

ISSN: 0795 - 6061

ILORIN JOURNAL OF HEALTH PROMOTION AND ENVIRONMENTAL HEALTH EDUCATION

Volume 2,
No. 1,
Dec. 2016

A Publication of:
**The Department of
Health Promotion
And
Environmental
Health Education
UNIVERSITY OF ILORIN,
ILORIN, NIGERIA.**

CONTENTS

Page

1. Analysis of Bloom's Taxonomy learning variables in health education test items used in Universities, Edo State
— **Aideyan, Osarenwanta Daniel, M.Sc. (Ed) & Osayande, Eric Iyobo, (Ph.D)**..... 1
2. Assessment of the cleanliness and privacy of toilet facilities in secondary schools in Birni Kebbi Local Government Area, Kebbi State
— **Ajara, Taofiq Abiola (MPH), Bello, Abubakar Udulu, Ajara, Usainat, Kehinde & Sani, Ibrahim Ningi (M.SC.)**..... 10
3. Availability and utilization of instructional materials in the teaching and learning of perceived difficulty concepts in Senior Secondary Schools Mathematics Curriculum in Kwara State
— **Ameen, Saka Khadijat**..... 20
4. Awareness to health seeking behaviour of postpartum mental illness among pregnant women attending Ahmadu Bello University Teaching Hospital, Zaria antenatal clinic — **Olubiyi S.K, (PhD, M.Sc., B.Sc., PGDE, PGDDE, FWACN.), Issa B.A. (M.B.B.S., FWACS), Laitan, O. L. (PhD), Onasoga O.A. (M.Sc., B.Sc., FWACN.), Abubakar I. (M.Sc., B.Sc., FWACN.), Ibrahim. H. (B.Sc.)**..... 28
5. Effect of sexuality education on knowledge of contraception among adolescents of University Staff Secondary Schools in Rivers State
— **Akpan, U. S. & Briggs, L. A**..... 37
6. Factors influencing the choice of spouse among Masters of Education Degree Students, University of Ilorin. — **Adegoke, M.O., Amoo, R.O., Dibio, C.L. & Biliaminu, M.K**..... 44
7. Hospital waste management practices: A case study of primary health care centers, in Local Government Area, Kano State, Nigeria.
— **A.B. Umar, M.N. Yahaya, & A. Biu**..... 55
8. Knowledge and attitude of parents towards the sexuality education for Secondary Schools Students in Northern States of Nigeria
— **Adamu Abdulkareem Biu (Ph.D.), Professor, (Mrs) M. A. Suleiman & Professor, C. E. Dikki**..... 66

AVAILABILITY AND UTILIZATION OF INSTRUCTIONAL MATERIALS IN THE TEACHING AND LEARNING OF PERCEIVED DIFFICULTY CONCEPTS IN SENIOR SECONDARY SCHOOLS MATHEMATICS CURRICULUM IN KWARA STATE

AMEEN, SAKA KHADIJAT

Ameen.sk@unilorin.edu.ng

Science Education Department Faculty of Education, University of Ilorin, Ilorin, Nigeria

Abstract

The Study was aimed at finding out the availability and Utilization of Instructional Materials in the Teaching and Learning of perceived Difficulty Concepts in senior Secondary School Mathematics in Kwara State. The main objective of this study is to investigate whether or not the recommended instructional materials for teaching the identified perceived senior school mathematics concepts in the senior school mathematics curriculum were actually available and utilized by the teachers. A descriptive research design was adopted in carrying out the study Simple random techniques was used in selecting forty-nine (49) senior school mathematics teachers in the metropolis. Two research questions were raised, which among other things sought to know the available instructional materials for the teaching and learning of perceived difficulty concepts in mathematics. The instrument for data collection was a questionnaire which was validated by Mathematics Education lecturers. The test-retest reliability index of 0.69 was obtained. Data analyzed using frequency counts and percentages. Based on the findings of the study, it was recommended that the senior school mathematics teachers should endeavor to use all the recommended instructional materials for teaching all the identified perceived difficult concepts in the senior school mathematics curriculum and also the government should ensure that all the recommended instructional materials are available and assessable to all the all senior secondary schools in the metropolis.

