

CHAPTER ONE

INTRODUCTION

Background of the Study

Mathematics is generally recognized as an essential curriculum in most schools and an adequate performance in this area is usually considered fundamental to school success.

This research observed during the six (6) week of his teaching as a class teacher that the class six (6) pupils in Kramokrom D/C Primary School could not add and subtract six (6) and seven (7) digit numbers. Having gone through this observation the writer suspected a lot of challenges causing the pupils inability to add and subtract six (6) and seven (7) digit numbers.

Among the factors contributing to addition and subtraction difficulties among pupils are pupils and teachers misconception about Mathematics inappropriate instructions and lack of interest and motivation. One difficulty that some pupils face in addition and subtraction is understanding the concept of place value.

Mathematics is a broad subject that entails a lot. It is practical oriented and thus needs a qualified and dedicated teacher to handle various topics.

Most teachers have developed negative attitude towards the teaching of mathematics due to the problems they have in teaching the subject. This makes them use methods which are basically teacher centered such as lecture method instead of using

appropriate teaching and learning materials to make lessons child centered. This study embarks on the use of teaching and learning materials (Place Value chart and abacus) to assist class six (6) pupils of Kramokrom D/C Primary School to be able to add and subtract six (6) and seven (7) digit numbers.

It is against this background that the research topic was chosen, information gathered and data collected to address the problem identified.

Statement of the Problem

Although primary six pupils are expected to be able to solve problems involving addition and subtraction of six (6) and seven (7) digit numbers, most primary six (6) of Kramokrom D/C Primary School are not able to solve such problems.

The difficulties of pupils in relation to addition and subtraction of six (6) and seven (7) digits numbers have necessitated investigation into the causes of pupils' difficulty and help to find ways of improving pupils' performance.

Purpose of the study

The purpose of this study is to identify the causes of the difficulty in adding and subtracting six (6) and seven (7) digit numbers among the primary six (6) pupils of Kramokrom D/C Primary School, and to design the appropriate teaching learning materials (place value chart and abacus) to assist to overcome such difficulty.

Research Questions

- i. What factors have contributed to the pupils' inability to solve problems involving
- ii. Addition and subtraction of six (6) and seven (7) digits numbers?
- ii Were appropriate TLMS used in teaching addition and subtraction involving six (6) and seven (7) digit numbers?
- iii. What measures have been put in place to help pupils overcome their difficulty?
- iv. How can the use of place value chart and abacus help pupils to overcome their difficulty?

Significance of the Study

The study which seeks to improve primary six (6) pupils inability to solve problems involving the addition and subtraction of six (6) and seven (7) digit numbers will be of much importance to many people including pupils, teachers, parents, educationists and the community at large.

At the end of the study it is hoped that, the work will serve as first hand information for policy makers to address issues accounting for ineffective teaching of mathematical concepts by teachers.

This study will also help teachers to adopt the use of appropriate TLMS and efficient methods when teaching to promote and improve pupils understanding of mathematics topics.

In addition, the study will help improve pupils' performance in mathematics in general and the addition and subtraction of six (6) and seven (7) digit numbers in particular.

Lastly, the study may serve as a basis for further study by any researcher who is interested in mathematics.

Delimitation of the Study

This study was confined to Kramokrom D/C Primary School. It was specifically carried out in the Primary (6) class.

Though there are many areas of learners' difficulty in mathematics, the research work concentrated on the inability of learners to solve problems involving the addition and subtraction of six (6) and seven (7) digit numbers.

Limitation of the study

This study was carried out at Kramokrom D/C Primary School. This study could have been done in all schools in Ghana, but due to lack of finance and logistics to carry out extensively. The writer could only select class six (6) pupils of Kramokrom D/C Primary for the study.

The writer encountered problems with some of the teachers. This came about when they were contacted for the reasons why they do not use teaching learning materials in teaching mathematics topics.

Also, the writer was faced with time constraint. The time duration at the writer's disposal was limited, especially having to combine the study with other extra curriculum activities. These did not permit the writer to go to well equipped libraries and internet cafes to search for information.

Organization of the Study

This action research is composed of five (5) chapters. Chapter one which is the introduction presents the background of the study, statement of the problem, purpose of the study and research questions. Others in the chapter are significance of the study, the study delimitation, limitation and organization of the study.

Review of literature which is found in chapter two considers views on the meaning of mathematics, the importance of mathematics in day to day activities of pupils, how children learn mathematics and finally the use of teaching and learning materials.

Chapter three focuses on research methodology used for the study. It deals with research design, population and sample selection as well as research instruments. It also consists of instrument used for research data collection and data analysis plan.

Chapter four presents the result of the study. It comprises discussion of the study and data analysis. It gives information on pre-intervention and post-intervention results.

Finally, chapter five gives summary of the study, summary of research findings, conclusion, recommendation and suggestions for further studies are presented.

CHAPTER TWO

LITERATURE REVIEW

Introduction

This chapter of the action research would review literature related to the study by concentrating on the following sub-topics:

- a) Meaning of Mathematics
- b) The importance of Mathematics in day to day activities of pupils in the classroom further studies.
- c) How children learn Mathematics
- d) The use of teaching and learning materials

Meaning of Mathematics

Adomako K (1985) describes mathematics as “the science that creates the exact relations existing between quantities or magnitudes and operation and the method by which in accordance with these quantities sought are deducible from known or supposed.

The Collins Paperback English Dictionary (1999) defines mathematics as a group of related sciences including algebra, geometry and calculus which uses a specialized notation to study numbered, quantity, shapes and spaces.

