

Adequacy of Instructional Resources and the Teaching of Mathematics in the College of Education, Afaha Nsit, Akwa Ibom State

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Abstract

The study examine the relationship between adequacy of instructional resources and Teaching of mathematics in College of Education Afaha Nsit. Two research questions as well as two research hypotheses were formulated to guide the study. The study adopted a survey research design using the population of 100, comprising 20 lecturers and 80 year 2 students in College of Education. The sample sizes of 80 respondents were selected through simple random technique. A-30 item questionnaire was used for data collection from the respondents. The instrument was validated by three experts in Faculty of Education, University of Uyo, yielding a reliability co-efficient of 0.82. Pearson Product Moment Correlation Coefficient was used to answer the research questions and also to test the null hypotheses The result of the finding indicated that there is a significant relationship between adequate used of prints resources and audio-visual and the teaching of mathematics in College of Education, Afaha Nsit. It was recommended that educational institutions should make available to the students a qualitative instructional resources; such as textbooks, audio-visual resources, chat, map math, television and projectors for a continuous enhancement of students' academic performance.

Key Words: Instructional resources, learning, mathematics, teaching.

Introduction

Teaching mathematics is about educating learners and for the learner to be educated mathematically: they must acquire knowledge, skills and understanding. The process of teaching and learning therefore necessarily involves a two way communication between the teacher and the learner. The communication may be face-to-face or from a distance. Whatever forms the two-way communication takes, appropriate media of communication have to be used for effective teaching and learning of mathematics. Onyejemezi, D (2011),

Such media are usually referred to as teaching and learning resources. These resources whether they are real or representations, their main purpose is to improve the quality of teaching and learning. They make the learning content meaningful, preserve and extend knowledge to unlimited number of learners. These resources can be adequately or inadequately produced, both in terms of quantity and quality; they may or may not be effectively and efficiently distributed to schools and learners. For useful learning to occur, all learners in the various level of the nation's educational system should be provided with appropriate learning materials.

A systematic integration of a variety of mathematic resources in teaching-learning process or environment produces appropriate learning experiences, which in turn results in effective or meaningful learning. Experiencing is therefore, the process of acquisition of knowledge, skills, attitudes and understanding through active participation on the part of the learners. There exist in virtually every facet of Nigeria's educational system an acute, even embarrassing shortage

of mathematics instructional resources and facilities, and when available they are exceptionally of low quality. One word sum up the situation decay.

This decay is characterized by;

- I. Lack of concrete and authoritative support for replacement of obsolete resource and facilities.
- II. Inability to match the educational institutions with their peculiar circumstance.
- III. Persistent lack of appropriate and necessary infrastructural facilities necessary for the use of the resources and,
- IV. General absence of support service units personnel and services needed by resource agencies, teachers and learners for optimum production and utilization of resources.

This study aims to bring to the attention of all the stakeholders concerned with the need to address the inadequacy of instructional resources at the College of Education. The absence of relevant resources in the classrooms, lecture halls, laboratories, demonstration rooms and workshops left the teachers with the dominant method of teaching which has continued to be frontal teaching that is oral exposition “ teacher talk which averages 90% of all lessons” (Onyejemezi;2011).

The learners, on their own part, are faced with no option but memorization without understanding and the required competencies. Mathematics education, properly conceived and applied, requires all kinds of resources: human, financial and physical indeed, it has said that as far as mathematics education is concerned the whole world is a resource. When these are available desirable quantity, they usually have the following effect: encouraging the teacher and the learner to have easy and repeated reproduction of an event or procedure; provide visual access to a process or technique, provide common frame work or experience to a large number of learners; promote an illusion of reality; gain or hold the attention of the leaner; focus attention on highlights of key points and create impact (Suleiman, 2011).

Scarcity of these resources is partly responsible for the situation that prevails today where learners are programmed right from the start without the capacity to visualize in concrete terms the concepts learnt, as such are unable to do things practically, describing relationship between various objects accurately or apply themselves to challenging situations at the required time. But in spite of the overriding value of instructional media in increasing the effectiveness mathematics educational process, and the tragedy of the Nigeria situation is that they are invariably scarce or not available at all. Teachers are left with no choice but learn to do with less, improvise, innovate and invent. This work aims at looking into the adequacies of instructional resource/facilities of mathematics at the college of education and suggests various ways of how teaching and learning of mathematics can improve through the supply and use of appropriate instructional resources.

