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## Effects of Instructional Materials on Performance of Pupils in Team-Taught Classes in Multi-Grade Rural Primary Schools in Rivers State

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By

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### **Abstract**

*This study focused on the effects of instructional materials on performance of pupils taught with team teaching method in multi-grade rural primary schools. Sixty (60) pupils were randomly selected from multi-grade rural primary schools in Okrika Local Government, Rivers State. The quasi-experimental research design was adopted in carrying out the study. The experimental group was taught with instructional materials while the control group was taught with chalk and talks alone. Pre and post test were administered on both groups before and after the treatment. The data generated were analyzed and two hypotheses were tested using *t*-test statistics at 0.05 level of significance. A significant difference existed between the post-test performance of pupils in the experimental and control groups. However, no difference existed between the post test performance of male and female pupils in the experimental group. Based on the findings recommendations were made.*

Multi-grade teaching is taken to be a set of techniques that allow a teacher to deliver effective instruction to group of pupils of various grades, ages and abilities in the same classroom with the same teacher. The structure of a multi-grade classroom according to Tsolakidis, Contantatinidi, Sotiriou, Orfanakis (2005) and Thompson in Ogwo (2005) essentially involves deliberate combination of different grade levels or age groups into one class.

In multi-grade schools, one, two or three teachers may offer a full six year primary cycle in schools with one, two or three classrooms. This practice is distinct

from the mono-grade classroom where the policy provisions such as the National Policy on Education or administrative practice dictate grouping people based on assumed homogeneity of ability or age (Little, 1995). However, it is note worthy that a good multi-grade primary school can be as effective and efficient as mono-grade schools. According to Okujagu (2007) features that are characteristic to multi grade teaching include small rural schools, small teacher-pupils ratio and limited classroom space. Essentially, one teacher is required to teach more than one grade in the same classroom at a time in a multi-grade school.

At this level of schooling, teacher's ability to use a variety of instructional materials and a combination of teaching methods, and to manage group learning is at the core of multi-grade teaching. This means that the teacher understands the need for careful preparation of lessons and schedules and that he is able to organize teaching and learning around a variety of learning modes such as individual and group learning, peer-tutoring and class work. In addition, availability of books and other learning materials and teacher support services are critical to success in teaching and learning at this level of schooling. Multi-grade schools apart from service to areas that are thinly populated, also help to create educational opportunities for girls by bringing schools closer to home and meeting the needs of children in migrant fishing communities.

Considering the nature of multi-grade primary schools, there is a cogent need for the application of instructional materials to achieve effective teaching and learning which will be evident in pupil's performance. According to Okorie (1996), instructional materials include those materials and devices used in learning situations to supplement the written or spoken words in the transmission of knowledge, attitude and ideas. Oforma (1994) saw it as materials that facilitate the attainment of the lesson objectives. Mangal and Mangal (2009) conceived instructional materials as being associated or concerned with determining and providing appropriate stimuli to the learner to produce certain types of responses for making learning more effective. Therefore, instructional materials could be seen as those devices which the teacher employs in the process of teaching and learning to achieve the lesson objectives. It is therefore pertinent to identify the effects of instructional materials in the performance of pupils in multi-grade schools.

### **Statement of Problem**

This study was carried out to answer the question, "what is the effect of instructional materials on performance of pupils involved in team taught classes in multi-grade primary schools?"

### **Purpose of the Study**

The main purpose of this study was to determine the effect of instructional materials on performance of pupils in team taught classes in multi-grade primary schools. Specifically, the study was to determine whether:

- i. pupils taught Mathematics with team teaching method using instructional materials will perform better than those taught without instructional materials using the same method in multi-grade primary schools.
- ii. any difference exists between the performance of male and female pupils taught Mathematics with team teaching method using instructional materials in multi-grade primary schools.

### **Hypotheses**

The study was guided by the following hypotheses.

1. There is no significant difference between the post-test performance in Mathematics of pupils taught with team teaching method using instructional materials and those taught without instructional materials in multi-grade primary schools.
2. There is no significant difference between the performance of male and female pupils taught Mathematics with team teaching method using instructional materials in multi-grade primary schools.

### **Design of Study**

The study adopted the pre-test, post-test, quasi-experimental research design.

### **Population and Sample**

The population of this study was composed of one hundred and eighty (180) pupils in the eight (8) small-sized multi-grade primary schools in Okrika Local Government Area of Rivers State. A sample of sixty (60) pupils was used for the study, with thirty (30) pupils drawn into each of the experimental and control groups. Each group comprised of fifteen (15) male and fifteen (15) female pupils selected through simple random sampling.