According to Encyclopedia of Mathematics it is the study of patterns and relations and the means of representing and communicating them.

The Oxford English Dictionary defines Mathematics as “abstract science of quantity including geometry arithmetic and algebra.”

Merit Students’ Encyclopedia (1983) claims that mathematics is a collective term for the branches of learning that have grown out of the ancient discipline of geometry and arithmetic.

According to (Pom English Dictionary), Mathematics is the study of logical relationship involving numbers, shapes, functions and sets.

Mathematics is the study of quantity, structure, spaces and change. It develops through the use of subtraction and logical reasoning from counting, calculation, measurement and the study of the shape and motions of physical objects. Reports by web en. Wikipedia-org/wiki/mathematics.

The various definitions of mathematics given above places much emphasis on those branches of mathematics being shapes, algebra and arithmetic and with those branches of research which consist the application of the abstract science to concrete data. The definitions above centered mostly on pure science.

Mathematics is seen as a complicated subject yet it has a well organized system. At the elementary level there is arithmetic, algebra and geometry. Each of these has been extended at higher level to cover calculus, mechanics and vectors. According to Thomas (1993) no clear division can be made between algebra, geometry and arithmetic since these branches have become inter-dependent. But in some books algebra is considered as a branch of mathematics in which letters, symbols are used to represent numbers.

Geometry is a mathematical science concerned with the study and measurement of lines, angles and curves, and shapes. Arithmetic deals with the addition, subtraction, multiplication and division of numbers.

The importance of Mathematics

Cockcroft (1981) reports that Mathematics is useful for everyday life; science, commerce and for industry. He further explains that it provides a powerful, concise and unambiguous means of communication. It is so because it provides a means of explaining and predicting. It also attains power through its symbols, which have their own “grammar” and “syntax”. The reports claim that it develops logical thinking and it has aesthetic appeal.

British National Curriculum quotation as it relates to mathematics says “Mathematics equips pupils with a uniquely powerful set of tools to understand and change the world.

Alberto Barajas (1990) “Thanks to Mathematics, Mom is able to be sure of something” he said a major characteristic of our age is a loss of certainty affecting almost all aspects of human experience in politics, in religion, in economics, in understanding of science and in the future of civilization itself. Only in mathematics is there verifiable certainty. Tell a primary school child that, World War II lasted for ten (10) years and he will believe it. But then tell him that two groups of four (4) are ten (10) and there will be an argument. Children know what is right and what is wrong at their own level of competence in mathematics.

According to Pius and Pipper (1992), Mathematics is a language of science both pure and applied could not have developed without it. They said beside practical applications which concern most people in our modern complex life, mathematics principles are applied in many allied fields of investigation. Among these are modern industrial organizations and business activities, applied statistics, engineering and mechanics etc. If a student wishes to specialize in any of this applied field of work, he will need as much mathematics as he can learn.

Another importance of mathematics is that, it is a compulsory subject for pursuing higher education. Any failure in attaining a credit or higher in mathematics creates a problem for a student advancement to a tertiary institution.

From the above stated points the researcher sees mathematics as a very important subject of which without it, the world will have been in a mess. This is because nearly every part of our lives involves mathematics.

How Children Learn Mathematics

Annoh (1997) in his book entitled “Education” defined learning as the acquisition, retention and application of attitudes, skills and knowledge. He propounded that there is effective learning when the learner is able to focus attention on the task at hand and can apply materials learned in the situation. (Page 172)

Kele Jaiye A.O (1985) is of the opinion that one of the useful methods of learning is the discussion method. In this approach, roles of result by carrying relevant investigation or by standing mathematical patterns are achieved. In view of this, he stated that children who use the discovery method to learn will not only have a better mastery of the content but will also become more inventive and less dependent on authority.

According to mathematics for Teacher Training in Ghana, Tutors Notes (1994) compiled by Martins J.K. et al, learning as taught by some psychologist is “a relatively persistent change in an individual behaviour which is brought about by experience.” This experience may be natural day to day occurrences and situations aimed at bringing about a specific piece of learning.

There are however divergent opinions about how children learn mathematics which put psychologist into two camps, viz behaviourist and developmentalist.

The developmental theory of learning propounded by psychologist such as Jerome Burner, Zoltom Dienes, Jean Piaget and Richard Skemp believe that in learning, the mental process of the child must be taken into account. Children cannot learn the same content as adult. In other words learning is a personal experience and the job of the teacher is to facilitate this process. They also believe that there are developmental stages in ability of the child to think logically (or mathematically) and that children have to reach a certain point of development before they are ready or able to understand a particular mathematical concept.

In reference to this theory children at certain stages must be grouped in one class. C child at a stage of seven (7) years cannot learn as a student in the JHS level. This shows that the children can learn and understand mathematics concept better if they are grouped in class according to their developmental stages.

Gayne R. and Skinner B.F. propounded the behaviourist theory of learning. These people depended upon the principles of operant conditioning. They hold that learning takes place through stimulus – response (S-R) mechanism. It is the process through which the child is to obtain certain desirable behaviours. They said, the child's mind is taught of as an empty spot to be filled by teachers. The result can be favourable (R+) or unfavourable (R-) to the learner. When the desired behaviour of the child's mind is achieved, that (R+) then it is a positive reinforcement in a form of a reward, but negative

reinforcement may also be given if (R-) occurs. Learning is often organized as a series of guided exercises called “programmed learning.”

