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A Survey Of The Place Of Instructional Materials Among Primary School Teachers As A Panacea For The Effective Teaching And Learning Of Primary Science In Cross River State

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Abstract
The study is a survey of the place of instructional materials among primary science teachers as a panacea for effectiveness in the teaching of primary science. 100 questionnaires were produced and administered to 100 primary science teachers from five local government education authorities in Cross River State. Simple percentage was used as method of data analysis. The result obtained revealed that most of the schools lack basic instructional materials for teaching primary science. It also exposes the fact that most primary science teachers lacked competence in the use of instructional materials for teaching primary science. It also exposes the fact that most primary science teachers lacked competence in the use of the instructional materials available in their school. Based on these findings, some suggestions and recommendations were made to improve on the teacher's competence and effectiveness in primary science teachers for better performance.

The teacher is the most important single determinant of what take place in any classroom. According to Marinho as cited by Ekpo and Udo (2014) the teacher's local

performance in the classroom is a function of his training experience and mutual flair. Quality education in schools is transmitted through well- planned curriculum that is based on learning outcomes and mediated through skillful and well prepared teachers. No matter how good and well planned a curriculum may be, lack of interest and lack of adequate knowledge of the subject matter as well as lack of instructional materials to work with can militate against it successful implementation (Oluwale, 1992). In the national policy of education, the federal government emphasized the aims of primary education part of which is: the laying of a sound basis for scientific and reflective thinking. (FRN, 2004).

The aim above cannot be achieved without a firm and sound foundation of science at the primary school level. Despite all the measure taken by government to improve science teaching and learning, students did not performed well because to them science seems unreal, vague uninspiring and meaningless (Nwoji, 1999). Jagede, (1996) observed that the unsatisfactory performance of students in science reflect how well they understood science concepts.

According to Maduabum (1991) as cited by Nwoji (1999)children should be given the opportunity to experience science by "doing science" using variety of learning resources. These learning resources are models, postal's, pictures, charts, empty tins, cups, empty match boxes, jars, measuring cylinders, bunsen burners, beakers, stove, radio, television, chemicals, candles etc.

Researches carried out of various learning materials for teaching science subject proved successful. For example, a study carried out by Nwoji (1999) on evaluating the use of learning resources for science education reveals that the use of learning materials will enable the learner to acquire basic scientific knowledge, skills, values and attitudes which will prepare them for a better living condition and participation in economic development in later years. Jegede (1996) found audio-tape instruction and slide very useful in teaching Biology than the conventional method alone. In a study carried out by Onyegegbu (2001) it was discovered that video-tape instruction was more significant than the audio taped in the teaching-learning and understanding of schistosomiasis among SSII students.

In view of the above discussion this paper intends to make a survey of the place of instructional materials among primary school teachers as a panacea for the effective teaching and learning of primary science. The study intends to find out:

1. The availability of instructional materials for teaching of primary science.
2. Teachers competences in the use of instructional materials.

Research Questions

The study intends to provide answers to the following questions

1. Are instructional materials available for the effective teaching and learning of primary science in the schools studied?
2. Are the primary science teachers competent in the use of these materials?

Method and Procedure

In this section of the paper, the authors discussed the following sub-headings, Design, Population, Sample and Sampling methods. Others are instrument for data collection, validation of the instruction, its administration and procedures for data analysis. The details are as follows:

Research Design

A survey research design was adopted based on the fact that it was, and still is, the most appropriate in handling a study that involves a large and scattered population in a natural settings (Agbo, 2006).

Population

The human population consists of 100 primary science teachers from 10 local government education authorities in Cross River State.

Sample and Sampling Methods

Of the 10 local government education authorities, 100 science teachers were sampled. This represents 10% of the entire population.

Simple random sampling method without replacement was used. The details of the method used are beyond the scope of this paper for want of space.

Similarly 50% or ten of the primary schools were sampled using simple random and stratified sampling methods.

A total of 100 teachers were randomly sampled. The choice of the random sampling method was considered the most appropriate because it gives every prospective respondent or subject on equal opportunity of either being selected or rejected (Agbo, 2006). The use of stratified sampling method was based on gender and type of primary school.

According to Agbo (2006), Murray (2010) and Musa (2009), stratified random sampling mention is considered to be the most suitable in a dichotomous population because it ensure that all the various strata are given a fair representation, despite unequal population.

Instrument for data collection and validation

A structured (check list) for close- ended questionnaire comprising 18 items was used as an instrument for data collection.

A five point rating scale was used for the response by the respondents. Thus very highly applied or (VHA), 5 points, highly applied (HA) 4 points. Moderately applied (MA), 3 points, poorly applied (PA) 2 points and very poorly applied (VPA) 1 points.

A draft copy of the instrument was given to experts in test, measurement and evaluation in the school of education, Akamkpa as well as those in the faculty of education, university of Calabar for face and content validation. A reliability correlation coefficient (r) of 0.92 (r=0.92) was obtained using a test re-test method. This is considered a very high reliability coefficient (Popham, 2006).