Keywords: Instructional materials, availability, utilization, perceived difficulty concepts, mathematics curriculum teaching and learning.

Introduction

The importance of instructional materials in promoting meaningful mathematics learning cannot be underestimated. Mathematics in its abstract form needs

something to reinforce these abstract mental sciences (Odili 2006, 186). Also, Aramide and Bolarinwa (2010) posted that instructional materials have the potential for enhancing students' learning. Its role in teaching and learning is one of the most important and widely discussed issues in contemporary education policy. In order to improve the teaching and learning of perceived difficult concepts in mathematics in secondary schools, the teacher has to use instructional materials to deliver an effective instruction to his learners.

In pedagogical context, an instruction is a set of guidelines provided by a teacher in order to facilitate learning. The teaching aids provided by teachers during the course of instruction are referred to as instructional materials, such as the audio-visual aids, textbooks, relevant resource materials. In other words, any items or materials used by the teacher to deliver his/her instructions effectively are an instructional material. On the other hand, availability refers to how sufficient an item is at hand. Availability of instructional materials refers to how much instructional materials are at hand, to which teachers and learners have access to (Uzuegbu, Mbadiwe & Anulobi, 2013). On the other hand, utilization refers to the usage degree of a given materials in the execution of a given task (Uzuegbu, Mbadiwe & Anulobi, 2013). It involves creation of value in things (Asogwa, Onu & Anulobi, 2013). Utilization to a large extent judges the value of instructional materials by the degree in which it singly or collectively satisfied the derived instructional needs. The availability of the teacher to effectively utilize the available instructional materials optimizing the attainments of instructional situation which varies with the level of utilization. In other words, utilization can be view as the degree of the usage of an instructional material in the teaching and learning of the perceived difficulty concept in mathematics.

Instructional materials/resources are educational inputs that are vital to the teaching of any subject in the school curriculum. They are materials which the teacher uses in supplementing his/her teaching (Adeniyi, 2001). Also, Agbulu and Wever (2011) posited that instructional materials are important because they are used for the transference of information from one individual to another; help the teacher in extending his learner's horizon of experience, stimulate learners' interest and help both teachers and students to overcome physical limitations during the presentation of subject matter among others.

Instructional materials are relevant materials utilized by the teacher during instructional proceeds for the purpose of making the contents of the instructions more practical and less vague. The component of instructional materials available to teachers and students varies according to the function each of them performs. Perceived difficulty concepts in senior secondary school mathematics refer to contents in the new mathematics curriculum found difficult to teach by the teachers

and failed in internal and external examination. Such concepts include; Bearing word problems, longitude and latitude, Geometrical construction among others (Ameen & Salman, 2016).

Teaching can be defined as a process whereby professionally trained individuals are employed to transmit the aims of education to the individuals especially youths of a society through well established and organized procedures available in school systems (Daramola, 1994), therefore teaching works for overall development of an individual. On other words, learning is a process of conceptual change in behavior of individuals through reinforced experiences brought about by external factors such as organized teaching. Incidentally learning takes place when an individual's behavior is changed as a result of acquisition of new knowledge or skills and development of new attitudes as a result of interaction between the individual and his/ her immediate environment. Therefore, learning is a continuous process that does not have an end.

