Journal of Education and Practice
ISSN 2222-1735 (Paper) ISSN 2222-288X (Online)
Vol.6, No.17, 2015

Problems Faced by Students and Lecturers in Teaching and Learning of Approximation in Primary Colleges of Education: A Case Study of 4 Primary Colleges on the Copperbelt Province - Zambia.

Japhet Kapasa[1*] Elizabeth Bobby Samuels[2] Peter J. Mulendema[2]
1.Kitwe College of Education, P.O.Box 22596, Kitwe, Zambia, Central Africa
2.School of Mathematics and Natural Sciences, Copperbelt University, P.O.Box 21692, Kitwe, Zambia
* E-mail of the corresponding author: jphtkapasa@yahoo.com

Abstract
It has been observed that students shy away from the study of Mathematics even though it is a back bone of science and technology. This is confirmed by the negative attitude and poor performance of students in Mathematics especially at primary colleges' level. It is this background that prompted the research into the problems faced by lecturers and students in teaching and learning of "approximation" in primary colleges of education. The study was aimed at identifying problems and suggesting measures to improve performance. The study adopted the descriptive survey design using simple frequency and percentages in analyzing data. Stratified and simple random sampling techniques were used to select one hundred and ninety eight (198) students from four (4) randomly selected colleges of education on the Copperbelt Province and eighteen (18) lecturers were purposively selected from the same colleges. Data were collected by means of two questionnaires administered to students and lecturers. The five (5) points' likert–type rating scale was adopted for the questionnaire responses which was of the types, strongly agree, agree, neutral, disagree and strongly disagree. Some of the findings that emerged were related to personality of the lecturers, characteristics of students, nature of the curriculum, learning environments and government policies on education. Based on these findings, it was recommended that (i) the government should endeavor to provide the necessary infrastructure and facilities that will motivate teaching and learning of mathematics. (ii) Government should send lecturers for training and seminars for effective teaching and learning. The researcher recommended that colleges should invest in improving the classroom environment by reducing the lecturer- student ratio and offer incentives to lecturers in colleges of education.
Keywords: approximation, teaching, learning, student's performance and lecturer related factors.

1. Introduction

Mathematics has been widely acclaimed to be the index of measuring any nation's socio economic and geopolitical development. Its place, therefore, in the life of any nation cannot be overemphasized (Batiku, 2001). Barrow and Woods (1987) emphasized the need to make mathematics a compulsory subject at all levels of education if scientists, technologists and engineers are to be produced.

According to Banda (2006) and Musonda(2012) most student teachers in Primary Colleges of Education achievement in Mathematics is poor compared to other subjects. This unfortunate trend is despite the fact that Mathematics is a requirement for each and every student to enroll in all Primary College of Education in Zambia.

Despite the relative importance of mathematics, it is very disappointing to note that the student's performance in the subject in most of the tertiary institutions has remained consistently poor. According to Zambia's National Assessment Survey Report (2008) despite the recommended remedial measures made in the various preceding surveys there has been consistently poor performance in mathematics.

Students face many difficulties in learning approximation; among them are poor arithmetic skills, difficulty with the abstract content associated with decimal fractions and an inability to apply correct methods to new problems. Mathematics educators have put up self-sacrificing and spirited efforts aimed at identifying the major problems associated with the teaching and learning of mathematics. Despite all these noble efforts, the problem of poor achievement in mathematics has continued to manifest in the nation's public examinations (Zambia National Assessment Survey Report, 2012)

It is against this background that the researcher explored some of the problems in teaching and learning approximation and sought solutions to these problems. This study was anticipated that the findings would give the curriculum developers new insights about factors affecting the Mathematics achievement of students in Primary Colleges of Education and influence the Ministry on policy formulation. It would further establish whether lecturers explored the factors that contribute most to students' Mathematics achievement.

Approximation involves decimal fractions, rounding off, estimation and scientific notation. Taking a close look at decimal fractions, it would be found that many students in Primary Colleges of Education face

problems. Significant figures and rounding off have also been topics where students face a lot of difficulties. Estimation of quantities, numerical values and some measurements can also be a challenge.

