pupils taught English language spelling using alphabet A-J with CAI tutorial package.
- H<sub>03</sub>:** There is no significant difference in the mean achievement scores of male and female pupils taught English language spelling with alphabet A-J using CAI drill and practice package.

### Methodology

The study adopted Quasi- experimental design. Specifically, a pretest posttest non- equivalent control group design was used. The population of the study comprises all the public primary schools in the seven educational zones in Niger State. The number of public primary schools in the seven educational zones is 2,603. The population of pupils in these schools is 135,245. Multistage sampling technique was employed. Purposive random sampling technique was adopted to obtain the six selected primary schools in the three senatorial zones comprising of seven educational zones in Niger State. The six randomly selected public primary schools were assigned to the two experimental and control group. Two schools were each assigned to experimental and control group. One intact class was assigned to each experimental and control group school. The experimental groups comprised of 53 males and 67 female making a total of 120 pupils while the control group comprised of 34 males and 26 female.

The English language Achievement Test on Spelling (ELAT) was used as instrument for data collection. The instructional packages were validated by four experts from Educational Technology Department, Federal University of Technology, Minna in terms its appropriateness to the chosen topics, clarity, simplicity as well as its suitability for the level of the pupils. Four experts validated the English language content of the packages. Two experts from school of general studies, Federal University of Technology, Minna and other two from Department of English language, College of Education, Minna assessed the face and content validity of the instrument on English language contents of the packages. The experts assessed the face and content validity of the instrument in relation to primary two pupils' curriculum. The experts examined the instruments in terms of clarity of spellings, words formed at the pupils level of understanding and agreement of words formed with the test blue print.

The reliability of the instrument was obtained using a sample size of 30 primary two pupils' who constitute part of the population but were not used in the main study. This 30 pupils were subjected to reliability test at an interval of two weeks. Hence, two set of scores were obtained and

subjected to Pearson Product Moment Correlation Co-efficient formula (PPMC). A correlation coefficient of  $r = 0.74$  was obtained from the analysis. The scores obtained from posttest determine academic achievement of experimental and control group. Mean and standard deviation were used to answer the research questions while hypotheses were analyzed using analysis of covariance (ANCOVA) using statistical package for social sciences (SPSS). The statistical analyses were determined at 0.05 level of significance.

## Result

**Table 1: Pupils Mean Achievement Scores in English Language Spelling taught with CAI Tutorial, Drill and Practice Instructional Packages and Lecture Method using alphabet A-J.**

Group	N	Pretest		Posttest		Mean Gain
		Mean	SD	Mean	SD	
Expt.1 (Computer Tutorial)	60	17.17	6.47	57.70	3.08	<b>40.53</b>
Expt. 2 (Computer Drill and Practice)	60	19.97	3.03	54.20	7.36	<b>34.23</b>
Control (Lecture Method)	60	19.37	3.26	38.53	2.87	<b>19.16</b>
Total	180	18.83	4.66	50.14	9.67	<b>31.31</b>

Table 1 shows that experimental group 1 obtained higher mean score of 57.70 with 3.08 standard deviation. The experimental group 2 has a mean score of 54.20 with SD of 7.36 while control group obtained 38.53 and 2.87. Total posttest and standard deviation scores for the three groups were 50.14 and 9.67. The mean gain scores for the three groups were 40.53 (experimental 1), 34.23(experimental 2) and 19.16 for control group. Hence, computer tutorial and computer drill and practice packages enhanced pupils' achievement in English Language Spelling using alphabet A-J.

**Table 2: Summary of ANCOVA for Achievement Scores of Pupils taught English Language Spelling with CAI Tutorial, Computer Drill and Practice Instructional Packages and Lecture Method using alphabet A-J.**

Source	Type III Sum of Squares	Df	Mean Square	F	Sig.	Decision
Corrected Model	12585.462(a)	3	4195.154	177.539	.000	
Intercept	21665.976	1	21665.976	916.906	.000	
Pretest	84.351	1	84.351	3.570	.060	
Method	12562.713	2	6281.357	265.827	.000	S
Error	4158.783	176	23.629			
Total	469348.000	180				
Corrected Total	16744.244	179				

Significant ( $p < 0.05$ )

Table 2 shows the F value (265.827) with df (2,176) and p-value of .000. This value is less than 0.05 level of significance. Hence, H01 was rejected. Therefore, pupils taught English Language Spelling with Computer Tutorial, Computer Drill and Practice Instructional Packages and lecture method using alphabet A-J has significant difference in achievement. This shows that Computer Tutorial, Computer Drill and Practice improve pupils' achievement in English Language Spelling. Abdullah, Jebreen, Aieman, and Sadeq (2009) findings on effect of CAI language learning in teaching grammar support the present study which showed that the instructional method CAI packages was effective.

