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Identifying slow learners in mathematics and promoting their participation in Mathematic in Sierra Leone. Case Study: Ten Schools in Kenema City

ABSTRACT

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This dissertation focuses on how slow or dull learners can be identified and assisted to cope with Mathematics lessons in junior secondary schools. The challenge of slow learners cannot be addressed until the learners are identified. Sometimes one error by a fast learner can make him or her appear like a slow learner in the eyes of a teacher. Therefore teachers need a deeper knowledge and understanding of how slow learners behave before jumping into conclusion .This research is therefore conducted to identify the behavior of slow learners and help teachers to promote their participation in Mathematics lessons .The research was conducted through questionnaires, Interviews, observation demonstrations lessons and through document reviews and demonstration lessons. From the views of teachers and the demonstration lesson the main characteristics of dull learners that make them easily indefinable by their tutors include : low attention span in class, less confidence in number work, very low computational skills ,less initiative in problem solving, less participatory in Mathematics lessons, little or no effort to apply what has been learnt in class in the real world. To promote participation in slow learner

teachers should use a lot of strategies which includes-Teaching fundamental concepts to build foundation, using simple language using games to arouse interest, encouraging group work ,giving remedial lessons, encouraging practice, discussion ,praising to increase effort, using many teaching aids. Teachers therefore have the responsibility to make teaching learner- centred and more participatory to help slow learners improve themselves.

INTRODUCTION:

There are different categories of learners in every classroom. There are gifted (fast) learners, average learners and slow (dull) learners. Each category is different from the other in terms of classroom participation, level of understanding and materials needed for teaching them. It is therefore the responsibility of every mathematics teacher to know the various categories of learners in his /her classroom and organize the teaching method to meet the demands of each category. The gifted learners of mathematics are exceptionally smart in their computation and adaptability to various teaching methods. The average learners as the name implies are neither highly gifted nor\ dull but occupies a middle ground position in terms of internalization and participation. The dull or slow learners have difficulty in grasping facts and solving number problems. For good mathematics teachers every category of learners deserves considerable amount of attention. However, many teachers are worried about the performance of slow learners of mathematics. This is because unlike the fast learners self-teaching is extremely difficult for slow learners and the perseverance of teachers is of the essence in promoting their learning. In fact, if the teaching of mathematics at the junior or even secondary level should improve then priority should be given to the slow learners who are almost always in the majority. This research is therefore conducted to identify the different characteristics that distinguish the various categories of learners. It is also meant to find better ways of teaching the mathematically dull pupils and ultimately increasing their participation in mathematics lessons. The researcher will find answer to the following questions:

What are the main characteristics of slow learners in mathematics?

What learning and teaching materials do they need for their lessons?

What teaching methods are beneficial for them?

In the effort of providing answers the researcher has done a careful study of different institutions and learners to produce this document.

STATEMENT OF THE PROBLEM

Most classes in school are mixed ability groups. Teachers therefore have onus of identifying the strengths and weaknesses of the learners and use teaching methods to suit their needs. It is however, clear that many mathematics teachers of today give more attention to pupils who are smart and hardworking in their subject then to average and dull pupils. In mathematics lessons more pupils are often left confused and sometimes frustrated and hence learning outcomes are usually left unachieved. Slow learners of mathematics are finding it difficult to grow academically as many tutors are not representing their interest. Their participation and progress are not closely monitored by the teachers. This remains to be a cause for concern and has prompted the researcher to undertake this task.

AIM:

The aim of this research is to identify the learning needs of slow learners of mathematics and help them achieve academically

OBJECTIVES:

This research seeks to achieve he following objectives

- Identifying the different characteristics exhibited by slow learners of mathematics.
- Identifying different strategies appropriate for teaching slow learners.
- Finding ways and means of promoting pupils participation in mathematics lessons.
- Assessing the main challenges of teachers teacher

SIGNIFICANCE OF THE STUDY

This research is of significance to teachers, school heads, the central governmental organizations and other persons with interest in education generally and in mathematics particularly. The teachers needs sufficient information on the characteristics and needs of learners. The information provided here can help them get a better understanding of the pupils they are dealing with and promote their learning. The schools heads (principals) are key to providing quality teaching of mathematics at various levels. They would be interested in knowing what transpires in the classroom. They would like to know the challenges and strengths of pupils and teachers and ultimately seek redress. In particular they need to know their teachers and their pupils to properly plan for educational progress.