Also, Perceived difficult concepts in the new senior school Mathematics curriculum refers to contents in the new Mathematics curriculum found difficult to teach by teachers and those found difficult to understand by learners and failed in internal and external examinations. Such concepts include; bearing, differentiation and applications, integration and application, logical reasoning among others

Statement of the Problem

The annually recorded poor performance of students in both internal and external examinations in Mathematics has been a serious concern for the Mathematics educators and mathematicians in Nigeria. Consequent upon the alarming rate of poor performance of students in Mathematics as attested to by Ameen (2013); Ameen and Salman (2015); Kolawole, Oladosu and Ajetunmobi, (2013) ; and Kolawole (2013a) it is therefore necessary for Mathematicians, Mathematics educators, curriculum experts, to search for a holistic solution to the problem. Attempts had been made in this regard such as the work of Azuka, Jekayinfa, Durojaiye and Okwuoza (2013) whose study was on the identification of difficulty levels of topics in the new senior secondary school Mathematics curriculum as perceived by Mathematics teachers of federal unity schools in Nigeria and Ameen and Salman (2016) whose study shows that senior school mathematics teachers and senior secondary students in Kwara State perceived some concepts in the senior school mathematics curriculum to teach and learnt respectively, again Several people have written on the importance of instructional materials to teaching and learning.

Already, many authors have written on the use of instructional materials both in teaching mathematics and other related disciplines and subjects in order to

enhance teaching for desired social and behavioral change. Adeyanju's (2008) study on teacher education and use of instructional materials reveals the poor skills of Nigerian teachers in using instructional materials for teaching. Shaddy (2008) observed that the use of instructional materials is affected by their availability and ease of access. Azuka (2008) emphasized the use of kits in teaching of measurement in schools because it enhances better performance of students in learning geometry. Also, Jimoh (2009) writes that the use of instructional materials by social studies teachers is a necessity for teaching and learning to become pleasant. Again Ameen and Salman (2016) works on the perceived difficulty concepts in mathematics by senior school students and mathematics teachers and observed that only six concepts were perceived to be difficult to teach while twelve concepts were perceived difficult to learn by the senior school students to learn. Since there were no or little study on the availability and utilization of instructional materials in teaching and learning the identified perceived concepts in the senior secondary mathematics curriculum. It is therefore, against this background the needs for the study.

Research Questions

The following research questions were generated to guide the study:

1. What are the available instructional materials for teaching and learning of perceived difficult concepts in senior secondary schools mathematics curriculum?
2. Do extent do mathematics teachers utilize the available instructional materials in teaching and learning of perceived difficult concepts in the senior secondary school mathematics curriculum?

Methodology

The study employed a descriptive survey type. The population for the study comprised mathematics teachers teaching at the senior secondary school level in Ilorin metropolis of Kwara State, Nigeria and the recommended instructional materials for teaching the identified perceived difficult concepts in the mathematics curriculum. Forty-nine (49) mathematics teachers were randomly selected from all the three local governments in the metropolis. The instrument used for the study was researcher-designed questionnaire. The instrument was validated by two experts in mathematics education. The test-retest reliability procedure was used to determine the reliability index of 0.69. A total of forty-nine (49) questionnaires were administered to the mathematics teachers and the forty-nine (49) copies were completed and returned by the teachers and used for the analysis. Percentage was used to analyze the data.

Results**Table 1:** Analysis of Available instructional materials for teaching perceived difficult concepts in senior school mathematics curriculum

CONCEPT	AVAILABLE	UNAVAILABLE	TOTAL
BEARING	38 77.6%	11 22.4%	49 100%
DIFFERENTIATION & APPLICATION	15 30.6%	34 69.4%	49 100%
INTERGRATION & APPLICATION	16 32.7%	33 67.3%	49 100%
LOGICAL REASONING	26 53.1%	23 46.9%	49 100%
FINANCIAL MATHEMATICS	13 26.5%	36 73.5%	49 100%
GEOMETRICAL CONSTRUCTION	42 85.7%	7 14.7%	49 100%
COORDINATE GEOMETRY	38 77.6%	11 22.4%	49 100%
MODULAR ARITHMETIC	17 34.7%	32 65.3%	49 100%
WORD PROBLEM	36 73.5%	13 26.5%	49 100%
PLANE & CIRCLE GEOMETRIC	34 69.4%	15 30.6%	49 100%
MATRICES	14 28.6%	35 71.4%	49 100%
LONGITUDE & LATITUDE	36 73.5%	13 26.5%	49 100%
TOTAL	402 58.9%	284 41.4%	686 100%