Some of the implications of teaching mathematics using some of the theories above are:

- i. Children learn better in a lively and enjoyable atmosphere
- ii. Children understand a concept when they relate to other concept they already know.
- iii. Children learn better when they are involved in practical activities and discover things for themselves.
- iv. In every Mathematics lesson, children should be given the opportunity to talk about and read their work.

The Use of Teaching and Learning Materials

Amofa (1998) notes that teaching Mathematics include materials and devices that, teacher and students use to enhance teaching effectiveness or improve the quality of teaching and learning process.

Castle E.B. (1961) states that, teaching and learning materials are used in schools to give meaning to learners. Manipulating the materials enhances understanding of concept.

Robert B. Ashlock et.al (1983) states that materials are not created only to provide activities but also to help pupils to learn a specific mathematical concept.

Jerome Burner, a Mathematics psychologist contends that “pupils find it difficult to understand a concept when lessons are presented in abstract. He emphasized that in the presentation of a new concept to pupils, teachers should first of all use concrete materials before gradually introducing abstract symbols via the use of pictures and diagrams.

i.e. Concrete $\longrightarrow$ Semi concrete $\longrightarrow$ Abstract

Tamaaakloe, Atta and Ameodahe (1996) distinguished teaching materials from learning, that is those materials which the teacher uses to facilitate the learning, understanding or acquisition of knowledge, concepts, principles or skills by the student are teaching materials. And learning materials are those materials that the learner himself uses to make learning easier than as it would have been if he had not used it.

Turney (1997) shares the view that “Whatever the age of the student there will always be a very large range of individual differences within a group in the way of thinking, interest, and pace thinking” as quoted by Kerry (1982)

There are also visual learners and kinesthetic learners. The visual learner says “I see” to mean “I understand” and respond best to tasks involving demonstration or looking at illustrations. The auditory learner prefers instruction and direct teaching, hence performs better if these modes are used more frequently for them.

The kinesthetic learner on the other hand tends to prefer direct involvement through games role playing or practically performing tasks. (School Examination and Assessment Council 1989).

Handbook on lesson notes preparation and teaching and learning materials in Primary Schools (2003) by Ghana Education Service states that “teachers who rely on the oral presentation of lessons find the pupils frequently unable to relate effectively to mathematical concepts.

Akinyemi classified teaching learning materials into six (6) categories.

- (1) Printed Materials – Textbooks, Dictionary
- (2) Graphic Materials – Posters, Diagrams
- (3) Display Materials – Overhead projector, video
- (4) Audio Materials – Radio, Records, tapes
- (5) Micro film etc.
- (6) Miscellaneous Materials – Regalia, Exhibit

Savery and Duffy) 1994) suggest that learning materials should be tailored to the teaching and learning process and it should be appropriate to the context being delivered.

Conclusion

The above review of related literature reveals that teachers should use different methods to teach. And also teachers should base their teaching on the use of relevant or

appropriate teaching and learning materials to enable learners develop understanding, love and interest in learning.

CHAPTER THREE

METHODOLOGY

Introduction

This chapter talks about the research design and the techniques that would be employed by the researcher.

It describes the research design, population, sampling techniques. It continues to describe the data collection procedure, instruments used in collecting relevant data and the statement of intervention procedures. The chapter ends with the method of data analysis procedure.

Research Design

Gay (1992); notes that a research design indicates the basic structure of a study. The nature of hypothesis and the variables involved in the study. A research design can also be defined as a plan which specifies how data relates to a given problem should be collected and analyzed.

Therefore, the focus of this study is to develop intervention in the form of abacus and place value chart to help pupils to overcome their difficulties involving addition and subtraction of six (6) and seven (7) digit numbers. In order to collect enough data, an action research was employed as a research design for the study.

Action research is a kind of research which involves the researcher identifying a specific problem and finding ways to solve it. There are strength and weaknesses associated with action research.

First of all, it helps the researcher to get solution for a particular problem. It enables the researcher to select from among many solutions, the one which will solve the identified problem appropriately.

In spite of the strength, a major weakness of action research is that it is considered as an “unending process.” It is unending process because the research findings have to be applied, modified, tried again, modified and tried again ... Because of this situation, it is not easy to find one single solution for a problem. A selection solution may create another process hence the “never ending process” which is a major set-back in action research.

Population

A population is the total number of people at a particular area and at a particular period. A population which constitutes the target group of the study is class six (6) pupils of Kramokrom District Council Primary School which is situated in the Bia District in the Western Region of Ghana. The school has a population of one hundred and eighty four (184) pupils with six (6) teachers. There are also three mentees who work hand in hand with their mentors. Class six (6) is chosen because the writer is a permanent teacher teaching that class and had observed pupils’ strength and weakness in relation to mathematics and specifically the research topic in question.

Sample and Sampling Procedure

A sample size of ten pupils (10) was chosen from the class using simple random sampling method. This number consists of four (4) boys and six (6) girls.

Research Instrument

There are many instruments used to collect information in relation to problems being investigated. After the researcher had made a thorough consideration of the factors that determine the appropriateness of the instruments for research, observation, interviews and tests were found to be appropriate to be used to gather information for the study.

Observation

In the course of teaching I observed that the B.S. six (6) of Kramokrom D/C Primary School have difficulties in addition and subtraction of six (6) and seven (7) digit numbers.

In the course of my teaching, it was observed that the pupils had those difficulties because the teachers who taught them previously did not use any teaching and learning materials to teach the concept during the instructional time. The writer is of the opinion that this is one of the factors that has contributed to the pupils' inability to understand and grasp the concept taught. The observation technique is employed because it gives first hand information to the researcher in relation to the problem identified.