This research will be of benefit to the central government. The dream of free and quality education can become a reality if barriers to contribution of the government to good teaching are addressed. The strategies and policies of the central government are determined by the amount

of information it gets from the classroom and from such research.. Hence this study is key to the central government. Some non- governmental organizations direct their focus towards achieving educational goals. This research will help them in their search for facts for example FAWE, 'Leh we Lan', and International Rescue Committee (IRC) are among the NGOs interested in studying the performance of learners at different levels. This work will help them gain facts concerning their search. Anyone with genuine interest in education will find this work useful. It will help them find answer too many question about the performance of pupils. The completion of this work is one of the requirements for the awards of the Bachelors of Education degree in mathematics. It is therefore a mark of academic achievement for the researcher. This work can also serve as a source of information for anyone conducting similar or a related research.

This chapter gives the views of many writers with respects to the performance of slow learners of Mathematics and how to promote their learning. The researcher's own views are also contained in this chapter

Perry Donotive and Weinstein (2007) simply described a slow learner as a child who learns at a pace of little behind others of their age and grade level. In other words slow learners lag behind others in terms of academic.

Rajkurmar (2009) described slow learner as children with limited intelligence and with any or a combination of identifiable disfunctionalities. With respect to the characteristics of slow learners of Mathematics Rajkumar highlighted the following: They have difficulty in following multi step directions in solving problems

. **They have few internal strategies.**

Score consistently low marks on academic tests. From the above mentioned features or qualities of slow learners it can be seen that teachers demand extra efforts to promote their learning in Mathematics and even in some other Mathematics related subjects. Many writers have also identified many strategies for helping slow learners. According to Kumpulain and Renshaw (2007) Dull Learners need collaboration, involvement and shared goals

Teachers can therefore not endeavor to abandon them but to constantly keep their eyes on them and monitor their involvement in classroom activities. They need confidence and reward for good performance. Subscribing to the above view Matusou and White (1998) recommended the usefulness of interaction in dealing or teaching slow learners. In this view, teachers should interest with slow learners in the form of providing opportunities for group work among them. Matusou also emphasized that good interaction between the teachers and the pupils will increase their confidence and help them get over the fear of the subject.

Perry and Dockett (2007) advocated for teach the subject (Mathematics) through play. In other words the use of games counts in teaching slow learners especially at the lower levels. Perry and Dockett believed in helping slow learners through reflection on experiences and using play to direct such reflective practice. The method of reflection was strongly supported by Haylock (2007). Since mathematically dull children do not have good memory then reminding them of what they have learnt becomes always necessary. This can take the form of engaging them in exercise in class as well as assignment in topics covered. Emily Listman (2019) provided the following tips for teaching pupils who are slow learners in Mathematics:

- Provide homework help
- Test the learners for learning disabilities
- Help the learners set long term goals
- Give them chance to excel in non – academic arena
- Provide for them sufficient resources
- Arrange an Individualized Education Plan (IEP) to enhance their learning.

From the above tips it becomes necessary for teacher to help pupils while thinking of their background information eg. Learning disabilities and the lack of resources in the home. Mathematics teacher should avoid making assumptions and devote attention to children who need remediation. Howell (2000) provided additional tips for helping slow learners of Mathematics. These include the following:

- Give learners more time to practice.
- Make relations in concepts.

- Give real world examples.
- Make reviews
- Reward performance
- Give learners modular instruction

As expressed by Howell slow learners need real world examples. The essence of this is to remove them from the realm of abstraction and make the subject more meaningful to them. Also in the effort of making mathematics more practical teachers need a gradual or modular approach to the teaching of the subject

Eden Badertscher (2009) advised that even though mathematics teachers want what is best for their pupils they (teachers) need support. One form of support can be regular training for the teachers. Eden maintains that training exposes the teachers to more teaching techniques and presentation strategies thereby increasing learning opportunities for slow learners. Darling Hammond and Metaughlin (2005) asserted that teacher quality is a powerful influence on student learning. This of course cannot be over emphasized as good teachers can help produce good students. In teaching slow learners good mathematics teachers can help improve the performance of students through motivation and the presentation of appropriate learning materials.

