

## An Investigation of the Level of Improvisation and Management of Local resources Materials for Teaching and Learning Primary Science in Lapai Local Government Area of Niger State

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### Abstract

This paper investigate the level of improvisation and management of local resource materials for teaching and learning of science in primary schools. This was bored out of the continuous decline in the number of science students at secondary schools and higher institutions of learning in this country. The study was carried out in four randomly selected primary schools in Lapai Local Government Area of Niger State. Two research questionnaires were formulated for the investigation to collect information from the teachers and students in the selected schools. Data collected were analyzed using simple percentage and the result showed that the level of improvisation and utilization of local materials in the schools were very low and this leads to low level of student's interest in learning of science in primary schools. Based on the findings some recommendations were made to create and sustain students' interest in the subject.

**Keywords:** Improvisation, Management, local resources materials.

### Introduction

Education basically involves teaching and learning. Hence, all educational programmes must be geared toward effective teaching that will make students to learn. At primary level students learn best when they are allowed to interact with concrete objects whether real object or its close substitute. However, in recent past, observation revealed that the subject science is gaining more popularity but the actual students' performance in the subject especially at the primary school level is declining. Many reasons have been deduced for this negative trend. Ema (2002). Some of the reasons are:

- a) Lack of adequate equipments and materials.
- b) Lack of qualified teachers in the area of science in primary schools.
- c) Lack of finance to procure necessary media.
- d) Teachers' inability to improvise for materials that are necessary but not readily available in schools.
- e) Inability of teachers to make use of concrete objects that the students can easily interact with.

Educational system in Nigeria is witnessing some changes aimed at making education more functional and entrepreneurial. Today, emphasis is laid on functional education that would prepare students to live in and contribute effectively in solving the problems of the society. However, our society requires adequate human and material resources to improve its social organization, preserve the culture, enhance economic development and reform the political structures. Ema (2006). To achieve these goals, there are its objectives, methods of instruction and effective use of instructional media.

The reorientation of science context and methodology in preparing students for living is important to enable students understand and find solution to such problems as pollution, erosion, deforestation, individual development, health, transportation and others which are encountered in everyday life. Devey (1992) a philosopher stated that "man is the measure of

all things and whatever will enhance his learning ability must be creative enough and help the child to do the value of instructional media cannot be underrated in the teaching process. Chorley and Hagget (1987) stressed that learning resources are used to describe reality, which is generally complex by promoting communication and adoption of scientific ideas from one discipline to another and this will enable dissolve bits of empirical data to be organized into a broader conceptual skill visualized studied and comprehended.

Okunrotifa (1981), illustrates the significance of learning resources in the learning process as follows: they make teaching more lively and learning more permanent; they enable students gain direct experience and develop student physical reasoning and their thinking ability; they widen the student horizon on relevant topics which otherwise cannot be brought to them through ordinary teaching. They also develop in the students the spirit of adventure and give student ideas, comprehension of the verbal materials and have emotional effects on the students by affecting their attitude toward what is portrayed.

Due to increase in price and difficulties involved in the importation and manufacture of the real media, there are only very few of them in our schools, even those that are available are badly managed and obsolete. Hence there is the need to look for substitutes which called for improvisation. Improvisation simply means looking for substitute or alternative when the real material is not readily available as at the time it is needed.

Oguniyi, Fafunwa and Okebukola (1981) see improvisation as the "Art of substituting for the real thing", it can be regarded as the making of teaching and learning materials from locally available resources. It can also be defined/described as the instructors and students efforts to supplement, substitute, devices, mean of materials and equipment for teaching and learning. It involves composing or making the best use of materials at hand or thinking of an alternative means of complementing existing materials in the school.

Improvisation involves the skill of creativity, observation drawing, designing, painting, constructing and electronic technology. Also the production of improvised materials involve the activities of the teacher, carpenters, artists, electricians and others that may be required for the production of the material in question. According to Oladimeji (1978), Fatubarin (2001), the use of the improvised material is an activity which ensures effective learning rather than passivity. It engages the student throughout the lesson. Students will touch and feel the materials. Things viewed are easily recalled and learning becomes permanent. The materials provide to the students cognitive bridge between abstraction and reality of knowledge. Adetumberu (1984) emphasized that the success of the use of any teaching method depends on the availability of teaching/learning media. Adegunde (1986) sees the management of local materials resources as the use of appropriate teaching strategies combined with adequate teaching learning aids or resources. Management of local resources in science is the process whereby science can be effectively taught through a series of alternative methodologies and learning styles that are based on approaches. According to Adeboyeji and Afolabi (1991), the usefulness of any learning resources or local materials in the classroom depends on what the teacher makes out of it, and unless the teacher uses the learning resources effectively by directing the students' attention to what they should look for, it will not serve its purpose.