According to the National Results Analysis Document (2013) the average performance of candidates in the three consecutive years is below 50%. This indicates that the general performance of students in mathematics is below average.

In our daily lives few people apply the idea of estimation reasonably. We find, in schools, that learners usually give out unreasonable answers when they are asked to estimate something. An example is given by John (1988) in a research conducted on estimation. He stated that, a mathematics O-level question was asked to students to estimate the length of a wire to make a framework for a bedroom lamp shed. Different answers were given which included 0.031mm and 73.8km. So these are some of the ridiculous numerical answers which some pupils are likely to give and it all shows the inability to estimate length.

According to Results Analysis Document (2013) for Kitwe College of Education, the highest failure rate was recorded in mathematics. Out of the 365 candidates who sat for promotion examinations only 216 passed, representing a 58.8% pass while 149 candidates failed the examination. Amongst the questions where students did not do well were those related to approximation.

Similar research has been conducted to investigate learning difficulties in mathematics by Telima and Adolphis(2011). Some of the findings indicate that difficulties in teaching and learning of mathematics, has resulted in mass failure of students in examinations.

Osafrehinti(1986) contends that curriculum changes in mathematics have occurred in several countries for one reason or another, but more importantly because of the desire to improve school mathematics teaching and learning to meet the ever changing needs of society, science and technology. It is envisaged that the curriculum will equip learners at all levels of education with vital knowledge, skills, positive attitudes and values that are necessary for contributing to the positive achievements. (Zambia Education Curriculum Framwork, 2012)

1.1 Statement of the Problem

The poor performance of students in mathematics and approximation in particular has been a thing of concern to mathematics educators, parents and government. According to Zambia National Assessment Survey Report (2012) the government has put in efforts aimed at identifying the major problems associated with primary school mathematics. Despite all these noble efforts, the problem of poor achievement in mathematics has continued to rear its head. It is against this background that this research identified 'approximation" as one of the core difficulty areas where students' performance has always been low.

1.2. Purpose of the Study:

The study explored the factors that contribute to the difficulties in teaching and learning of approximation and scheme up strategies that could remedy the difficulties.

1.3. Research Objectives.

The objectives of the study were**:**

(i) To identify the problems against effective teaching and learning of approximation in primary colleges of education.

(ii) To establish strategies that would remedy the difficulties in the teaching and learning of approximation

1.4. Research Questions

The study was guided by the following research questions:

(i) What factors are responsible for the difficulty in the teaching and learning of approximation in primary colleges of education?

(ii) What strategies should be adapted to enhance better teaching and learning of approximation in primary colleges of education?

2.0 METHODOLOGY

2.1ResearchDesign.

The research adopted the descriptive survey method. Data were collected through questionnaires to establish the views of lecturers and students on the problems of teaching and learning approximation in primary colleges of education. The understanding of descriptive survey according to Orodho(2003)(in Kombo and tromp(2009:71) "a descriptive survey is a method of collecting information by interviewing or administering a questionnaire to a sample of individuals." A descriptive research design therefore allows a researcher to elicit the (participants) opinion or views and attitudes on the subject in a more elaborate way in order to establish the findings of the study.

The five (5) point's likert-type rating scale was adopted for the questionnaire responses and it was of the types, strongly agreed, agree, neutral, disagreed and strongly disagreed. Simple graphs, frequencies and percentages were used. For qualitative analysis, focus group discussion responses were recorded and organized into themes and categories as they emerged during the study.

2.2.TargetPopulation

White (2003) defines population as the universe of units from which a sample is to be selected. The study targeted students at second year level at the four randomly selected Primary Colleges of Education on the Copperbelt Province. To obtain information on the attitudes and perception of students and lecturers on the problems in teaching and learning of approximation one hundred and ninety eight (198) students and eighteen (18) lecturers from the four institutions were randomly selected. The randomly selected colleges were strata. Due to different enrolments in the colleges representative fractions were used to pick the samples

2.3 Sample size

Sample size refers to the number of participants selected from the universe to constitute a desired sample (Bless and Craig, 1995).

The Yaro Yamane formula was used to determine the number of students that were required to participate in the study.