The National Assessment for Educational Progress (NAEP) in 1977 defined disability broadly to include mental retardation, hearing impairments (including deafness) speech or language impairments, visual impairments including (blindness), serious emotional disturbance, orthopedic impairments, autism, traumatic brain injury, other health impairment or specific learning disabilities and developmental delays. It is very clear that these conditions hinder learning and the earlier teachers get to know about any defect the earlier to try to find solution to it. The low level of participation of slow learners in Mathematics lessons continues to be a concern to many researchers1.

A training manual produced by “LehWe Lan” (Let us learn) adapted from a manual for Leaders and Educators by Christopher Kaliba (2012) identified some reasons for which many pupils fail to participate in lessons. These include:

- Lack of knowledge and poor explanation of concepts by teachers usually keep pupils quite and less participatory in Mathematics lessons.
- Little or no understanding of what the teacher in saying.
- Some events at home of on the way to school may pre-occupy the mind of pupils and lessons their concentration span. Shyness as an innate characteristic of some learners.

These are among the challenges mathematics teachers do face in the classroom. It is therefore recommended that teachers get closer to their pupils and understand their state of mind or the circumstances around them for effective teaching to take place. In line with the above mentioned recommendations Anthony and Walshw (2009) suggested that teachers should promote "Mathematics talks" and embark on formative assessment for learners. Promoting Mathematics talks is a way of helping children realize that mathematics is part of ''their everyday lives and some events in their community sometimes have mathematics interpretations. **According to W. H. Cockcraft and others (1981) Mathematics teaching at all levels should include opportunities for**

- Exposition by the teacher;
- Discussion between teacher and pupils and between pupils themselves;
- Appropriate practical work;
- Consolidation and practice of fundamental skills and routines;
- Problem solving including the application of mathematics to everyday situations;
- Investigational work. The strategies will work for all categories of learners including slow learners of Mathematics.

RESEARCH METHODOLOGY

This chapter explains where and how the data for this research was collected. It also gives a concise description of the study setting and an explanation of the techniques and procedures used in the collection of data required. How the data was analyzed is also explained in this chapter.

RESEARCH DESIGN:

The research is case studies of what obtains in different schools.

STUDY SETTING:

The study was done in Kenema City in the Easter Region of Sierra Leone. The city has a growing population and also an increasing number of schools. The large number of schools has led to a corresponding increase in the number of teachers. The trend in the number of schools teachers and pupils in the city made it appropriate for the study. There are a variety of schools reflecting different performance bands from which many decisions can be made.

SAMPLE SIZE:

The research population comprised pupils, Mathematics teachers and head/principal of the selected schools in the junior sector. The following schools were selected.

- **Ansarul Islamic Secondary Schools, Kenema.**
- Government Secondary Schools, Kenema
- Henritta Secondary School, Kenema
- Holy Rosary Secondary School, Kenema
- Holy Trinity Secondary School, Kenema
- Luke's Commercial Secondary School, Kenema
- Lumbebu International School, Kenema
- Methodist Vocational Secondary School, Kenema
- National Islamic Secondary School, Kenema
- Sierra International Secondary School, Kenem

The researcher would not contact or interview all the pupils and mathematics teachers of the different selected schools. He therefore collected sample of students who were interviewed. The researcher selected three (3) mathematics teachers from the junior sector of each selected school (ie JSS I – JSS III) to be respond to questionnaires. In the JSS classes ten (10) pupils were selected and interviewed about their participation and performance in mathematics lessons. The

head of each selected school or the leader of the junior was interviewed. In essence 140 people or respondents (100 pupils, 10 heads and 30 teachers) were contacted for information.

SAMPLING TECHNIQUES:

The researcher used both simple Random Sampling to and stratified sampling to collect the needed data. The researcher used stratified sampling to select pupils in the JSS classes using the classes as strata (JSS I – III) and then used simple random sampling to select the various pupils from the different classes. In the simple random sampling all the respondents have equal opportunities of being selected to provide information.