Interview

In order to collect relevant data for the study, interview questions were developed. The instrument was developed through discussion with teachers and pupils. The comments made by both groups were used as bases for designing the interview questions.

Data Collection Procedure

The data collected followed a weekly planned research activity. The research was carried out during three (3) periods, thus sixty (60) minutes each week through five weeks for the intervention to be done. The researcher used two weeks for the pre-intervention in which the problem was identified by the researcher. A pre-test was given for the pupils to solve. Two weeks was also used for the intervention. The abacus and place value chart was used by the researcher in helping the pupils to overcome the problem of addition and subtraction of six (6) and seven (7) digit numbers. The last one week was used by the researcher to conduct the post-test.

Pre-Intervention

Week One (1) Activity

During the first week, observation was made by the researcher during the three mathematics lessons to reveal pupils' difficulty in addition and subtraction of numbers. Addition and subtraction of six (6) and seven (7) digit numbers was observed because it was the topic which was taught for the week

Week Two (2) Activity

After the writer's observation, he conducted pre-test on addition and subtraction of six (6) and seven (7) dig numbers to find out the actual problem pupils faced. The researcher used two days that week for the pre-tests. The first pre-test was conducted using ten (10) questions from pupils textbook. The test lasted for 60 minutes. The pupils were asked to answer questions on addition of six (6) and seven (7) digit numbers.

The second test was also conducted on another day. Pupils were asked to answer questions on subtraction of six (6) and seven (7) digit numbers. Each set of questions were written on the chalkboard for pupils to re-write and answer them in their exercise books. After marking the exercises it was found out that 90% of the target group scored five marks and below out of ten in both tests. Refer to appendix B for the questions used for the pre-test.

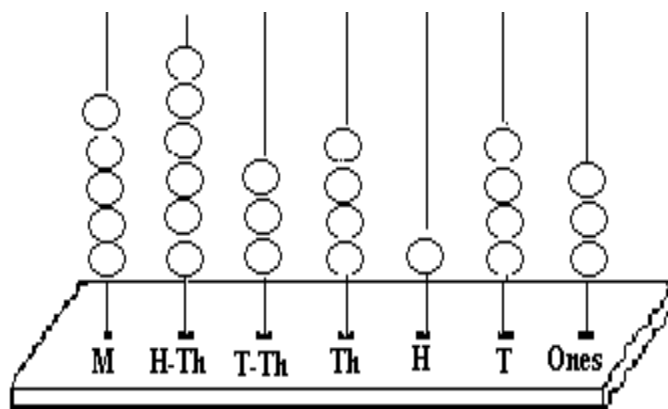
Intervention

The researcher conducted the intervention using week three (3) and week four (4). He used abacus and place value chart for his intervention. The intervention was conducted in reference to pupils' inability to add and subtract six (6) and seven (7) digit numbers as revealed by the responses during the pre-test. The researcher used abacus for week three and place value chart for week four.

Week Three

The researcher used the abacus during the whole week. Three days lessons were conducted during the week.

In the first lesson of the week, the researcher introduced the abacus to the pupils. It was explained to the pupils that an abacus is a frame containing rods with small balls that slide along the rods. It is used as a tool for counting. The pupils were later grouped into two (2) groups to observe critically and examine the abacus. They were later asked to describe how they see it. Most of the pupils were able to describe an abacus as a wooden frame with small balls used for counting and subtracting. Below is the picture of the abacus.