Administration of the Instrument

A total of 100 copies of the instrument was produced and administered to the respondents directly by the researchers and his three assistants one from each Local Government Area. The distribution was as follows:

1.	Boki L.GA	20
2.	Ikom L.G.A	20
3.	Obubra L.G.A	20
4.	Yakurr L.G.A	20
5.	Biase L.G.A	20
Total		100

The exercise lasted for two weeks.

Procedure for Data Analysis

A total of 100 copies of the questionnaire were correctly filled and returned. This represents 95.6% and built into simple frequency table. Both descriptive and inferential statistical tools were used in data analysis.

These include frequency f, percentage (%) mean ($\bar{x}$) and chi-square ($\times^2$) respectively. The x^2 was used to test the null hypotheses for significance. Alpha level was set at 0.05 or otherwise of the hypotheses.

The detail are as shown in the result $x^2 = £(\frac{fo-fe}{fe})^2$

Where

E	=	Summation
fo	=	Frequency observed
Fe	=	Frequency expected

Results: the results are presented as shown in the tables

Research Question 1

Are instructional materials available for effective teaching and learning of primary science in the schools studied.

Below is the availability of instructional materials table in the school studied.

S/No.	Instructional Materials	Availability	Not Available
1	Candles	0	100
2	Bunsen Burner	0	100
3	Funnels	0	100
4	Filter paper	0	100
5	Jars/Cylinder	0	100
6	Conical Flasks	0	100
7	Battery	0	100
8	Bulb	0	100
9	Switch	0	100
10	Tripod stand	0	100
11	Matches	0	100
12	Vertebral bones	0	100

13	Scalpel	0	100
14	Spatula	0	100
15	Beaker	0	100
16	Stove	0	100
17	Water bath	0	100
18	Incubator	0	100
19	Radio	0	100
20	Television	0	100
21	Video tape	0	100
22	Projector	0	100
23	Test tubes	0	100
24	Prism glass	0	100
25	Ray box	0	100
26	Dissecting kits	0	100
27	Charts	0	100
28	Pitchers	0	100
29	Posters	0	100
30	Models	0	100
31	Improvised materials	0	100

Table 1 above indicate that filter papers, tripod stands, vertebral bones, scapel, spatulas, water bath, incubators, television, video-tape, projector, test tubes, prism glass, ray box and dissecting kits are not available (O) in the school studied. On the other hand, candles (20) Bunsen burners (5) funnels (10) jays cylinders (10), Radio (20) and models (5) are available in varied and scantly quantity. Except charts (70), pictures (60) and posters (60) are available in good quantities in most of the schools.

Research Question 2

Are the primary teachers component in the use of these instructional materials?

Table 2: Competency assessment of teachers in the use of the instructional materials for teaching primary science.

Below are some instructional materials the teachers are component is using.

S/No.	Instructional Materials	Competent	Not Competent
1	Candles	100	0
2	Bunsen Burner	0	100
3	Funnels	100	0
4	Filter paper	100	0
5	Beaker	100	0
6	Water bath	0	100
7	Incubator	0	100
8	Radio	100	0
9	Video tape	0	100
10	Projector	0	100

11	Prism glass	0	100
12	Ray box	0	100
13	Dissecting kits	0	100
14	Charts	100	0
15	Pictures	100	0
16	Poster	100	0
17	Model	100	0
18	Chemical	100	0

Table 2 above show that all of the respondents agreed that they are not competent in the use of Bunsen burners, water bath, incubators, video tape, projectors, glass prisms, ray box, dissecting kits and chemicals. The table also revealed that some of the respondents agreed that they are competent in the use of only candles (100), funnels (100), filter papers (100), beakers (100), radio (100), charts (100), posters (100), pictures and models (100).

The result of this study show that most of the teachers do not have the basic competence in the use of instructional materials for the teaching and learning of primary science such as water bath, incubators, video tape, projectors, glass prisms, ray box, dissecting kits etc. This agrees with Owong, (1997), Ogwuche, (1999), Nwoji (1999), that teachers use mostly lecture method in teaching science. The unavailability of instructional materials could be responsible for the incompetence of the teachers to not only use them but their inability to effectively teach science as a "doing subject" as observed by Maduabam (1991). The provision of instructional materials, qualified teachers, laboratory and so on will undoubtedly enable the learner to acquire basic science skills, knowledge, values, attitudes which will prepare them for a better living condition and participation in national development in later years. Pupils should be given the opportunity to experience science by doing science, should be provided with instructional materials required to give them such opportunities. Lack of instructional materials in primary schools can surely lead to poor acquisition of the knowledge of science and poor performance in primary science.

Conclusion

The researchers hope that if instructional materials are made available and the teachers are well trained, the standard of science education, primary science in particular will be enhanced for national development.

Recommendations

1. Teachers should be given in-service training and sponsored to attend seminars, workshops and conferences on primary science method and the use of instructional materials to increase their competency and effectiveness in primary science teaching.
2. Government should provide science laboratories and instructional materials to schools for an effective teaching-learning of science to take place.
3. Incentives, motivating salary and science allowance should be given to teachers to serve as encouragement for better performance.

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