DATA COLLECTION TECHNIQUES AND PROCEDURES:

The data for this research was collected through questionnaires, interviews, observation and study of element documents. This was done in order to get sufficient and reliable information from the different categories of respondents (teachers, pupils and school heads) who differ in knowledge and responsibilities.

Questionnaires:

The researcher designed and administered questionnaire to mathematics teachers of the selected schools. Four (4) questionnaires we given out to four staff in each selected school (i.e three mathematics teachers and the principal of the school). In schools with two (2) principals the one in the junior sector was contacted for the required information. The questionnaires were completed and returned to the researchers in three weeks period. The questions were aimed at exploring teacher's knowledge on slow learners of mathematics.

Interviews:

Interviews were conducted for the pupils especially those whose performance in mathematics was low. The researcher was engaged in identifying the major challenges of slow learners, their methods of teaching and learning and the resources the teachers are using to help them. The researcher conducted structured informal interviews this means the questions were similar for most of the pupils contacted, but they (pupils) were not informed in advance about such interview.

Observation:

The researcher also obtained additional data through observation. The selected schools were visited to gather facts about the teaching and learning of mathematics to low level learner in the junior secondary schools. The teaching and learning environments were closely observed in order to gather first-hand information.

A lot of documents were consulted (ie secondary sources) in other to gather more facts on the topic. The sources included books, newspapers, the internet, magazines and radio talks

DATA ANALYSIS AND PRESENTATION:

The data was analyzed using tables. Percentages have been calculated where appropriate to ease interpretation of findings.

DATA PRESENTATION AND ANALYSIS

This chapter gives a detailed presentation and analysis of the research findings taking into cognizance the objectives of the studies Tables and calculations have been done to enhance clarity of the results obtained in some cases hypotheses have been tested to make reasonable and realistic conclusions.

TABLE 1: ASSESSING THE LEVEL OF PUPILS INTEREST IN MATHEMATICS:

	LEVEL			
SCHOOL	LOW	MODERATE	HIGH	TOTAL

AISSK	3	5	2	10
GSSK	3	4	3	10
HSSK	2	5	3	10
HRSSK	4	3	3	10
HTSSK	3	3	4	10
LCSSK	4	4	2	10
LISSK	4	5	1	10
MVSSK	3	4	3	10
NISSK	4	4	2	10
SISSK	2	5	3	10
TOTAL	32	42	26	100
PERCENTAGE	32%	42%	26%	100%

Source: Survey data

KEY:

AISSK: Ansural Islamic Secondary School-Kenema

GSSK: Government Secondary School, Kenema

HSSK: Henritta Secondary School, Kenema

HRSSK: Holy Rosary Secondary School, Kenema

HTSSK: Holy Trinity Secondary School, Kenema

LCSSK: Lukes Commercial Secondary School, Kenema

LISSK: Lumbebu International Secondary School, Kenema

MVSSK: Methodist Vocational Secondary School, Kenema

NISSK: National Islamic Secondary School, Kenema

SISSK: Sierra International Secondary School, Kenema

In the table above we can observe to some extent the level of pupils interest in Mathematics This level of interest to a greater extent determines their participation in lessons From a total of 100 pupils interviewed in 10 different school 32(32%) showed low interest in the subject, 42 of them (ie 42%)indicated moderate interest in Mathematics while 26(26%) showed high interest in the subject.

TABLE 2: ANALYSIS OF MARKS SCORED IN A PRE-TEST BY JSS 3 PUPILS IN MATHS:

CHOOL	MARK DISTRIBUTION (%)										
	1-10	11-20	21-30	31-40	41-50	51-60	61-70	71-80	81-90	91-100	TOTAL

AISSK	2	2	3	1	1	1	0	0	0	0	10
GSSK	1	1	0	1	3	2	2	0	0	0	10
HSSK	1	1	1	1	3	1	2	0	0	0	10
HRSSK	3	2	1	1	2	1	0	0	0	0	10
HTSSK	1	1	1	2	2	1	1	1	0	0	10
LCSSK	1	2	2	2	1	2	0	0	0	0	10
LISSK	2	2	1	3	2	0	0	0	0	0	10
MVSSK	1	2	3	1	0	1	1	1	0	0	10
NISSK	2	3	1	1	2	1	0	0	0	0	10
SISSK	2	2	1	2	1	1	1	0	0	0	10
TOTAL	16	18	14	15	17	11	7	2	0	0	100