**Table 3: Male and Female Pupils Mean Achievement Scores when taught English Language Spelling using alphabet A-J with CAI Tutorial Package.**

Expt. 1 (Computer tutorial package)	Gender	N	Pretest		Posttest		Mean Gain
			Mean	SD	Mean	SD	
	Male	25	17.52	6.25	57.04	3.88	<b>39.52</b>
	Female	35	16.91	6.69	58.17	2.63	<b>41.26</b>
	Total	60	17.17	6.47	57.70	3.23	<b>40.39</b>

Table 3 shows male and female pupils mean achievement scores when taught English language spelling using alphabet A-J with computer tutorial package. Male Mean Scores 57.04, SD 3.88 and Female Mean Scores 58.17, SD 2.63 respectively. Mean achievement score of female pupils is higher than that of their male counterparts. Mean gain of male pupils is 39.52 while that of female is 41.26. This suggests that both female and male pupils achieved almost equally when taught English language spelling using alphabet A-J with computer tutorial package.

**Table 4: Summary of ANCOVA for Male and Female Pupils Achievement Scores taught English Language Spelling using alphabet A-J with CAI Tutorial Package.**

Source	Type III Sum of Squares	Df	Mean Square	F	Sig.	Decision
Corrected Model	63.186	2	31.593	3.266	.045	
Intercept	22217.356	1	22217.356	2296.623	.000	
Pretest	44.518	1	44.518	4.602	.036	
<b>Gender</b>	<b>21.407</b>	<b>1</b>	<b>21.407</b>	<b>2.213</b>	<b>.142</b>	<b>NS</b>
Error	551.414	57	9.674			
Total	200372.000	60				
Corrected Total	614.600	59				

Not Significant ( $p > 0.05$ )

Table 4 shows that F value (2.213) has a probability value of .142. Since P value is greater than 0.05 significant level, the null hypothesis was retained. Therefore, achievement scores of male and female pupils taught English language spelling using alphabet A-J with computer tutorial package was not significant. This result is supported by Yusuf (2004) who stated that gender has no impact on learning. In the same light, Chado (2009) posits that computer is gender friendly. This shows that computer tutorial package is not gender biased in teaching English language spelling using alphabet A-J.

**Table 5: Male and Female Pupils Mean Achievement Scores when taught English Language Spelling using alphabet A-J with CAI Drill and Practice Package.**

Expt. 2 (Computer Drill and Practice)	Gender	N	Pretest		Posttest		Mean Gain
			Mean	SD	Mean	SD	
	Male	28	19.00	3.01	55.00	7.92	<b>36.00</b>
	Female	32	20.81	2.82	54.56	6.47	<b>33.75</b>
	Total	60	19.97	3.03	54.77	7.12	<b>34.88</b>

Table 5 shows male and female pupils mean achievement scores when taught English language spelling using alphabet A-J with computer drill and practice instructional package. Male mean score 55.00, SD 7.92 and Female mean score 54.56, SD 6.47 respectively. The male mean achievement score of pupils is higher than that of the female. The mean gain of male pupils is 36.00 while that of their female counterparts is 33.75. This suggests that both female and male

pupils achieved almost equally when taught English language spelling with alphabet A-J using computer assisted drill and practice package.

**Table 6: Summary of ANCOVA for Achievement Scores of Male and Female Pupils taught English Language Spelling using alphabet A-J with CAI Drill and Practice package.**

Source	Type III Sum of Squares	Df	Mean Square	F	Sig.	Decision
Corrected Model	3.294	2	1.647	.031	.969	
Intercept	3721.299	1	3721.299	70.954	.000	
Pretest	.436	1	.436	.008	.928	
Gender	1.997	1	1.997	.038	.846	NS
Error	2989.439	57	52.446			
Total	182956.000	60				
Corrected Total	2992.733	59				

Not Significant ( $p > 0.05$ )

Table 6 shows that F value (.038) has a probability value of .846. Since P-value .846 was greater than 0.05 level of significance, the null hypothesis H03 was retained. Therefore, pupils taught English language spelling using alphabet A-J with computer assisted drill and practice package revealed that there was no significant difference in the mean achievement scores of male and female. This shows that computer drill and practice package was not gender biased in teaching English language spelling using alphabet A-J. This is further confirmed by the result on table 6 which indicated that treatment using computer packages produced no significant difference on gender. This result agrees with Chado (2009) who stated that computer is gender friendly. The study also revealed no significant difference in terms of gender achievement.

### Conclusion

Findings in this paper provides empirical evidence, that computer assisted tutorial, drill and practice instructional packages enhanced pupils achievement in English language spelling more than the use of lecture method. Secondly, English language spelling using computer packages (Tutorial, drill and practice) has no significant effect on gender achievement.

### Recommendations

The following recommendations were made based on the findings of this study.

1. Since the use of computer assisted tutorial, drill and practice instructional packages enhances achievement of pupils' in English language spelling, the English language primary school teachers should use it as one of the strategies to be employed in classroom teaching and learning.
2. Workshops / Seminars should be organized by the Government for primary schools English language teachers to enable them learn how to develop software packages and also learn how to use computer in teaching English language especially spelling and other topics in English language.
3. Primary school teachers should be encouraged to be computer literate. This will enable them to appreciate and use computer instructional packages to promote effective teaching and learning among others.

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