Given by $\mathbf{n} = \frac{N}{1+N(e)2}$,

where

n is the sample size, **N**is the population size and **e** is the level of significance.

The five percent (0.05) level of significance was used in the formula, hence giving a total of one hundred and ninety eight (198) students and eighteen (18) lecturers. Out of the 18 lecturers 3(16.7%) had master's degree 8(44.4%) had first degree and 7(38.9%) had diploma in Mathematics Education.

2.4. **Research instruments**

A self-reported questionnaires were designed by the researcher to solicit an in-depth data from the lecturers and students on the challenges encountered in teaching and learning approximation. A questionnaire is an instrument used to gather data which allows measurement for or against a particular view point. They are time saving to both the researcher and the respondents (Orodho, 2005). In addition, general questions to collect data on demographic variables were used. The five (5) points' likert-type rating scale was adopted for the questionnaire responses which were of the types, strongly agree, agree, undecided, disagree and strongly disagree.

It was found necessary to use Focus Group Discussion Guide to collect data from some students. An interview guide with some questions was designed for students in order to obtain opinion on their perception of factors that contribute to the difficulty in teaching and learning approximation. The questions on the interview guide were phrased in a semi-structured format to permit the respondents to provide the much needed information in their own way. Bless and Craig (1995) postulate that an interview has the advantage over the questionnaire because the language of the interview can be adapted to the ability or educational level of the person being interviewed and as such misinterpretations concerning questions can be avoided.

2.5. Data Analysis:

The quantitative data that were obtained through the lecturers' and students' questionnaire were analysed using, percentages, charts and frequency tables. While the qualitative data obtained through Focus Group Discussions was analysed by coding and grouping the most significant sets of emerging themes. Marshall and Rossman (1999) suggest that in analyzing qualitative data, the initial task is to find concepts that help make sense of what is going on. Makinde (1994) also claims that data analysis is the examination of the given problem in the light of the information collected, after which some tentative inferences may possibly be made. The interpretations from figures and descriptive information were the basis for the conclusion and possible recommendations for the study.

3.0 RESULTS

3.1 PHASE ONE: **ANALYSIS OF QUESTIONNAIRES.**.

The research questions that were investigated were:

(i) What factors were responsible for the difficulty in the teaching and learning of approximation in primary colleges of education?

(ii) What strategies could be adopted to enhance better teaching and learning of approximation in primary colleges of education?

Research question 1.

What factors are responsible for the problems in teaching and learning approximation in primary colleges of education on the Copperbelt Province?

Responses to the first ten items in the lecturers and students questionnaire were used to answer the above research question. The responses were computed using frequencies and percentages. The five(5) point Likert scale was used. With this, SA represent a strong agreement, A agreement, N Neutral, D disagree and SD for strong disagreement.

Table 1: Students' opinion on the factors responsible for the problems in teaching and learning approximation in colleges of education on the Copperbelt Province

S/N	NATUREOF PROBLEM	CRITERIA										TOTAL	
		SA		A		N		D		SD			
		f	%	f	%	f	%	f	%	f	%	N	%
1	The poor foundation of students in mathematics	76	39.6	81	42	5	2.6	30	16	0	0	192	100
2	Most lecturers do not teach approximation well because of poor foundation.	131	68.2	40	21	2	1	19	10	0	0	192	100
3	Large classes makes it difficult to practice approximation	124	64.6	68	36	0	0	0	0	0	0	192	010
4	There are inadequate math lecturers in terms number and quality	112	58.3	74	39	3	1.6	2	1	0	0	192	100
5	Math lecturers do not prepare adequately due to much work load	130	68.7	42	22	0	0	0	0	0	0	192	100
6	Lack of instructional aids makes teaching and learning of approx. difficulty.	48	25	144	75	0	0	0	0	0	0	192	100
7	Many students try to memorize the math techniques without understanding it.	107	55.7	90	47	3	1.6	2	1	0	0	192	100
8	Many students do not face mathematics willingly rather they are forced by the parents.	136	70.8	56	29	4	2	2	1	0	0	192	100
9	Most students come to the classroom with negative attitude towards approximation.	86	44.8	86	45	0	0	0	0	0	0	192	100
10	Normal time period in colleges to teach mathematics is not sufficient.	124	64.6	63	33	0	0	5	3	0	0	192	100

Table 2. Lecturers' opinion on the factors responsible for the problems in teaching and learning approximation in Primary Colleges of Education on the Copperbelt Province.