Table 1 reveals that the number of available materials is high in teaching Geometrical Construction (85.7%), Bearing (77.6%), Coordinate Geometry (77.6%), Word Problem (73.5%), Longitude and Latitude (73.5%), Plane and Circle Geometry (69.4%), while lower percentage of materials were available for teaching Logical Reasoning (26%), Modular Arithmetic (17%), Integration and Application (16%), Differentiation and Applications (26%); Matrices (14%), Financial Mathematics (13%). Therefore, the learning of these topics (logical reasoning, modular arithmetic, integration and application, differentiation and application, matrices and financial mathematics) and teaching are hindered by little available materials.

Availability and utilization of instructional materials in the teaching and

Table 2: Analysis of Utilization of instructional materials for teaching perceived difficult concepts in senior school mathematics curriculum.

CONCEPT	UTILIZED	NOT UTILIZED	TOTAL
BEARING	36 73.5%	13 26.5%	49 100%
DIFFERENTIATION & APPLICATION	13 26.5%	36 73.5%	49 100%
INTERGRATION & APPLICATION	13 26.5%	36 73.5%	49 100%
LOGICAL REASONING	24 49.0%	24 51.0%	49 100%
FINANCIAL MATHEMATICS	12 24.5%	37 75.5%	49 100%
GEOMETRICAL CONSTRUCTION	40 81.6%	9 18.4%	49 100%
COORDINATE GEOMETRY	34 69.4%	15 30.8%	49 100%
TRIG RATIO OF ANGLE	36 73.5%	13 26.5%	49 100%
MODULAR ARITHMETIC	15 30.6%	34 69.4%	49 100%
WORD PROBLEM	33 67.3%	16 32.7%	49 100%
PLANE & CIRCLE GEOMETRIC	31 63.3%	18 36.7%	49 100%
PROBABILITY	35 71.4%	14 28.6%	49 100%
MATRICES	12 25.5%	37 75.5%	49 100%
LONGITUDE & LATITUDE	36 73.5%	13 26.5%	49 100%
TOTAL	402 58.9%	284 41.4%	686 100%

Table 2, reveals that the utilization of instructional material in teaching and learning of the following topics are high in Geometrical construction (81.6%), Bearing (73.5%), Trig Ratio of angles (73.5%), Longitude and Latitude (73.5%), Probability (71.4%), Coordinate Geometry (69.4%), Word problem (67.3%), Plane and Circle Geometry (63.3%) and usage of these materials were low in teaching Logical Reasoning (49.0%), Modular Arithmetic (30.6%), Differentiation and Application (26.5%), Integration and Application (26.5%), Financial mathematics (24.5%) and Matrices (24.5%). This shows that if teachers actually utilize these materials as observed in the study, there should be a better performance of

students in learning the identified perceived difficult concept in the Senior Secondary School mathematics curriculum.

Discussion

The results shows that there were materials available for teaching some of the perceived difficult concepts in the senior schools mathematics curriculum while some concepts have limited materials. This shows that the available instructional materials are enough for the teaching and learning of perceived difficult concept in the senior school mathematics curriculum.

Teacher utilizes the available instructional materials in teaching the identified perceived difficult concept in senior Secondary School Mathematics Curriculum, therefore, this shows that the use of instructional materials in teaching these perceived difficult concepts does not influence the performance of students in these concepts greatly.

Recommendations

Based on the conclusions of the study, the following recommendations were made:

1. Mathematics teachers should endeavor to use all the instructional materials prescribed for the teaching of the perceived difficult concepts in the senior school mathematics curriculum because it enhances better performance of the students.
2. Governments should make the institutional materials available in all the Senior Secondary schools so as to improve better teaching and learning of those concepts.