Source: Survey Data

The table above gives the performance of pupils in a pretest (ie test conducted before learners are taught) in Mathematics in JSS 3. It can be seen that majority of the pupils scored low marks considering all the schools In fact nearly half of the pupils tested scored below 40 marks. Only 20% of the total scored above 50 marks. This table gives an indication that fast learners in Mathematics are in the minority in all the schools.

TABLE 3: ANAYLSIS OF MARKS SCORED IN APOST TEST BY JSS 3 PUPILS IN MATHEMAICS IN TEN SCHOOLS:

SCHOOL	MARK DISTRIBUTION (%)										TOTAL
	1-10	11-20	21-30	31-40	41-50	51-60	61-70	71-80	81-90	91-100	

AISSK	0	1	1	1	4	2	1	0	0	0	10
GSSK	0	0	1	0	3	4	1	1	0	0	10
HSSK	0	0	1	2	4	1	1	1	0	0	10
HRSSK	0	1	1	3	1	2	2	0	0	0	10
HTSSK	0	0	1	0	1	5	2	1	0	0	10
LCSSK	0	0	1	4	1	2	2	0	0	0	10
LISSK	0	1	1	2	4	1	1	0	0	0	10
MVSSK	0	0	1	3	1	2	2	1	0	0	10
NISSK	0	0	1	4	3	1	1	0	0	0	10
SISSK	0	0	2	1	5	1	1	0	0	0	10
TOTAL	0	3	11	20	27	21	14	4	0	0	100

Source: Survey Data Obtained from Survey

The table above gives the performance of pupils in a post – test (ie test conducted after learners have been taught) in Mathematics in JSS 3. A marked improvement can be seen in the post-test when compared with the pre – test 39% of the pupils scored above 50% as compared to only 20% of the pupils who did so in the pretest. In the post – test all the candidates tested scored above 10 marks which also imply improvement.

TABLE 4: PUPILS OPINION ABOUT THE DIFFICULTY LEVEL OF MATHEMATICS:

Mathematics is a subject that is difficult to understand		
Response	Number of Respondents	Percentage (%)

Disagree	15	15
Agree	60	60
Strongly agree	25	25
Total	100	100%

Source: Survey Data

The table above gives the views of pupils in the different selected schools in Kenema City. From the responses it can be seen that 75% of the respondents points to the difficult nature of Mathematics. This opinion obviously affects pupil's participation and performance.

TABLE 5: SOME REASONS FOR LOW PUPILS' PARTICIPATION IN MATHEMATICS LESSONS IN JSS CLASSES:

TEACHERS' VIEWS
Some pupils are physically challenged .
Some pupils are too shy to speak
Some have little or no confidence in themselves
Some are often late for Mathematics lessons
Little or no interest in Mathematics
PUPILS' VIEWS
Teachers give them less attention
Lessons are often boring – no activity
Lessons are often abstract

Pupils are sometimes punished for wrong answers
Classrooms are often overcrowded
Little or no provision for group work
Events from home may affect pupils participation

Source: Survey Data

The table above highlights reasons for low or even non participation of pupils in Mathematics lessons .The highlights is from the viewpoints of teachers and pupils. Apart from physical challenges of the learners teachers are of the view that pupils lack interest in Mathematics

The pupils also have many reasons for their non active participation in Mathematics lessons. Their views were expressed through interviews with the researcher. These views are necessary for the attention of Mathematics teachers who need modification for improvement.

HYPOTHESIS TESTING:

Male and female participation in Mathematics lessons.

Test: Inference about the Difference between Two Proportions: Let P_1 = Proportion of pupils that agrees to equal male and female participation in Mathematics lessons. And P_2 = proportion of pupils who disagrees that females equally participate as males 32 out of 60 pupils randomly selected from the schools said there is equal male and female participation. 12 out of 60 randomly selected pupils disagree with equal participation. Null hypothesis (H_O) Boys participate equally as girls in Mathematics lessons Alternative hypothesis (H_1) girls' and boys' participation in Mathematics lessons differ.