Abdullahi (2005) states that instructional resources refer to anything a teacher uses in teaching and learning situations from small stones, pieces of papers, small sticks, samples of leaf, chalk board, maps, charts, radio, television and computer. They are the vehicles that carry messages/information from a transmitting source, which may be human being, or inanimate object to the receiver of the message which in the teaching and learning environment are the students. Teachers need to realize that for them to inspire the education of their students, they must endeavor to employ teaching resources in the course of their lesson presentation. Teachers are free to use any relevant resources while teaching, such resources range from simple one such as pictures, charts, diagrams and models, television, video, projectors and computers.

These instructional resources are vehicle that carry messages/information from a transmitting source to the receiver of the message, which are the students in the teaching/learning environment. Such vehicles provide students with opportunities to use their sense, so that at the end of instruction students can perform teacher's stated objectives. Arolasafe, G. (2005).

Mathematics teaching at any level of education therefore, should never be deemed a "talk and chalk" affair. Today effective and meaningful teaching should be seen as a process in which the teacher and the learner are actively engaged. Both sides must be constantly contributing to the process of learning. If this process is to be fully realized each significant step should be baked up with learning resources/facilities, which are designed to make teaching easier and learning more meaningful. Instructional resources enable the teacher and the learner to have easy and repeated reproduction of an event or procedure, it promotes an illusion of reality, provides visual access to a process or technique, creates impact, focuses attention on highlight of key points, saves time by limiting the use of wordy explanations, gain and hold the attention of the learner, and facilitate the understanding of abstract concept (Ayodele, 2006).

At all levels of the nation's teaching and learning resources are indispensable factor in the attainment of goals. The utilization of instructional resources call into play the sense of sight and touch additionally. The more the number of senses involved in the instructional practice: I hear, I forget; I see, I remember; I do, I understand. The use of teaching – learning resources guarantee more effective learning as the learner hears, sees and does. It is therefore necessary to have resources and use them effectively in the classroom when teaching mathematics. According to Galadanci, B.S (2005): The main concern of a good teacher is to achieve his/her instructional objectives through effective teaching. When a teacher communicates effectively with the learners; they will understand and assimilate what they were taught. Effective teaching can only be achieved when appropriate instructional methods are combined with appropriate instructional resources by a professional teacher. Instructional resources are various forms of educational resources that teachers and learners can use to enhance understanding of concepts, skills and competences in the teaching – learning process.

Instructional resources are the perfect communicators that implicitly clarifies concepts knowledge and facilitates understanding for learners. Teaching – learning process without the use of relevant instructional resources can be regarded as tea without sugar or food without salt. Etuk, Udosen, Emah, Edem, & Afangideh, (2015), expressed need of instructional resources in teaching and learning when stated that instructional resources are article that carry messages/information from a transmitting source to the achieving end.

Classification of Instructional Resources could be obtained as follows,

1. Printed and non-printed resources.
 - a) Printed resources e.g text books, journals, posters.

Textbooks: The importance of good textbook cannot be overemphasized. Both the teacher and the learner make use of textbooks because they contain accumulated wealth of knowledge which he/she communicates to the student on the other hand, student themselves make use of the textbook, continue on their own in private studies both in school and at home with textbook, they gather more information that made by the teacher. With textbook, student can conveniently do their homework and assignment with textbook, student can validate certain points by the teachers.
 - b) Non-printed resources e.g chalk board, flannel board, models, 16mm film projector.
2. Audio resources, visual resources, audio-visual resources e.g.

- a) Audio resources e.g radio, audio tape, record players.
 - b) Visual resources e.g pictures, charts, maps, real things, model, mock-ups.
 - c) Audio-visual resources e.g instructional or educational television, 16mm and 8mm sound films.
3. Projected and non-projected resources
- a) Projected still pictures, films, slides insides and films strips, motion pictures films, overhead projector, opaque projector.
 - b) Non-projected resources e.g various forms of chalk board, flannel board, text books

Importance of Instructional Resources Etuk, et al (2015), cannot be over emphasized with the following advantageous values for both the teacher and the students;

