



**FACULTY OF EDUCATION**

**DEPARTMENT OF APPLIED EDUCATION**

**THE TEACHING AND LEARNING OF SLOW LEARNERS IN MATHEMATICS AT  
SECONDARY SCHOOL LEVEL IN GWERU ZIMBABWE**

**BY**

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**A RESEARCH PROJECT SUBMITTED TO THE DEPARTMENT OF  
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**APPROVAL FORM**

**MIDLANDS STATE UNIVERSITY**



**FACULTY OF EDUCATION**

**DEPARTMENT OF APPLIED EDUCATION**

The undersigned certify that they have read and recommended to the Midlands State University for acceptance a research project titled: The teaching and learning of slow learners in mathematics at secondary school level.

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In partial fulfillment of the requirements of the Bachelor of Education

Degree in Mathematics

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## **DEDICATION**

I would like to dedicate this project to my parents who provided some funds towards its success. I would also like to dedicate this project to all my students that I taught during my teaching practice at Matongo Primary School as well as to all who are having trouble with Mathematics.

## ABSTRACT

This study focused on the teaching and learning of slow learners in mathematics at secondary school level in secondary and high schools in Gweru Urban District. The researcher's main objective was to find out how slow learners in mathematics are being assisted at secondary school levels, the challenges, if any, which are being faced by the teachers in assisting these slow learners as well as the slow learners' perspectives towards the assistance they are being given by their mathematics teachers. A descriptive survey was used to collect the data where the instruments used to collect the data were teachers' questionnaires as well as students interview guides. The data were then presented in the form of tables and were analyzed. The results of the research were intriguing. The most commonly used method as claimed by the teachers is the use of a variety of learning techniques to suit the different learning styles, followed by the method of breaking down of complex tasks into easy tasks. This is followed by modifying language used to match the understanding level of the slow learners. The least used method is moving at a slow rate when teaching so as to accommodate the slow learners' rate of thinking. The biggest challenge all teachers are facing is the class size which is too large for the them to carter for slow learners, limited time since time table is fully packed, fear of being falsely accused of having an affair with students as well as child molestation, pupils' fear of the subject as well as frequently changing teachers every term. From the pupils' point of view, the findings showed that the teachers are not offering sufficient help to slow learners in their classes. In other words they claim to help them but they are not. From this study the researcher recommends all mathematics teachers to try by all means to assist these slow learners in any way they can so as to help them improve in mathematics. It is also recommended that teachers should move slowly at the rate of slow learners when teaching them so that every child understands. The researcher also recommends the Ministry of Education to make a follow up on the remediation program which was introduced so as to monitor progress on the learning of slow learners as this might help increase the pass rate in mathematics. The ministry should also reduce the teacher pupil ratio so that teachers can also carter for slow learners in the lesson.

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## **CHAPTER 1: RESEARCH PROBLEM**

### **1.0 Introduction**

This research focuses on the teaching of slow learners in Mathematics at secondary level in secondary and high schools in Gweru urban. This chapter focuses on the background of the study, the statement of the problem as well as the research questions. It further highlights the importance or significance of the study, the delimitation and the limitation of the study. Finally, the summary of the whole chapter is given at the end.

### **1.1 Background of Study**

The biggest challenge any mathematics teacher has in the classroom is teaching slow learners. It is an admitted fact that every class in any school is composed of about 20% to 30% or more slow learners, that's according to Yusha'u 2012. Slow learners do not necessarily fall into the category of special education children since these students are usually found doing well in some areas outside the classroom. In other words such students don't show any evidence of having a medical problem; they simply perform poorly in Mathematics as a subject.

More and more studies have shown that not all students learn quickly in the classroom. This is why Singh (2004:290) alludes that, "...a good teacher should always give individual attention to slow learners..." as this helps them identify the different problems faced by each student as well as to come up with solutions to these identified problems.

According to Williams (1970), slow learners lack in understanding, comprehension and expression but studies have shown that nowadays secondary schools are emphasizing largely on academic preparation other than on occupational learning. Because of this situation Yusha'u (2012) opines that there is growing need for help to remedy slow learners so as to

provide them the best possible opportunities to close the gap created by their peers and meet the challenging world.

Teague (1981) in his study opines that the major cause of low performance in Mathematics from Grade 1 up to the higher levels is that we have more slow learners who are not being given individual attention which they should have. A small discussion between the researcher and a small group of students from several schools revealed that most teachers in the classrooms are busy teaching children at a faster pace in an effort to finish the syllabus in time for their final ordinary level exams. Because of this, they are seen as pupils who slow down the pace of others. This is therefore depriving slow learners an opportunity to understand the concepts being taught as they are seen as pupils who slow down the pace of others.