S/N	NATURE OF PROBLEM	SCALE										TOTAL	
		SA		A		N		D		SD			
		f	%	f	%	f	%	f	%	f	%	N	%
1	The poor foundation of students in mathematics	10	55.6	7	38.9	0	0	1	5.6	0	0	18	100
2	Most lecturers do not teach approximation well because of poor foundation.	1	5.6	5	27.8	2	11.1	8	44.4	2	11.1	18	100
3	Large classes makes it difficult to practice approximation	8	44.4	4	22.2	2	11.1	4	22.2	0	0	18	100
4	There are inadequate math lecturers in number and quality	2	11.1	12	66.7	1	5.6	3	16.7	0	0	18	100
5	Math lecturers do not prepare adequately due to much work load	4	22.2	8	44.4	0	0	5	27.8	1	5.6	18	100
6	Lack of instructional aids makes teaching and learning of approx. difficulty.	10	55.6	6	33.3	0	0	2	11.1	0	0	18	100
7	Many students try to memorize the math techniques without understanding it.	4	22.2	8	44.4	4	22.2	2	11.1	0	0	18	100
8	Many students do not face mathematics willingly rather they are forced by the parents.	3	16.7	11	61.1	1	5.6	3	16.7	0	0	18	100
9	Most students come to the classroom with negative attitude towards approximation.	8	44.4	7	38.9	2	11.1	1	5.6	0	0	18	100
10	Normal time period in colleges to teach mathematics is not sufficient.	1	5.6	4	22.2	3	16.7	1o	55.6	1	5.6	18	100

The tables above reveals that the factors listed above are responsible for the problems of teaching and learning approximation in primary colleges of education on the Copperbelt Province, it shows that students response to the items in the questionnaire were more on strongly agree column than agree.

The lecturers agreed to all the items, that they are responsible for the problems in teaching and learning approximation except items 2 and 10 which state that most lecturers' do not teach approximation well because of poor foundation and that normal time period in colleges to teach mathematics is not sufficient.

It is of importance to note that the lecturers and students agree strongly to the fact that the poor foundation of students in mathematics, overcrowded classes, negative attitude towards mathematics and lack of instructional aids are the major problems of teaching and learning of approximation as revealed in the tables.

Research question 2.

What strategies could be adopted to enhance better teaching and learning of approximation in primary colleges of education on the Copperbelt Province?

Response to items 11 to 20 on the lecturers and students questionnaire were used to answer the research question above. The responses were evaluated using frequencies and percentages as presented in the tables 3 and4.

Table 3: Students' response on the strategies to enhance better teaching and learning of approximation in colleges of education on the Copperbelt Province.

S/N	STRATEGY	SCALE										OFFICIAL USE	
		SA		A		N		D		SD		TOTAL	
		f	%	f	%	f	%	f	%	f	%	N	%
11	In-service training should be given to lecturers in this topic	91	47.4	80	41.7	4	2	20	10.4	0	0	192	100
12	The Lecturer should use instructional materials to make the teaching real.	98	51	86	44.8	4	2	4	2	1	5.6	192	100
13	The learning environment should be made conducive for effective teaching/ learning to take place	70	36.5	120	62.5	0	0	2	1	0	0	192	100
14	Students should be made to work extra-hard to improve on their poor foundation	63	32.8	119	62	2	1	8	4.2	0	0	192	100
15	The necessary facilities needed in a school to facilitate teaching /learning should be made available	77	40.1	104	54.2	5	2.6	6	3.1	2	1	192	100
16	Lecturers should use appropriate method to drive home their lessons	83	43.2	94	49	3	1.6	2	1	0	0	192	100
17	The lecturers should endeavor to carry all students along with respect to individual difference.	70	36.5	106	55.2	3	1.6	13	6.8	0	0	192	100
18	The lecturers should make the students do more practical work than theoretical	99	51.6	83	43.2	8	4.2	2	1	0	0	192	100
19	The class size should be such that the lecturer can manage.	113	58.9	76	39.6	0	0	3	1.6	0	0	192	100
20	Lecturers should monitor the activities and performance of their students.	50	26	140	72.9	2	1	0	0	0	0	192	100