Depending on the form of the learning resource, the teacher must determine whether such resource, the teacher must determine whether such resource would be used on individual or group basis since poor management of learning resources can cause disorderliness in the classroom, the teacher must manage the resources in such a way that every student in the classroom will have equal opportunity of either using the materials or seeing it.

Towards effective management of local materials, the teacher could employ the following measures:

1. The material could be placed on a raised platform in front of the class.
2. It could be hanged on the chalkboard to be seen by all students.

3. The teacher can call the students row by row to the front to see the material.
4. The material could be profusely improvised, so that every student will have his own to work with.
5. Also the materials can be passed round for the students to observe, touch and feel.

It is true that without the necessary equipments materials the teacher can neither start nor complete commenced prefects. According to Alonge (1980), Ajayi (1988), it is necessary to improvise the following reasons:

- a. Improvisation helps in the explanation of the locally available materials.
- b. Improvisation helps to achieve some of the objectives in science which is the willingness to explore the environment. Students are able to learn outside the classroom.
- c. It makes the students realize that equipments for practical works does not need to do factory made nor do they have to be of high precision in their utility during the cause of practical lesson.

### **Research design**

The study adopted a survey research design. A survey research according to Akuezilo and Agu (2003) is one in which a group of people or items are studied by collecting and analyzing data from only a few people or items considered to be representative of the entire group. This method is appropriate for the present study because it involved collecting information from a sample of improvisation of local materials for the teaching and learning of science in primary schools.

### **Area of the study**

The study was conducted in Lapai Local Government area of Niger State. The state is one of the states in the North Central geo-political zone of Nigeria. There are 25 Local Government Areas in the state. These Local Government Areas are similar in many respects as they share common boundaries.

### **Validation of the instrument**

Two experts in the Department of science education and one expert in Niger State primary education board subjected the instrument to face validation. The twenty questionnaires for the teachers and twenty questionnaires for the pupils were submitted and validated by these experts.

### **Instrument for data collection**

The instrument used for data collection was a research prepared questionnaires. It consist of questions with Yes or No options.

### **Statement of the problem**

The level of improvisation and management of local materials for the teaching and learning of science in primary schools in Niger State has been quite unsatisfactory over the years Zubairu (2004). However, little effort has been made to improve the situation Ema (2006). Yet these led to lack of interest in studying science by the pupil's right from primary school level.

### **Purpose of the study**

- The purpose of this study is to:
1. Find out the level of improvisation and management of science materials.
  2. How improvised materials will aids the teaching and learning of sciences at primary school level in Niger State, Nigeria.

### Significance of the study

This study is significant in many ways, first and foremost it is hoped that this research effort will be of immense benefit to the Science teachers, the major players in curriculum implementation through teaching. In addition, good teaching helps the learner to learn move qualitatively and quantitatively (Peter 2005). Also with improvisation of science materials, pupils will have access to see what they are learning in concrete term which will arouse their interest.

### Population

The population for this study covered one hundred (100) primary was by randomly selecting 10 (ten) primary schools in Lapai Local government Area in Niger State. Two teachers and 10 students were then selected from each of the selected schools. Two-twenty item questionnaires were prepared by the researcher and validated by two of the science lecturers in Niger State College of Education, Minna.

A. Teachers' questionnaire

B. Students' questionnaire

The questionnaires were distributed to the respondents and collected by the researcher. These responses represent the data to be analyzed.

### Data Analysis and Result

The data collected was analyzed by using simple ratio and percentage.

**Table A: Teachers' Responses**

S/N	Item	Yes Total	Yes %	No Total	No %
1.	Is the use of instrumental media is important in the teaching and learning of science?	18	90	2	10
2.	Do you have enough media for the teaching and learning of science in your school?	6	30	14	70
3.	The ones that are available are still in good working condition.	7	35	13	65
4.	The available ones are adequate for the students' population.	4	20	16	80
5.	Do you always use the available ones during teaching?	3	15	17	85
6.	Are you a trained science teacher?	2	10	18	90
7.	Are you aware of concept of improvisation?	16	80	4	20
8.	Have you ever done special course on media production/improvisation?	4	20	16	80
9.	Are you interested in improvisation of teaching/learning media in science?	6	30	14	70
10.	Do you consider the use of local materials to be safe?	8	40	12	60
11.	Do you find teaching to be interesting when you make use of instructional media?	14	70	6	30
12.	Do you think that improvised media can aid teaching and learning?	8	40	12	60
13.	Are you aware that students learn better when they are actively involved?	13	65	7	35
14.	Do you allow your students to see, touch and feel some materials while teaching?	10	50	10	50
15.	Do you take your students around the school to collect relevant local materials?	7	35	13	65
16.	Do you regularly ask students to bring some local	5	25	15	75

	materials from home?				
17.	Is your head teacher always ready to assist you when you need his/her assistance for improvisation?	4	20	16	80
18.	Students always respond positively when you ask them to be using local materials.	12	60	8	40
19.	Do you always improvise for important media for teaching science?	6	30	14	70
20.	Are your students interested in learning science?	7	35	13	65