The researcher observed that most teachers view slow learners as lazy pupils who are not putting any effort towards their work. Because of this teachers tend to ignore slow learners and focus on fast learners alone. Furthermore the researcher as a teacher also observed that slow learners are being ignored simply because the time table is too packed. A small discussion with teachers revealed that teachers have too much workload on their shoulders which makes them find less time for slow learners.

After all these observations have been made, the researcher's main drive to carry out this study was to find out what the teachers are doing to assist the slow learners in mathematics at secondary level. The researcher was also keen to know the different challenges teachers are facing in handling slow learners in their classrooms.

### **1.3 Problem statement**

This research is concerned with the teaching of slow learners in Mathematics at secondary and high school level. What the researcher was mainly looking for was how the slow learners are being assisted in the teaching and learning of mathematics at secondary school level as well as the challenges being faced by teachers in assisting these slow learners, if any. The researcher also looked for the perspectives of the students towards the assistance they are getting from their teacher.

### **1.4 Research Questions**

- a) How are slow learners in Mathematics being assisted at secondary school level?
- b) What are the challenges if any faced by the teachers in assisting these slow learners?
- c) What are the slow learners' perspectives towards the assistance they are being given by their mathematics teachers?

### **1.5 Significance of study**

Research by Crimes and Bulman (2005:02) has shown that low performance in mathematics is largely caused by the poor performance of slow learners who have been observed to constitute a big number in most schools as compared to fast learners. This research shall help policy makers assess if slow learners are being given adequate help by the teachers in the classroom.

This research also aims at identifying challenges being faced by the teacher in assisting slow learners if any. This will also help policy makers identify appropriate measures to assist the teachers so that they can be able to assist the slow learners effectively in mathematics.

Through this research, the slow learners in mathematics shall be given an opportunity to say out freely what they feel is causing their slow performance in class, whether the causes are emanating from the teacher or from the school. These will intern guide the authorities on how to assist these students to improve their performance in mathematics.

Through this research, different ideas on how to help slow learners can be assisted in mathematics shall be exposed. This will help teachers broaden their understanding of teaching slow learners in mathematics as each teacher might be having his or her own method which he or she is applying and has found it being very effective in teaching slow learners in his or her classroom.

#### **1.6 Delimitations of the study.**

This study is based on the teaching of slow learners in mathematics at secondary and high school levels, where the researcher was seeking to find out how the slow learners in mathematics are being assisted. The study is also aimed at finding out possible challenges, if any, that are being faced by teachers in teaching slow learners in mathematics. It is also aimed at finding out the slow learners' views on the assistance they are getting from their mathematics teachers.

The researcher focused on secondary and high schools in Gweru Urban district. In the whole district, there are 11 schools offering secondary education. The researcher looked for schools which are in close proximity to each other. He also looked for schools which are in close proximity to his learning institution as well as those close to his home so as to cab expenses to be encountered in the research.

Out of 11 schools, three schools were found to be close to each other, close to the researcher's learning institution as well as close to his home. This is how the researcher decided to use three schools as his population model.

### **1.7 Limitations of the Study**

The whole research pumped out a lot of money especially in typing questionnaires, making three final drafts which were spiral bond and one which was bound using executive binding.

### **1.8 Definition of terms**

- \* Dyscalculia :difficulty in learning or comprehending arithmetic concepts such as difficulty in understanding numbers, learning how to manipulate numbers, and learning other mathematics facts.
- \* Dyslexia: According to the Medical Encyclopedia (2013), it is characterized difficulty in learning to read fluently and with accurate comprehension despite normal intelligence.
- \* Dyspraxia: According to Henderson (2003) it is a chronic neurological disorder beginning in childhood that can affect planning of movements and coordination as a result of brain messages not being accurately sent to the body. It leads to difficulty in remembering instructions, organizing one's time and remembering deadlines.
- \* Slow learner: According to Williams (1970) these are children who are of limited intelligence.
- \* Special Education Child: According to Howell (2000), a child is defined as a special education if he or she has learning difficulty which needs special teaching. Such difficulty may be a result of a medical problem.

## **Summary**

In this chapter the researcher discussed about the background of the study, the statement of the problem and the research questions were also discussed. The significance of the study was also clearly highlighted clearly. Delimitations of the study were also discussed. Lastly the important terms used in the study were discussed and clarified, which was then followed by the summary of the whole chapter.