The results as shown in table 3 reveal that all the ten strategies listed in the table could enhance better teaching and learning of approximation in primary colleges of education. The students agree strongly to the fact that in-service training should be given to lecturers in this topic, they should also use instructional materials to make the teaching real, the class size should be such that the lecturer can manage and lecturers should make the students do more practical work than theoretical.

Table 4: Lecturers' response on the strategies to enhance better teaching and learning of approximation in colleges of education on the Copperbelt Province.

S/N	STRATEGY	SCALE										OFFICIAL USE	
		SA		A		N		D		SD		TOTAL	
		f	%	f	%	f	%	f	%	f	%	N	%
1	In-service training should be given to lecturers in this topic	8	44.4	6	33.3	4	22.2	0	0	0	0	18	100
2	The lecturer should use instructional materials to make the teaching real.	10	55.6	8	44.4	0	0	0	0	0	0	18	100
3	The learning environment should be made conducive for effective teaching/ learning to take place	8	44.4	10	55.6	0	0	0	0	0	0	18	100
4	Students should be made to work extra-hard to improve on their poor foundation	5	22.2	13	72.2	0	0	0	0	0	0	18	100
5	Necessary facilities needed in a school to facilitate teaching /learning should be made available	8	44.4	10	55.6	0	0	0	0	0	0	18	100
6	lecturers should use appropriate method to drive home their lessons	7	33.3	11	61.1	0	0	0	0	0	0	18	100
7	The lecturers should endeavor to carry all students along with respect to individual difference.	6	38.9	12	66.7	0	0	0	0	0	0	18	100
8	The lecturers should make the students do more practical work than theoretical	14	77.8	4	22.2	0	0	0	0	0	0	18	100
9	The class size should be such that the lecturer can manage.	10	55.6	8	44.4	0	0	0	0	0	0	18	100
10	Lecturers should monitor the activities and performance of their students.	6	38.9	8	44.4	0	0	4	22.2	0	0	18	100

The responses on table 4 show that the lecturers accepted all the factors as the strategies that could enhance both teaching and learning approximation in primary colleges of education on the Copperbelt Province if adopted. They all strongly agree to the fact that in-service training in mathematics should be given to lecturers in this topic. Lecturers should use instructional materials to make the teaching real, lecturers should make the students do more practical work than theoretical and the class size should be such that the lecture can manage.

3.5 PHASE TWO. ANALYSIS OF FOCUS GROUP DISCUSSIONS.

The Focus Group Discussion was used to supplement the results and to fill the gaps left in the questionnaire. This methodology was used to get information about how students think, feel and what they know. The FGDs concentrated on research questions 1 and 2 which sought to establish the factors responsible for the problems of teaching and learning approximation. All the ideas/views were recorded and the researcher took notes of the views expressed.

3.5.1 Results

Table 5 below indicates the findings of the study. The dominant factor that 83% of the students cited in the teaching and learning of approximation is the personality of the lecturers in the field.; lecturers use poor teaching methods and they lack support in form of continuous professional development through workshops, seminars and refresher courses. Second, the characteristics of the students were cited by 56% of the students. First, the academic background of the students is weak. They also reported that some of the students come from poor socio-economic family backgrounds where they lack practicing mathematics. The same participants reported that students had poor attitudes towards mathematics, they seem disinterested in the subject and there was rampant absenteeism.