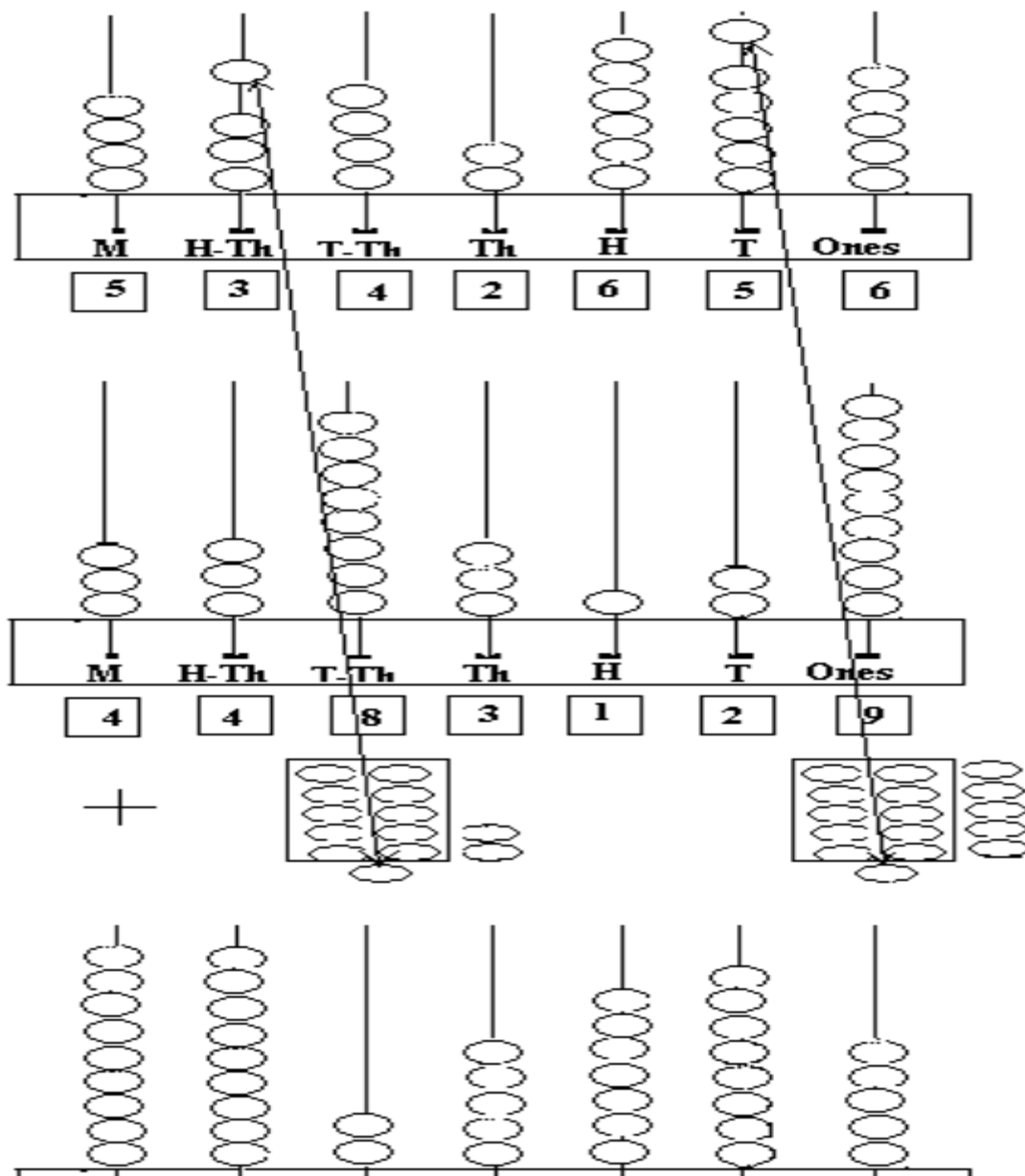
The second day's lesson was used by the researcher to demonstrate example by using three seven-spiked abacuses, to teach addition of six (6) and seven (7) digit numbers.

During the lesson, the researcher stressed on the collection of ones, tens, hundreds, thousands, ten-thousands, and millions in ascending order. The process of

exchanging ones for tens, tens for hundreds, hundreds for thousands was demonstrated to the pupils.

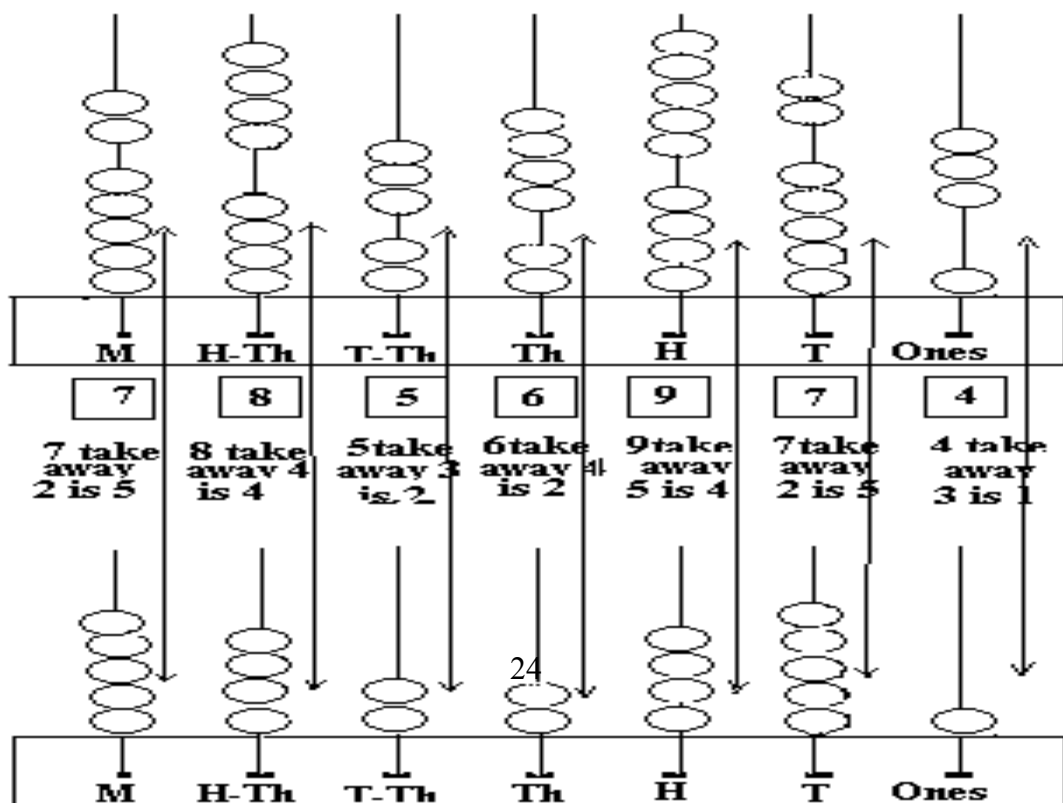
Example:

$$\begin{array}{r} 5342656 \\ + 4483129 \\ \hline \end{array}$$



The last day's lesson was also used by the researcher to teach subtraction of six (6) and seven (7) digit numbers using an abacus. The pupils were taught that the difference between two numbers is found subtracting a smaller number (subtrahend) from a larger number (minuends)

Example:
$$\begin{array}{r} 7856974 \\ - 2434523 \\ \hline \end{array}$$



Week Five

During the fourth week of the intervention, the pupils were taken through addition and subtraction of six (6) and seven (7) digit numbers using place value charts.