1. They arouse the interest and curiosity of the learners.
2. They make what is being taught to be real thereby bridging the gap between theory and practice.
3. They supply a concrete basis for conceptual thinking and reduce abstraction of novel contents, learning experiences and concepts.
4. Instructional resources if properly used, stimulate the learners into engaging in other related useful activities such as further observations, modeling, reading, drawing etc.
5. Instructional resources enhance retention and remembering on the part of the learner.
6. They offer learners opportunity for independent and individualized learning.
7. They hold learners opportunity thereby helping them to remain focused in teaching-learning process.
8. The use of instructional resources conveniently accommodates the different learning styles of the learners or their differences or background.
9. The use of instructional resources especially those available in the immediate environment of the learners makes him appreciate the extent of nature's support for his effective learning.
10. The instructional resources help the teacher to do the work better and efficiently, their importance is based on the learners because they are effective means of learning with understanding in less time as well as a means of communication.
11. Instructional resources foster growth of meaning and vocabulary.
12. They help learners to get firsthand experience by looking at concrete things, living experiences and actual demonstration handling the apparatus and performing the practical themselves. The usefulness. The usefulness of instructional resources in the teaching learning cannot be over emphasized.
13. Studies have shown students retain the knowledge gained through a much longer time as compared with subject matter learnt in the in the absence of such instructional resources.

Mathematics is the most interesting subjects as far students are concerned, although it is a difficult. Mathematic is the easiest subject to score hundred marks, because steps and formula are considered most, and not the answer , since Mathematics is involve in all major subject like physics, chemistry and statistics, students should take utmost care to learn math. Curzon, L.B. (2004).

- 1 Adaptive reasoning is the most essential aspect in math and that is why

Children should be taught mathematics, with very strong base, in the introduction stage. Different nation's follow different ways of math teaching and in poor countries, kids are not provided with math learning equipment, which is a disadvantage for the school students. In present days, school have become commercial and program the syllabus, which is heavy for the kids.

- 2 Even mentally challenges kid and autism-affected children show special interest in learning math. In fact, they understand math better than other subject. Speech therapy specialists use math as base tool to teach kids, who are with disabilities. In practical like, math is not just a subject to learn, but it also supports kids to deal to deal with various situations. In recent times, mathematicians have made mathematics very interesting and kids are fond of learning math, with deep involvement.
- 3 Mathematics scholars provide various creative ideas, for the benefit of the students and very unfortunately, only a few global education institutions are implementing those innovation ideas. Modern math is not easy for kids to learn, without visual lessons. In fact, many international electronic Whiteboard manufacturers have upgraded the way of learning mathematics.
- 4 The developed modern math is based on the philosophies, which were formalized by ancient mathematic like aryabatta and others. This rich history of mathematics makes the subject unique, which has stood of the test of times, over past years. Unless kids are provided with the opportunity to have complete exposure to math, they may not be able reach their goals, or perhaps even decide their goals.
- 5 Mastering of mathematics at young age paves way for critical reasoning and thinking to cope up with the present global economic condition. For economists, who are in public making positions, math's helps to have holistic approach, while making important decisions, which determines the entire global smooth functioning.
- 6 Further learning of math inculcates creative as well as lateral thinking, which is highly essential, not only in schools, but also in difficult life situations, in fact, all employers believe that lateral thinking ability of candidates is far better than their technical skills and academic knowledge.

The word mathematics came from a Greek word which means science or study. Mathematics is "the branch of human enquiry involving the study of numbers, quantities, data, shape and space and their relationships, especially their generalizations and abstractions and their application to situations in the real world". Mathematics generalize new formulas or methods based on similar patterns for different branches of mathematics . Before teaching mathematics, every teacher should be informed well about the educational values of this subject. Proper teaching method should also be adopted according to the situation, learning environment and educational background of the students. It is very important to keep the motivational level of students high otherwise they lose interest in mathematics. Curzon, L.B. (2004).

Statement of the Problem

Mathematics is one of the most important subject in schools at whatever level, even in the higher institutions. In Nigeria educational system, it is compulsory that every student must score at least a credit in mathematics before gaining admission into higher institution. However, in the process of teaching mathematics, it appears that adequate instructional resources are not available for learning of the subject. It may be out of place to suggest that, this has resulted in students' poor performance in mathematics both in internal and external examinations. Students are not able to concretize abstract concept learnt, they cannot establish relationships between

concepts in mathematics and this often lead to perceived difficulty of mathematics among students. Some students are completely discouraged when it comes mathematics as a result of inadequacy and unavailability of instructional resources for teaching mathematics. The study therefore aims at investigating the adequacy of instructional resources for teaching mathematics in College of Education.