### **Instrument for Data Collection**

The data required for this study was collected through a 30 item researcher-made objective test drawn from the topic taught to the pupils using team teaching method. The instrument was used for the pre-test and post-test. The instrument had 0.5 difficulty index and 0.42 discrimination.

### **Validity/Reliability of Instrument**

The validity of the instrument used for data collection study was determined by expert judgment of three (3) Mathematics teachers and two (2) experts in measurement and evaluation. The reliability of the instrument was determined using test-retest

method with two weeks interval using pupils with the same characteristics as the sample for the study. A reliability co-efficient of 0.78 was determined for the instrument using Pearson's Product Moment Correlation formula. This was accepted as being convenient for the study.

### **Administration of Instrument**

The two groups used for the study were pre-tested to ensure that they were of the same cognitive level. The experimental group was taught mathematics using instructional materials as specified in their lesson plan by the mathematics teachers while the control group was taught without instructional materials as specified by their teachers in their lesson plan. After two weeks of lessons, a post-test was administered to the two groups.

### **Data Analysis Procedure**

The pre-test and post-test were scored over hundred percent (100%). The data were collected and the hypotheses tested using t-test statistics at 0.05 level of significance.

### **Result of Data Analysis**

Hypothesis 1: There is no significant difference between the post-test performance in mathematics of pupils taught with team teaching method using instructional materials and those taught without instructional materials in multi-grade primary schools.

**Table 1: Summary of T-Test Analysis of Post-Test Performance of Pupils Taught with Instructional Materials and those Taught Without.**

<b>Group</b>	<b>N</b>	<b>Post-Test Mean Score</b>	<b>S.D</b>	<b>Dd</b>	<b>ft-cal</b>	<b>t-0.05</b>	<b>Remark</b>
Expt. Group	30	63.0	18.4				Reject
Control Group	30	42.0	12.1	58	5.25	1.645	Null

Data in table 1 shows that the t-test calculated value (5.25) is greater than the t-test table value (1.645) at 0.05 level of significance. Based on the result, the null hypothesis is rejected at 0.05 level of significance.

Hypothesis 2: There is no significant difference between the performance of male and female pupils taught mathematics with team teaching method using instructional materials in multi-grade primary schools.

**Table 2: Summary of T-Test Analysis of Post-Test Performance of Male and Female Pupils.**

<b>Group</b>	<b>N</b>	<b>Post-Test Mean Score</b>	<b>S.D</b>	<b>df</b>	<b>t-cal</b>	<b>t-0.05</b>	<b>Remark</b>
Males	15	60.0	18.1				Accept
Females	15	63.0	17.9	28	0.455	1.645	Null

Data in table 2 shows that the calculated t-test value (0.435) is less than the table value at 0.05 level of significance. Based on the result, the null hypothesis is upheld at 0.05 level of significance.

### **Discussion**

The study revealed that pupils in classes team-taught Mathematics with instructional materials had better performance than their counterparts taught without instructional materials though they were of the same cognitive background/level. This improved performance is due to their interaction with the concrete materials applied in the teaching-learning situation. This result is in line with the opinion of Okujagu (2007) who noted that, the use of instructional materials by team teachers in multi-grade primary schools improved academic achievements.

The research also revealed that, the application of instructional materials in teaching in multi-grade primary schools removes the performance differences associated with male and female pupils in Mathematics as revealed by the result of this study which is in agreement with the work of Elijah (2000) who discovered nullification of the attendant achievement gap between male and female students as a result of usage of instructional materials.

### **Conclusion**

This study took a look at the effect of instructional materials on performance of pupils in team taught classes. Multi-grade primary schools in Okrika Local Government Area of Rivers State were used for the study. Quasi-experimental research method (pre-test and post-test/control group) was applied in carrying out the study. The result showed that there existed a significant difference between the post-test performance of pupils in team taught classes with instructional materials and those taught without instructional materials in multi-grade primary schools. No significant difference was found in the post test performances of male and female pupils taught with instructional materials.

### **Recommendation**

The following recommendations are made based on the result of the study.

1. Teachers in multi-grade primary schools should use instructional materials in the teaching and learning situations.
2. Multi-grade teachers should be expected to the tenets of team teaching techniques.
3. Multi grade teachers should resort to improvisation of instructional materials in the absence of the original ones.

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