## **CHAPTER 2: LITERATURE REVIEW**

### **2.1 Introduction**

Research has shown that the pass rate in mathematics is very low at higher levels and the contributing factor to this is an increase in the number of slow learners as alluded by Singh (2004:8) who says, "...every class consists of 30% to 40% slow learners and this number is increasing gradually." As a way to aid in the teaching and learning of slow learners, the researcher dedicated his time to define a slow learner, to look at the main characteristics of slow learners, the causes of slow learning and then the intervention methods for teaching slow learners in this chapter.

### **2.2 Definition of slow learners**

Considering the importance of teaching and learning of mathematics today, one of the greatest challenges to a mathematics teacher is teaching those students known as slow learners. Griffin (1978) opines that slow learners are students who learn more slowly than their peers, yet do not have a disability requiring special education.

Yusha'u (2006) on the other hand alludes that a slow learner is that child who is of limited intelligence with any or a combination of identifiable dysfunctionalities like attention deficit disorder (A.D.D), dyscalculia, dyslexia, dysgraphia, dyspraxia, dysnomia, hyperactivity or other related problems. Shaw et al (2005:11) defines a slow learner as a child who is doing poorly in school and yet is not eligible for special education. On the same note, Lescano (1995) explains that it is very important to distinguish between slow learners and those who are learning disabled.



Lescano (1995) opines that slow learners are those children who do not learn successfully due to general social-cultural problems, frustrating past language classroom experiences, inadequate use of strategies or lack of interest, while the learning disabled are those students formally diagnosed by specialists in child psychologists to be learner-disabled. In other words a slow learner does not require a specialist teacher to help him or her to succeed. Even the class teacher can help him or her succeed.

Caggles (2009) defines a slow learner as a person who tends to understand things at a very slow rate as compared to other students. In other words such students require multiple explanations for them to get a concept into their head. In support of Caggles (2009)'s view, Singh (2004:290) opines that slow learners are those students who lack in understanding, comprehension as well as expression.

A close analysis of the definitions above has revealed that all the authors agree that a slow learner does not fit into the category of special needs children as their problem is not a medical problem. They also tend to agree on the fact that slow learners should not be considered as non-performers, or nonstarters in education as they can also perform, provided they are taught according to their own rate of understanding, so that they understand what their counterparts are also being taught. This means a slow learner can be taught and can understand concepts provided they are taught at their rate of understanding.

### **2.3 Characteristics of a slow learner**

For a teacher to identify slow learners in his or her classroom, he or she must analyze the behaviors of his or her student academically and socially. Research has exhumed a good number of such characteristics of slow learners.

According to Bryman (2001), one characteristic of slow learners is they function at ability but significantly below average grade level. In other words slow learners are performers. They understand the concept. They can be taught by a general class teacher but the main difference between them and other students is that they take long to understand the concept as compared to their peers.

Another characteristic as identified by Eastmead (2004) is that a slow learner is a student whose Intelligence Quotient or I.Q. is lower enough to cause considerable difficulty in keeping up in the classroom. An average I.Q. is 100. Slow learners usually score between 70 and 90 on the I.Q. test. Students who score less than 70 are considered to be mentally retarded. Slow learners are not mentally retarded.

Dornyel (2003) noticed another interesting characteristic of slow learners. He noticed that slow learners normally scores low marks in achievement tests. In other words they score marks which are below average in their test. The reason mainly being that they would not have understood the concept when it was being taught.

According to Bryman (2001), a slow learner is also characterized by having difficulty in following multiple-step, directions. In other words slow learners cannot perform well in work which has too many steps which must be followed in order to get to the solution. The more the steps to an answer the more the confusion. Sometimes too many steps will lead to boredom making the slow learner to give up early.

Another characteristic of slow learners as given by Harmer (2001). is that they do not master easily skills that are academic, rather, they are quick in mastering tasks which are practical in

nature such as metal work, arts, fashion and fabrics, sports. This is because these tasks require more of physical abilities of the learners and less of mental work.

The next characteristic of slow learners as identified by Shawn et al (2005) is that slow learners are usually slow in doing their work. They take a long time to complete a task given to them. This is because they take long to understand what has been taught to them. This might also be because they take long to comprehend what they have been taught.

Griffin (1978) also noted that slow learners have a low self-esteem. They do not believe in themselves. They do not believe that they can also perform equally as good as others. In other words they have already concluded that they will never perform like their pairs. Most of the times they perform very poorly and cannot do anything about their failure. They have accepted how they are such that it shall take a lot of effort to remove this mind set from them.