Purpose of the Study

Generally, the purpose of the study is to examine the adequacy of instructional resources for teaching mathematics at the College of Education, Afaha Nsit. Specifically, the study aims at;

- 1) Examining the adequacy of print resources for teaching mathematics in College of Education, Afaha Nsit, Nsit Ibom local Government Area.
- 2) Assess adequacy of Audio-visual resources for teaching mathematics in College of Education, Afaha Nsit.

Research Questions

- 1) What is the relationship between print resources and the teaching of mathematics in College of Education, Afaha Nsit, Nsit Ibom Local Government Area?
- 2) What is the relationship between audio-visual resources and the teaching of mathematics in College of Education, Afaha Nsit, Afaha Nsit, Nsit Ibom Local Government Area?

Null Hypotheses

- 1) There is no significant relationship between print resources and the teaching of mathematics in College of Education Afaha Nsit.
- 2) There is no significant relationship between Audio-visual resources and the teaching of mathematics in College of Education Afaha Nsit.

Methodology

This study adopted survey design. The survey design was found suitable for this study because questionnaire was used to collect data from respondents. The population was 100, comprising twenty (20) lecturers and eighty (80) 200 hundred level students from college of education Afaha Nsit. The sample size of 80 students was adopted using simple random sampling technique. A-30 item questionnaire title “Adequacy of Instructional Resources for Teaching of Mathematics” (AIRTMQ). The questionnaire was validated by three experts in the Faculty of Education, University of Uyo, and a reliability coefficient of 0.82 was established using Cronbach Alpha reliability technique. In answering a research questions and testing the null hypotheses, Person Product Moment Correction Coefficient (PPMC) was used.

Null hypothesis 1: There is no significant relationship between print resources and teaching of mathematics in Collage of Education Afaha Nist.

Table 1: correlation analysis of print resources teachings of mathematics

Variables	$\sum X$	$\sum X^2$	$\sum Y$	$\sum Y^2$	ΣXY	r.cal
Print resources X	260	13750			7150	0.96
Teaching mathematics Y			140	4050		

Significant at 0.5, $df=78$, critical $r =220$; calculated $r = 0.96$.

The result of the analysis show that the calculated r-value of 0.96 was found to be greater than the critical r-value of 0.220 when tested at 0.05 level of significance with 78 degree of freedom. This means that the result is significant. The result of the analysis thereby indicted that there is a significant relationship between print resources and teaching of mathematics, hence, the null hypothesis is rejected in favour of the alternative hypothesis.

Null hypothesis 2: There is no significant relationship between audio-visual resources and the teaching of mathematics in Collage of Education, Afaha Nist ,Nist Ibom Local Government Area.

Table 2: Correlation analysis of Audio-visual resources and teaching mathematics

Variables	$\sum X$	$\sum X^2$	$\sum Y$	$\sum Y^2$	ΣXY	r.cal
Print resources X	300	18250			5750	0.89
Teaching mathematics Y			100	2250		

Significant at 0.5 df=78 critical r=.220; calculated.

The result of the analysis indicates that the calculated r-value of 0.89 was found to be greater that the critical r-value of .220 when tested at 0.05 Level of significance with 78 degree of freedom. These mean that the result is significant. The result of the analysis thereby indicates that there is a significant relationship between print resources and teaching of mathematics, hence the null hypothesis is rejected in favour of the alternative hypothesis.

Results

The result of the findings revealed that there is a significant relationship between adequate used of prints resources and audio-visual and teaching of mathematics in College of Education Afaha Nsit.

Discussion of Findings

The findings revealed that all the null hypotheses were rejected which implied that there is a significant relationship between adequate used of instructional resources and teaching – learning of mathematics. This collaborate with (Suleiman,2011) who maintained that when resources are available in desirable quantity and quality, they usually have the following effects: encourage the teachers and learners to have easy and repeated reproduction of an event or procedure; provide visual access to a process or technique; provide common framework or experience to a large number of learners; promote an illusion of reality gain or hold the attention of the learner; focus attention on highlights of key points and create impact.

Conclusion

Based on the result of the findings, the study concluded that instructional resources could encourage teaching of mathematics not only in College of Education Afaha Nsit, but across the entire educational system.

Recommendations

Hence, the following recommendations:

- 1) That educational institutions should make available to the lecturers and students a quantitative and qualitative instructional resources; such as print resources, audio-visual resources to reduce abstraction to concrete learning .
- 2) Teachers as well as students should make use of approved mathematics instructional resources especially the textbooks

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