Null hypothesis H_O: $(P_1 - P_2) = 0$

Alternative hypothesis H_1: $(P_1 - P_2) > 0$

Test Statistic $Z = \dfrac{(P_1 - P_2)}{\sqrt{P(1-P)\left(\frac{1}{n_1} + \frac{1}{n_2}\right)}}$

Rejection region $Z > Z = Z_{.01} = 2.33$

$P_1 = \frac{32}{60} = 0.533$ $\quad P_2 = \frac{12}{60} = 0.200$

$$P = \frac{32 + 12}{60 + 60} = \frac{44}{120} = 0.367$$

$(1 - P) = 1.000 - 0.367 = 0.633$

$n_1 = 60 \qquad n_2 = 60$

Substituting into the test statistic we have

$$Z = \frac{0.533 - 0.200}{\sqrt{0.367(0.633)\left[\frac{1}{60} + \frac{1}{6}\right]}}$$

$$Z = \frac{0.333}{\sqrt{232311\,(0.017 + 0.017)}}$$

$$Z = \frac{0.333}{\sqrt{0.232311\,(0.034)}}$$

$$Z = \frac{0.333}{\sqrt{0.008}}$$

$$Z = \frac{0.33}{0.089}$$

$Z = 3.74$

Conclusion: The calculated value of Z is greater than its tabulated value. We therefore reject the null hypothesis (H_O). Obviously the participation of boys is greater than that of girls.

ASSESSMENT OF TEACHING AND LEARNING MATERIALS FOR MATHEMATICS:

Let P_1 = proportion of pupils that agrees on the appropriateness of mathematics textbooks

And P_2 = proportion of pupils who disagrees with the appropriateness of learning materials.

10 out 50 pupils randomly selected in the selected schools agreed that the mathematics teaching textbooks they use are appropriate. 05 out of 50 pupils disagreed that their textbooks are not very appropriate

Null hypothesis (H_O) the mathematics textbooks used by the JSS mathematics teachers are appropriate for pupils

Alternative hypothesis (H1): The mathematics textbooks used by teachers are not appropriate for pupils

Null hypothesis H_O: $(P_1 - P_2) = 0$

Alternative hypothesis (H_1): $(P_1 - P_2) > 0$

Test Statistic $Z = \dfrac{(P1 - P2)}{\sqrt{P(1-P)\left[\frac{1}{n_1} + \frac{1}{n_2}\right]}}$

Rejection region $Z > Z = Z_{.01} = 2.33$

Values of the test statistics

$P_1 = \frac{10}{50} = 0.2$ $\quad P_2 = \frac{5}{50} = 0.1$

$P = \frac{10 + 5}{50 + 50} = \left[\frac{15}{50} = 0.15\right]$

$(1 - P) = 1.00 - 0.15 = 0.85$

$n_1 = 50$ $\quad n_2 = 50$

Substituting

$Z = \dfrac{0.2 - 0.1}{\sqrt{15)\,(085)\,(\frac{1}{50} + \frac{1}{50})}}$

$Z = \dfrac{0.1}{\sqrt{(0.15)\,(0.85)\,(0.02 + 0.02)}}$

$Z = \dfrac{0.1}{\sqrt{1275)\,(0.04)}}$

$Z = \dfrac{0.1}{\sqrt{0.0051}}$

$Z = \frac{0.1}{0714}$

$Z = 1.40$

Conclusion: Do not reject HO

The Z_{cal} (1.401) is less than Z_{tab} (2.33). We therefore accept the Null hypothesis and conclude that the textbooks and other materials used by teachers are appropriate.

DISCUSSION OF FINDINGS:

This section gives details of findings from the selected schools. The opinions of teachers, pupils and school administrators are also part of this discussion.

Identifying Slow Learners of Mathematics:

Teachers with long standing experience in Mathematics were able to identify some characteristics of slow learners of Mathematics . These are highlighted below:

They are usually very slow to understand and learn basic number concepts.

They are less confident in dealing with numbers and can easily get confused in computations.