During this week three days lessons were used for the intervention with each lesson lasting for sixty minutes. In day one's lesson, the researcher introduced the pupils to the place value chart where it was explained to the pupils how it is used. The pupils were told that materials including cardboards, pencils, pens, felt pens, erasers, and ruler are used in preparing the place value chart. The researcher further explained that with the use of a ruler and felt pen the positions on the place value chart were marked and drawn from positions representing ones to millions. Example of the amount in the chart: (i.e. 5 million, 793 thousand, 6 hundred and 12. Five million seven hundred and ninety-three thousand, six hundred and twelve)

Millions	Hundred thousand	Ten thousand	Thousands	Hundreds	Tens	Ones
1,000,000	100,000	10,000	1,000	100	10	1
5	7	9	3	6	1	2

During the second day's lesson, the researcher used the place value chart to teach addition of six (6) and seven (7) digit numbers. The researcher involved the pupils in an addition game involving number zero to twenty (0 – 20), before introducing them into the use of place value chart to add six (6) and seven (7) digit numbers. The game is played by two pupils at a time. One starts 0 and add 1,2, or 3. The addition alternates between the players up to the one who reaches 20 first and he or she is declared the winner. This game helps the pupils to develop problems-solving strategies. The researcher then demonstrated the use of the place value chart in teaching six (6) and seven 97) digit numbers. It was explained to the pupils that addition of two whole numbers can be illustrated by bringing together groups of objects.

Example : Add 4,967,547 and 3,387,686

Place Value							
+	M	H-Th	T-Th	Th	H	T	0
Addition	4	9	6	7	5	4	7
	3	3	8	7	6	8	6
	8	13	15	15	12	13	13
	8	3	5	5	2	3	3

The place value chart was used by the researcher during the last day's lesson of the week to demonstrate how to subtract six (6) and seven (7) digit numbers. A

subtraction game was used to introduce the lesson for the day to help develop the pupils' acquisition and development skill. The subtraction game is the reverse of the addition game. It starts with a player taking 20 and subtracting 1,2 or 3 from it as in $20-2 = 18$. The other player continues from the previous result. The game continues till one obtains zero. (0) When this happens he or she is declared the winner. The researcher involved most of the pupils in the game. Finally the place value chart was used to demonstrate subtraction of six (6) and seven (7) digit numbers. It was explained to the pupils that, subtraction of numbers can be illustrated by the removal of a number of objects from a group of objects.

Example:
$$\begin{array}{r} 733526 \\ - 375863 \end{array}$$

The above question can be solved by the use of place value chart as shown below:

Place Value Chart						
-	H-Th	T-Th	Th	H	T	0
Subtraction	7	3	3	5	2	6
	3	7	5	8	6	3
	3	7	5	8	6	3

Post Intervention

A week was used to administer the post-tests. These tests were conducted to find out the pupils' performance after administering the intervention to ascertain the effectiveness of the interventional activities.

Week V

This week happened to be the last week the researcher used for carrying out the research. The researcher used two days in the week to administer post-tests. During the first day, ten (10) questions based on addition of six (6) and seven (7) digit numbers were set for pupils to answer for marking. On the second day, which happened to be the last day of the week, the researcher finally set ten (10) questions based on subtraction of six (6) and seven (7) digit numbers of pupils to answer. This also followed the same procedure as in the pre-test.

The researcher embarked on the post-test to verify whether there has been an improvement in the pupils' ability to add and subtract six (6) and seven (7) digit numbers. The researcher was happy to see that 90% of the pupils under study have overcome the problem of addition and subtraction of six (6) and seven (7) digit numbers after the intervention involving the use of abacus and place value chart.

CHAPTER FOUR

DATA ANALYSIS AND DISCUSSION OF FINDINGS

Introduction

This chapter seeks to analyze the outcome obtained from the study. The result of pupils' performance has been tabulated to give the details of the outcome of the study. Both the pre-test and the post-tests conducted have been shown with their respective interpretation. The analysis is in respect of the intervention of the study.

Analysis of the Data

The research findings were based on the analysis of the test conducted under the pre-test. In all, ten test questions were set for the pupils to see their strengths and weaknesses in addition and subtraction of six (6) and seven (7) digits numbers.

Data supplied by pupils and information collected by the researcher are analyzed in tabular form for easy reference using simple percentages.

Table 1: Pupils selected for the study according to their gender

Gender	Number of pupils	Percentage
Boys	4	40%
Girls	6	60%
Total	10	100%

Table 1 show that 10 pupils were selected in all for the study. Among them were 4 boys who constitute 40% and 6 pupils who constitute 60% were girls.

Table 2: Score of pupils in the Pre-Test

Number	Name of Pupil	Pre-Test 1	Pre-Test 2	Total Marks
1	Addae Rose	2	3	5
2	Addae Sakina	1	3	4
3	Ama Felicia	0	1	1
4	Ibraihim Afua I	1	1	2
5	Ibraihim Afua II	1	2	3
6	Braimah Alhaji	0	1	1
7	Kwaku Prince	1	2	3
8	Kyere Donkor	0	1	1
9	Owusu Daniel	0	1	1
10	Sakyiwa Ama	0	3	3

Table 2 indicates the scores obtained by pupils in the pre-test. As it can be seen clearly, the scores of the total pre-test show a poor performance of pupils. One third of the targeted group scored one (1) out of 20 marks in the Pre-test 1 and the Pre-test 2, which constituted 30% of the pupils. The average pupils in the class scored (2-3) out of 20 marks which also constituted 40%. Whilst the so called brilliant pupils in the class scored (4-5) marks out of 20 marks in the two Pre-tests which also constituted 30%. On the whole 60% of the pupils performed poorly. This shows pupils inability to add and subtract six (6) and seven (7) digit numbers.