References

- Adeniyi, A.A. (2001). *Methodology and Instructional Materials. A new approach to teaching religious in tertiary institutions in Nigeria*. Ibadan: Relinks Konsult.
- Adeyanju, L. (2003). Teachers' perception of the effects and use of learning aids in teaching: *A case study of Winneba Basic and Secondary schools in Ghana*. UtiBASE. Retrieved from <http://ultibase.remit.edu.au>.
- Agulu, O.N. & Wever, D. G. (2011). *Introduction to vocational agricultural Education*. Makurdi, Benue State. Selfe Academic Press Ltd.
- Asogwu, V.C, Onu, D.O & Egbo, B.N. (2013). Availability and utilization of instructional materials for effective teaching of fish production to student in senior secondary schools in Benue state Nigeria. *African journal of Agricultural journal research*. 8(49), 6601-6607. Retrieved from <http://www.academicjournals.org/AJAR>
- Ameen, S. K. (2013). Comparative effects of two problem-solving models on Nigerians secondary school students performance in Mathematics word problems. An unpublished Ph.D. Thesis, Science Education Department, University of Ilorin, Ilorin.

- Availability and utilization of instructional materials in the teaching and
- Ameen, S. K. & Salman, M.F. (2015). Students' Mathematical language proficiency as a predictor of their performance in Mathematics Bearing Word Problems. *The Journal of the Mathematical Association of Nigeria*, 1(40), 77-82
- Ameen, S.K. & Salman, M.F. (2016). Perceived Difficult Concepts in Mathematics by Senior School Students' and Mathematics Teachers in Ilorin, Kwara State, Nigeria. *Journal of Education (IJE)*. Faculty of Education University of Ilorin. Acceptance date for publication (28/7/16).
- Aramide, K.A., Bolarinwa O.M (2010). Availability and use of audiovisual and Electronic Resources by Distance Learning Students in Nigeria (NOUN), Ibadan Study Centre Library Philosophy and Practice. Retrieved from <http://unilib.unl.edu/LPP>
- Azuka, B.F. (2008). Use of mathematical kits in teaching measurement in schools. *National Mathematical Centre (NMC), Training Workshop*. Abuja: Marvelous Mike Press Ltd (2008).
- Azuka, B.F., Jekayinfa, O., Durojaiye, D., Okwuoza, S.O. (2013). Difficulty levels of topics in the new senior secondary school Mathematics curriculum as Perceived by Mathematics teachers of Federal Unity Schools in Nigeria. National Mathematical Centre, Abuja, Nigeria. *Journal of Education and Practice*, 4(17), 1-5
- Daramola, O.S. (1994). *Basic principles of instruction*. Lekan printing press, 6 New yidi road Ilorin. 2-3.
- Jimoh, M.F. (2009). The use of Instructional Materials in the teaching of social studies in Secondary schools in Kabba/Bunu Area of Kogi State. Retrieved from <http://dspace.unijos.edu.ng>
- Kolawole, E.B, Oladosu, C.I., & Ajetunmbi, O. (2013). Comparability of Effectiveness of Problem-Solving Methods on Learners' Performance in Mathematics *Unique Journal of Education Research*, 1(2), 12-19 <http://www.uniquersearcharchjournal.org/UJER>
- Odili, A.G. (2006). *Mathematics in Nigeria Secondary School. A Teaching Perspective*. Nachuna Educational Books 186.
- Shaddy, S. (2008). Effects of instructional aids on teaching learning process. Retrieved from <http://establishingteachers.blogspot.com/search/label/instruction%20Aids>.
- Uzuegbu, C.P., Mbadiwe H.C & Anulobi, J.C. (2013). Availability and Utilization of instructional Materials in teaching and learning of library education in tertiary institutions in Abia State. 2(8), 111-120.