Slow learners of Mathematics are incapable of showing a high level of initiative and independence in Mathematics lessons.

They usually have low concentration span in class.

Their low confidence level often prevents them from asking or answering questions in mathematics lessons.Slow learners are usually below average in Mathematics exercises

They often evade Mathematics lessons.

They tend to participate less in group work unless they are monitored

Less competitive in mathematical activities.

Some Factors Associated with Below Average Performance in Mathematics:

The following are some of the factors that contribute to slow learning and below average performance in Mathematics.

Preconception about the difficulty of Mathematics:

Considering mathematics as a subject hard to understand and consequently develop negative attitude towards it is a common phenomenon among students, parents and he society at large.

Many scholars have stated that there is a coherent relationship between Mathematics achievement and attitudes.

Non Recognition of the Application of Mathematics:

It was discovered that while some teachers make effort to relate Mathematics to the surrounding conditions and give practical examples in how pupils can apply what they learn, other teachers often fail to do so. They only teach what is written in the text without practical relationship to daily life.

Large Class Sizes:

The size of classes in the selected schools were generally large and this factor has negatively affected slow learners Teachers find it difficult to provide feed back to learners and consistently follow their process in Mathematics.

Teaching Methods:

The methods of teaching pupils also affect their interest and performance in Mathematics. It was discovered that many pupils lacked the fundamental principles of operations on which numbers many slow learners continue to suffer from teaching methods that are not activity – oriented or learner centered but abstract and teacher – centered.

Inadequate Teaching and Learning Materials:

The teaching and learning of Mathematics requires the use of a variety of materials – books, mathematical sets, geometrical shapes, blackboard rulers, counters etc. In most cases these materials are either not available or insufficient for pupils use. The non-interaction of learners with appropriate teaching and learning materials obviously affect their participation in Mathematics lessons

Gender Issues: Most people hold the view that Mathematics is mostly for males and not females. Consequently, many females tend to withdraw and participate less leaving the males to dominate Mathematics lesson

SUMMARY, CONCLUSION AND RECOMMENDATIONS

This chapter gives a summary of the research conducted, the conclusions made and the recommendations needed to identify and help slow learners in mathematics. The research was prompted by the fact that many pupils do not only complain about the difficulty level of mathematics but continue to show less interest and exhibit poor performance in mathematics. To identify those with learning difficulty and to help their learning is the focus of this research. Learning difficulties are not only unique to mathematics but to many other subjects. However, mathematics being a core subject is given prominence in a school curriculum. Hence it has drawn the researches' attention. Slow learners are not failures, they only need the appropriate provision to cope and ultimately progress in education. The research therefore is aimed at helping slow learners to make improvement.

The researcher contacted many pupils, teachers of mathematics, and School administrators to obtain the needed data. In addition the researchers also did some teaching in some of the selected schools to have a real life experience of mathematics teaching. Interview and questionnaires were used for pupils and teachers in the selected school.

The above mentioned methods helped to collect vital information about the learners.

It therefore resulted in the following conclusions.

Slow learners were discovered to have many characteristics as highlighted below:

They find it difficult to comprehend and participate in mathematics lesson.

They are often shy to participate in mathematics lessons.

They fear of missing correct answers and subsequently being rebuked often hinders their participation.

They lag behind others in terms of performance in class work and in examinations

They have little or no confidence dealing with numbers

The researchers also discovered that not only slow learners fail to participate in lessons but average as well as fast learners usually fail to participate in lessons due to various reasons.

Some of these reasons include

Overcrowding in some classes

Non comprehension of lessons

Shyness on the part of learners

Fear of missing the correct answers and subsequent rebuke from the teachers

The researcher also identified reasons for below average performance in mathematics lessons.

One prominent reason is that of fear associated with pre-conceived idea about the difficulty of the subject. Of course this preconception was discovered to be a strong reason why many students and pupils lack interest in mathematics. Hence the participation of pupils in mathematics lessons or adults in mathematical exploit is very low. With all the related facts about low interest and low performance in mathematics it is expedient for teachers to employ many strategies to help pupils especially slow learners to make improvement in learning the subject.

The following are some of the strategies for teaching mathematics to help slow learners.