Table 3: Scores of pupils in the Post-Test

Number	Name of Pupils	Post-Test 1	Post-Test 2	Total Mark
1	Addae Rose	10	10	20
2	Addae Sakina	8	10	18
3	Ama Felicia	7	9	16
4	Ibraihim Afua I	8	10	18
5	Ibrahim Afua II	8	9	17
6	Braimah Alhaji	8	8	16
7	Kwaku Prince	9	10	19
8	Kyere Donkor	8	10	18
9	Owusu Daniel	10	10	20
10	Sakyiwa Ama	9	9	18

Table 3 indicates the scores obtained by pupils in the Post-Test. After the interventions the standard of performance of pupils improved tremendously. After the Post-Test, only 30% of the pupils scored 16-17 marks out of 20. The average pupils scored 18 marks which were 4 pupils constituted 40% of the pupils. This time the brilliant pupils in the class scored 19-20 marks out of 20 which also constitute 30% of the pupils. This shows how best pupils learn when they are taught using appropriate teaching learning materials.

Table 4: Total Pre-Test scores and corresponding percentage

Marks obtained by pupils out of 20	No. of Pupils	Percentage
0	2	20%
1	1	10%

2	1	10%
3	3	30%
4	2	20%
5	1	10%
6		
7		
8		
9		
10		
11		
12		
13		
14		
15		
16		
17		
18		
19		
20		
10		100%

Table 4: Reveals that 20% of the pupils scored zero(0) while 10%, 10%, 30%, 20% and 10% of the pupils scored 1, 2, 3, 4 and 5 respectively.

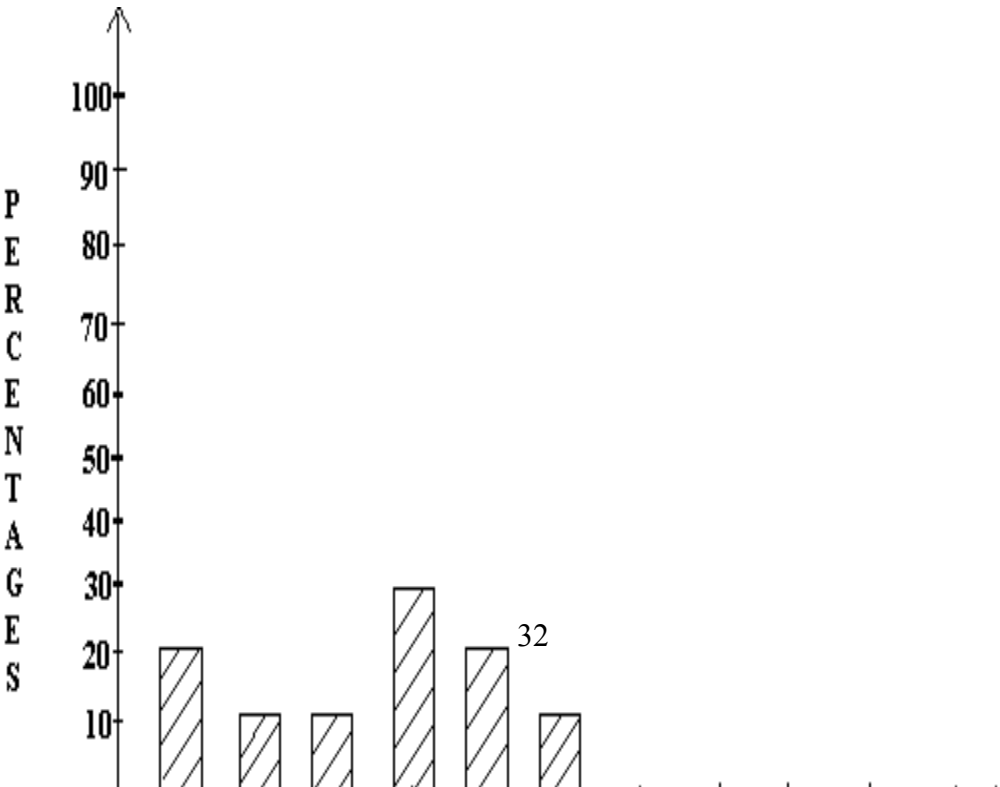
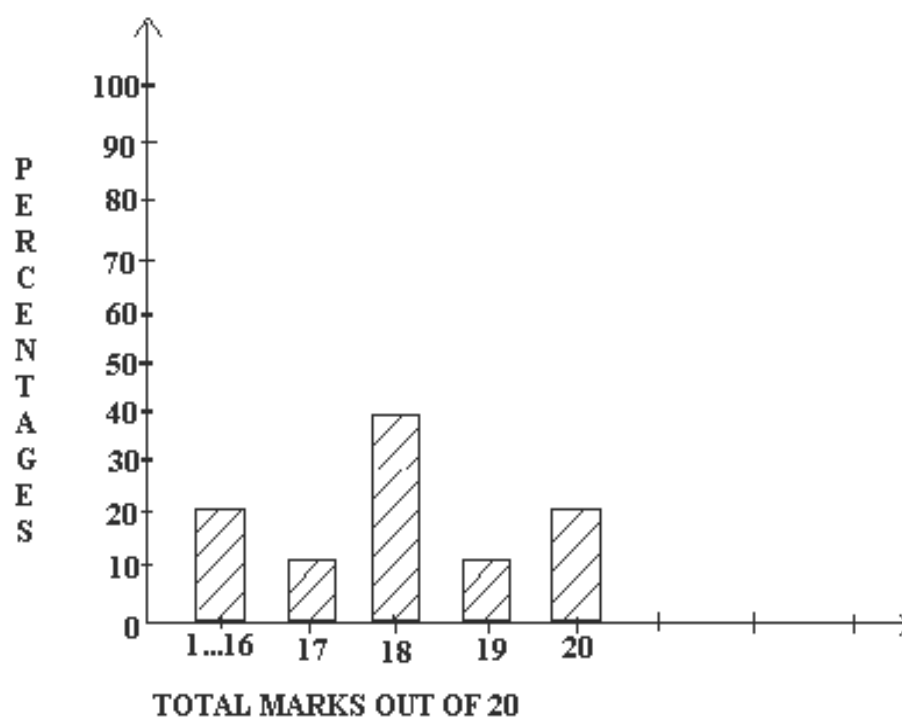