**Table B: Pupils in Primary Schools**

S/N	Item	Yes Total	Yes %	No Total	No %
1.	Are you allowed to touch any material during science teaching?	15	30	35	70
2.	Does your teacher give you roles to play either as a group or individually in science classes?	12	24	38	76
3.	Is your teacher found of using teaching bonds in the class?	15	30	35	70
4.	Does your teacher regularly bring local materials into the class while teaching?	5	10	45	90
5.	Does your teacher ask you to bring some materials to be used from home?	7	14	43	86
6.	Do you enjoy your lesson when you are taught without media?	8	16	42	84
7.	Are your parents interested in assisting the school to provide some local materials?	25	50	25	50
8.	Have your science teacher been coming to the class with some materials instead of the original ones?	12	24	38	76
9.	Your teacher used to group you to observe, handle or operate some media.	10	20	40	80
10.	Have you been doing some practical works during science in your school?	2	4	48	96
11.	Do you have enough wall charts or any other diagrams that are related to science in your school?	12	24	38	76
12.	Are you motivated by your teacher to study science at higher level?	15	30	35	70
13.	Are all the teaching/learning materials in your school new?	5	10	45	90
14.	Have your science teacher been taking you around the school to collect some materials for study?	8	16	42	84
15.	Do you know that some of the materials to be used for learning science can be found within the school compound?	8	16	42	84
16.	Do you know that science can be found within the school compound?				
17.	Do you attend science class regularly?				
18.	Do you enjoy your science class?	15	30	35	70
19.	Do you have relevant science text books?	10	20	40	80
20.	Will you like to study science in secondary school and university?	8	16	42	84

## **Discussion**

From the analyzed data it is clear that the students responses showed that they do not attend science classes regularly and there are no enough teaching aids for them to interact with hence they do not have any active role to play during teaching and learning. It also showed that their teachers do not use to come to class with instructional materials nor do they make use for any local materials in the class. The report also showed that students were not usually asked to bring any material to the class, there are very few materials (few wall charts also that they were not allowed to move round the school compound to collect some local materials and hence they were not aware that there are some teaching aids within their school compound. The students asserted that they enjoy their class work when there are materials for them to interact with and their parents are ready to support the school to procure some of these materials. They also agreed that science is very important to life but that since they were not motivated they are not ready to study it at higher levels of their education.

Responses of the teachers showed that 88% of the teachers in primary schools were not specialists in Integrated Science. The report also showed that there were very few wall slants in their schools and that most of these materials were absolute and redundant and only 15% of the teachers rarely make use of the few available ones. Majority of the teachers (80%) are aware of improvisation and that the use of improvised materials can improve teaching and learning but that they were not interested in improvisation and did not ask students to bring any material from home. Also when the students are asked to bring materials from home, only a few of them will respond. Since most of these teachers are not science specialists, they find it very difficult to improvise for most of the materials that might be needed.

Some of the teachers (40%) considered the use of local materials to be safe and economical but failed to take the students around the school compound to see, touch and feel some of these materials in their natural habitat. They did not ask students to bring local materials to the school and occasionally when they are asked to bring materials only few ones will do. As a result 30% of the teachers claimed that they have laid good science foundation in the lives of their students.

## **Conclusion**

From the result of this research, it is very clear that the teachers, parents and the students realize the importance of improvisation and utilization of local materials for the teaching and learning of science in primary schools. So as to lay good foundation of the subject in them but that these teachers failed to use these materials due to fact that:

- Majority of them (88%) are not science specialists.
- They have shallow knowledge of improvisation.
- They are lazy and not ready to work.
- They cannot identify some of the local materials to be used.
- Many head teachers are not ready to cooperate with the few willing teachers at the appropriate time.

The students showed that they were taught the subject theoretically without the use of appropriate media either real, improvised or local. This made the subject to be very abstract to them and since they are not actively involved in the activities they loose interest in the subject.

The general result of this research showed that the level of improvisation and use of local materials by teachers and students in primary schools in Niger State is very low and these made the science foundation in our students to be "low" right from primary school.

## **Recommendations**

Based on the results of this finding, the following recommendations were profound.

1. That there should be subject specialization in primary schools so that science teachers alone are allowed to teach the subject.
2. Teachers should be sent to attend regular workshops and seminars on improvisation since it may not be easy for schools to have all the relevant instructional materials.
3. The government should budget special allocation for schools to be used for improvisation.
4. Teachers should try to identify all the local materials that they can use within their schools or their community.
5. Teachers should use all the available materials when teaching science so as to make the students to take active part in the lesson.

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