Using games and puzzles.

Emphasizing practice.

Practically applying mathematics in real life situations.

Encouraging group work among pupils.

Making good use of teaching aids

Giving reward for effort made by learners

Encouraging investigational work

The teachers of mathematics have a lot challenges that interfere and hinder good performance.

These include among others

Large class sizes

Shortage of mathematics in schools and too much work for those available

Lack of interest and enthusiasm on the part of the pupils.

RECOMMENDATIONS

The following recommendations are hereby made base on the findings of the researcher.

School administration

The authorities of the school should:

Make regular monitoring of the teachers to identify their strength and weaknesses.

Facilitate or initiate the recruitment of mathematics teachers to avoid extreme shortage.

Make provision for their teachers to be part of continuous professional development trainings.

Organize professional development meetings (PDMS) to sort out any difficulties mathematics teachers should have in using the lesson plan manuals

Ensure that teaching and learning material are made available to teachers and pupils.

Allocate trained and experienced mathematics teachers to the junior classes so that pupils will be given strong foundation.

MATHEMATICS TEACHERS

The mathematics teachers should:

Be familiar with the lesson plan manuals and use them effectively to teach

Make effort to enter college and obtain the reclusive qualifications for teaching mathematics at the various levels.

Be regular and punctual in school and encourage their pupils to do likewise.

Use many activities in teaching to promote participation of pupils in mathematics lessons

Do regular assessment (formative evaluation) tests, assignment and give learners feedback.

Encourage female pupils to develop interest in mathematics.

Endeavour to make their classrooms child friendly rewarding the efforts of pupils

PUPILS

The pupils in the junior secondary school should:

Endeavour to attend mathematics lessons regularly.

Work in groups to share knowledge and also improve on their problem solving skills

Use the pupils hand book provided for them or similar materials that would increase their level of practice in mathematics

Practice mathematics outside school hours to consolidate their techniques/skills of problem solving.

Demand for feedback from their mathematics teachers when they solve problems.

D.PARENTS

Parents should Endeavour to:

Provide the requisite learning materials (eg .books, calculators) for their pupils or children and also pay for their extra lessons.

Encourage their children to be regular and punctual in school.

Follow up the academic progress of their children especially in mathematics in their schools

Create a conducive learning environment for their children at home. Motivate their children to learn mathematics through praise and relevant material rewards.

MINISTRIES OF EDUCATION-JUNIOR AND SENIOR SECONDARY

The two branch ministries of Education should:

Solicit government to provide adequate and appropriate teaching and learning materials for schools.

Award scholarships to deserving mathematics teachers and pupils to improve on performance.

Sponsor Continuous Professional Development Programmes for teachers especially those who are new in the classroom.

Motivate mathematics teachers through the provision of reasonable conditions of service.

Monitor the use of Lesson Plan Manuals (LPMS) in schools and make necessary suggestions.

Reward schools and teachers whose pupils do well in mathematics and other core subjects.

NON- GOVERNMENTAL ORGANISATIONS

The non- governmental organizations with educational mandates should:

Reinforce in-service trainings for teachers through Continuous Professional Development Programmes.

Motivate teachers of core subject (especially mathematics and English) by providing additional teaching materials and scholarships for further training.

Provide adequate and appropriate teaching and learning materials for teachers and pupils to complement the effort of the government.

REFERENCES

1 Angels T.A.(1998). Classroom Assessment Techniques-A- Handbook for college Teachers.

2 Bragg (2007).Students Conflicting Attitudes towards games as a vehicle for learning Mathematics.

3 Briggs .J (1998) Assessment and Classroom Learning (Ellingham Publishers).

4 Chazole (2008) Teaching Mathematics through Activities.

5 Clark D (2006) Mathematics Classroom in Twelve Countries.

6 Cockcroft W.H. (1982) Mathematics Counts.

7 D hand (1995) Principles and Practices in Child Centered Education Aid.

8 Hebert J. (2007) The Effect of Classroom Mathematics Teaching on Learning information Age.

9 Kumar (1993) The Teaching and Learning of Mathematics in the Primary School.

10 Marks (1995) Methods of Teaching and lack of practice by Pupils.