Table 5: Themes that are responsible for the problems of teaching and learning approximation in primary colleges of education on the copper belt province. (N =10)

Themes	Factors, Problems and Challenges	% of students Support
Personality of the lecturers	-Weak academic background and content knowledge for teaching - no incentives for lecturers -Poor attitudes to mathematics, learners and teaching -Poor teaching methods and practices (mainly lecture-centered, rote and chalk and talk), teaching geared towards passing examinations). -Examination pressure not relating mathematics to real life situation -Few qualified lecturers.	83
Characteristics of the students	-Negative attitudes toward mathematics - lot of formulae are to be memorized. - don't see mathematics as a tool for problem solving. -Home and socio-economic background and lack of practice -Absenteeism and dropouts -bad perception that mathematics is more difficulty than other subjects.	56
Overcrowded classrooms	-Large class enrolment -High pupil to teacher ratio -Inadequacy of teaching and learning materials and resources (textbooks) -Much workload for lecturers	53
Nature of the Curriculum and Syllabus	-Overloaded curriculum (broad: Too much content to be covered) -A subjects-congested timetable and inadequate time to teach much content -Irrelevance of the mathematics content -Examination oriented	50
Government Policies on Education	-Recommended lecturer-student ratio of 1:35 (but in reality ration is one to over 50 pupils) - -The overloaded curriculum. -Automatic promotion of pupils to next class	39
Learning environment and assessment methods	-Poor reading culture -Examination focused assessment -Lack of external support outside the school -Inadequate provision of infrastructure	33

4.0 DISCUSION, CONCLUSION AND RECOMMENDATIONS.

4.1 Discussion

The purpose of this study was to identify the factors that are responsible for the difficulty in the teaching and learning of approximation in primary colleges of education using responses from lecturers and students teachers themselves. In general, the present analysis suggests that there are several factors that are responsible for the difficulty in the teaching and learning of approximation in primary colleges of education. Lecturers own attitudes towards mathematics contribute to their inability to motivate the students to learn mathematics. The teaching methods that are used remain predominantly the traditional, talk and chalk mode of delivery.

. Another factor identified in this study is the overcrowded classrooms. Certainly, when teaching in large classes lecturers provide fewer exercises and practice so as to reduce the amount of marking to do. There is also limited space to conduct group work that would enhance effective coverage of content. Although lecturers attempt to cover all the content of the syllabus, the frequent disruptions in the teaching time due to un-gazette holidays, late start of the term and so on do not allow the completion of the syllabus in most colleges. The content is then cosmetically covered on the surface to prepare students for examinations.

The findings from this study, therefore, are that the lecturer's personalities pose problems that deprive students from opportunity-to-learn due to their attitudes, poor teaching methods and academic background. Secondly, the characteristics of the students oppose their own opportunity-to-learn due to their negative attitudes, home and socio-economic backgrounds. Overcrowded classrooms also lead to shortage of adequate instructional materials. High student to lecturer ratio minimizes possibilities of individual attention to the students. Finally, the learning environment and assessment methods drive lecturers to water down the curriculum to meet the examinations requirements.

4.2 CONCLUSION

The study was designed to find out the problems lecturers and students face in teaching and learning

approximation in primary colleges of education on the copperbelt province with a view to making recommendations towards improvement. This becomes necessary in view of the poor performance observed in approximation in mathematics at college examinations. After the analysis of the data collected, the following findings are summarized:

1. Attitudes of students' towards learning is very poor. They lack the willingness and readiness to learn.
2. The teaching and learning environment are not conducive. This is in line with lack of infrastructures and basic facilities for teaching and learning.
3. The students have poor foundation in mathematics, as such cannot solve problems even when similar examples are given.
4. Lecturers are overloaded with large classes which make it difficult to practice approximation.
5. Many students try to memorize the mathematical techniques without understanding it.
6. There are inadequate mathematics lecturers in terms of number and quality.
7. Overloading the curriculum, so many things are to be learned within a short period of time..
8. Bad perception that mathematics is more difficult compared to other subjects.

The data from focus group discussions were analyzed through gathering descriptive statistics and information regarding the current problems and challenges of teaching approximation in primary colleges of education. The factors that could affect students ‟ opportunity-to-learn approximation were identified, which were organized into five themes: (i) the personality of the teachers; (ii) the characteristics of the students; (iii) the overcrowded classrooms; (iv) the nature of the curriculum and syllabus; and (v) government policies on education

4.3 Recommendation

Based on the findings, discussions and conclusions herewith contained in the study, the following summative recommendations are made to the government, lecturers, teachers, parents and other relevant stakeholders in the education sectors.