Figure 1 shows that before the intervention pupils understanding on the topic “addition and subtraction of six (6) and seven (7) digits numbers” was very low. About 90% of the pupils had below the average marks during the pre-test since the pass marks is 10 marks; this means that almost all the pupils in the sample failed the test.

Table 5: Total Post-Test score and corresponding percentage

Marks obtained by pupils out of 20	No. of Pupils	Percentage
0		
1		
2		
3		
4		
5		
6		
7		
8		
9		
10		
11		
12		
13		

14		
15		
16	2	20%
17	1	10%
18	4	40%
19	1	10%
20	2	20%
10		100%



The result of figure 2 indicated that pupils' performance improved after the administration of the intervention. If the pass marks is 15, this means 100% of the sample passed the test.

The result in the pre-test shows that pupils had serious problem when it comes to addition and subtraction of six (6) and seven (7) digit numbers. When the outcome of the

pre-test is compared to that of the post-test, it can be seen clearly that the performance of pupils has improved tremendously. The use of abacus and place value chart has made the topic more practical to the pupil. This has helped the pupils to relate addition and subtraction of six (6) and seven (7) digit numbers to real life situation. Also, it has helped pupils to solve other related mathematical problems which involve addition and subtraction of six (6) and seven (7) digit numbers.

The main aim of this study is to assist class six (6) pupils of Kramokrom D/C Primary School in the Bia District of Western Region to overcome their difficulty in addition and subtraction of six (6) and seven (7) digit numbers. It is worth knowing that the study was to a large extent successful. This is because the study brought out the causes of pupils inability to add and subtract six (6) and seven (7) digit numbers. This helped the writer to design an effective intervention to curb the situation.

The research also revealed that the intervention carried out was successful because of the remarkable improvement in pupils performance.

CHAPTER FIVE

SUMMARY, CONCLUSION AND RECOMMENDATION

Introduction

This chapter which is the last chapter of the study describes the summary of the findings, various conclusions drawn and some recommendations put forward by the researcher.

Summary

After the researcher had gone through the analysis and interpretation of the data gathered, the following were discovered:

- For better understanding of the concept and practicality of teaching, there is the need to use teaching and learning materials to teach mathematics.
- The design and the construction of teaching and learning materials is very difficult and expensive for some teachers to come by the materials and the instruments for the construction of teaching aid so the teachers must be supported.
- When a teacher uses teaching and learning materials in teaching, learning becomes interesting and practical.
- When pupils use teaching and learning materials in learning mathematics, learning becomes easy and thus becomes dependent. Their understanding of the subject is also developed with the use of teaching and learning materials.
- There was a considerable improvement in the overall performance of ten pupils in the post-test.

Conclusion

It could be deduced from the findings of the study that the poor performance of pupils is the sum total of problems discussed above. It can also be concluded that due to the intervention, the concept of addition and subtraction of six (6) and seven (7) digit numbers had been understood by the class six pupils of Kramokrom D/C Primary School.

Recommendation

Despite the efforts made by the writer to achieve the purpose of study, still there is the demand for recommendation.

The writer recommends that the child-centered methods of teaching and learning should be adopted by all teachers in the field of teaching mathematics. Teachers should also involve pupils in class during the teaching and learning process. This will promote effective participation.

Also, the Ministry of Education, Science and Sports and Ghana Education Service should try to organize workshops for teachers. This will help to upgrade or better still improve their knowledge and inform teachers on the need to involve pupils in lesson and use appropriate teaching learning materials when teaching. The Ministry should also supply enough textbooks to pupils to ensure effective teaching and learning.

It is finally recommended that classroom management should be effective. Good lighting system, enough space, ventilation, seating arrangement and others should be in place.

Suggestions for further Research

In every human activity, there is no perfection since human beings are bound to make mistakes. It is based on this that the researcher wishes to suggest the following modifications for further researchers who will undertake similar research in order to enhance efficiency.

The writer suggests that people should also try different interventions. For example, multibase block or number tracks to teach addition and subtraction of six (6) and seven (7) digits numbers.

Also it is suggested that other researchers should look at multiplication and division of numbers to make the teaching and learning of mathematics easy and worth while.

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