1. Parents should see to it that they develop keen interest in the academic affairs of their children by ensuring that suitable conditions are created at home to enable the children gain greater interests to undertake mathematics at all times.
2. Schools and colleges should organize periodic seminars and workshops for students and teachers designed to promote positive attitudes towards mathematics.
3. The government through the Ministry of Education should as a matter of urgency endeavor to provide necessary infrastructures and facilities that will motivate teaching and learning mathematics, approximation in particular and buy educational materials such as text books and other equipment as per requirements in the curriculum.
4. The current loaded curriculum requires a more focused review to reduce the number of topics to be covered and retain only those that are relevant to the students‟ academic growth.

4.4. SUGGESTIONS FOR FUTURE RESEARCH.

1. The research should be extended to all the primary colleges in Zambia to confirm if the conclusion drawn from this study, following the findings, is the true reflection of what is prevailing on the ground country wide.
2. To improve students' performance in college examinations and the teaching of mathematics at college level, there is need to conduct further studies on different mathematics topics such as , trigonometry, mensuration and coordinate geometry, so as to have the full understanding of factors that contribute to problems in teaching and learning some of these topics in colleges of education..

REFERENCES.

Barrow, R and Woods, R.G.(1987). An introduction to the philosophy of education.London: Methuen.
Betiku, O.F.(2001). Causes of mass failure in mathematics examinations among students. A commissioned paper presented at government Secondary School, Karu, Abujar.
Bless, C. & Craig, H.M.(1995). Fundamentals of soial research methods: An African perspective. CapeTown: Juta and Company.
Cohen, L. Manion, Land Marrison, K. (2000). Research methods in education. London: Routledge falmer.
Hennink, M.M.(2007). International Focus Group Research: A handbook for health and social sciences.Cambridge University Press.
John C. (1988), Mathematics Teaching. 125(periodical)
Kombo, D, K & Tromp, D. L.A.(2009). Proposal and thesis writing: An introduction. Nairobi: Paulins Publications Africa.
Makinde , O. (1994). Fundamentals of guidance and counseling. London: Macmillan.
Marshall, C. and Rossman, G.B.(1999). Designing qualitative and research(3rd ed). Thousand Oaks, CA: Sage.
MOE. (2012), Zambia's National Assessment Survey Report, ECZ, Lusaka

Orodho, A. J. and Kombo, D.K. (2002). Research Methods. Nairobi: Masola Publishers.
Osafrehinti, I, O.,(1986). " The problem of mathematics Education, any solution" Journal of STAN. Vol. 24No. 1 & 2,pp274-279.
Telima and Adolphis(2011).Problems of teaching and learning of geometry in secondary schools. RiverState: Nigeria.
White, C.J. (2003). Research methods and techniques: Pretoria: Mustung. Road 44

The IISTE is a pioneer in the Open-Access hosting service and academic event management. The aim of the firm is Accelerating Global Knowledge Sharing.

More information about the firm can be found on the homepage:
http://www.iiste.org

CALL FOR JOURNAL PAPERS

There are more than 30 peer-reviewed academic journals hosted under the hosting platform.

Prospective authors of journals can find the submission instruction on the following page: http://www.iiste.org/journals/ All the journals articles are available online to the readers all over the world without financial, legal, or technical barriers other than those inseparable from gaining access to the internet itself. Paper version of the journals is also available upon request of readers and authors.

MORE RESOURCES

Book publication information: http://www.iiste.org/book/

Academic conference: http://www.iiste.org/conference/upcoming-conferences-call-for-paper/

IISTE Knowledge Sharing Partners

EBSCO, Index Copernicus, Ulrich's Periodicals Directory, JournalTOCS, PKP Open Archives Harvester, Bielefeld Academic Search Engine, Elektronische Zeitschriftenbibliothek EZB, Open J-Gate, OCLC WorldCat, Universe Digtial Library , NewJour, Google Scholar