Genesee (1996) alludes that slow learners do not have long term goals. They live in the present most of the time. For instance, if one is to ask them what they intend to become after their education is complete they do not have an immediate answer. The answer may come after they have completed the level they are doing at present, that is, if they complete that level at all.

Another observation made by Lescano (1995) is that slow learners have a short attention span. They cannot listen for a long time. Their minds easily wonder off especially if the explanations are long or too many. This is one important characteristic that teachers should look into when teaching slow learners. In other words teacher should make sure the lesson is too long.

Yusha'u (2004) noted a very important characteristic of a slow learner which must be noted by all mathematics teachers. Slow learners lose track of time and cannot convey what they have learned from one task to another. In other words they cannot apply what they have learnt. For instance they may know how to read words and sentences in English but may fail to comprehend the sentences they have read when it comes to story problems in mathematics.

Mark (2005) noted that slow learners are generally shy. This is why we see that they do not participate that much in class. When a question is asked they do not usually want to try to answer those questions. This may be because they fear being laughed at after saying out a wrong answer. This is what most teachers must look at when teaching their class.

Alan (2007) also identified an important characteristic. He says a slow learner finds it difficult or has trouble in making friends. In explaining this same point, Bateman (1991) alludes that these students are usually withdrawn from others. They are usually the quiet ones in the classroom. Marcel (2003) puts it in a different way. He says slow learners are recurrently immature in their relations with others.

Howell (2000) noted another very interesting characteristic of slow learners. Howell says they are prime candidates of all defensive behaviors. Wright (1996) on the other hand noticed that these slow learners sometimes exhibit hostility by refusing to work. They may also annoy other students through disrupting behaviors such as making nasty remarks to colleagues or throwing of objects.

Salim (2009) also noticed that slow learners are not capable of doing multiple tasks at the same time. For instance, a slow learner cannot handle being a class monitor and his or her school work at the same time. The slow learner will concentrate on one of the tasks and neglect the other. Usually the easiest of them is the one concentrated on while the tough one, which is his or her education, is given less attention.

#### **2.4.0 Causes of slow learning in mathematics**

According to Butterworth (2010) slow learners may have any combination of identifiable dysfunctionalities like Dyscalculia. Dyscalculia is the difficulty in learning or comprehending arithmetic such as difficulty in understanding numbers, learning how to manipulate numbers, and learning mathematics facts. It is generally seen as a specific developmental disorder like dyslexia. While other students are moving faster and understanding quicker, those students with dyscalculia will be moving slowly because of their rate of understanding. Dyscalculia is of innate, genetic or developmental origin but when the mathematical disability occurs as a result of some type of brain injury caused by external factors like stroke or accident, it is referred to as acalculia.

Another cause of slow learning in mathematics is Dyslexia. According to the Medical Encyclopedia (2013), Dyslexia or developmental reading disorder is characterized by difficulty with learning to read fluently and with accurate comprehension despite normal intelligence. Silverman (2000) defines dyslexia as an anomalous approach to processing information. A student with dyslexia has difficulty with processing speed, orthographic coding, auditory short term memory and verbal comprehension.

A slow processing of the mind results in being poor and slow in mental mathematics. Auditory short term memory is the capacity of holding information in the mind in an active, readily available state for a short period of time. A student with dyslexia can not store information in his or her mind for a long period of time. In other words it's easy for him or her to forget what has been learnt. Such a student has difficulty also in verbal comprehension, that is, he or she finds it difficult to interpret story problems in mathematics thereby finding it difficult to solve word problems.

Henderson et al (2003) have noticed that slow learning may be caused by dyspraxia. They define dyspraxia also called developmental coordination disorder as a chronic neurological disorder beginning in childhood that can affect planning of movements and coordination as a result of brain messages not being accurately transmitted to the body. A student with dyspraxia has difficulty in remembering instructions, difficulty organizing one's time and remembering deadlines. Such a student also has problems carrying out tasks which require remembering several steps in sequence. All this contributes to slow learning.

Slow learning, according to Geary (2001) may also be a result of poor and inadequate learning resources. Students understand quickly if the concept is taught using concrete visual media. If a teacher does not have adequate media for instance mathematical instruments like blackboard compasses and blackboard protractors for teaching locus, the students might take long to understand how to, say, bisect a 60 degree angle. This shows that teaching aids, if not adequate, may contribute to slow learning of the student.

Munro (2003) opines that slow learning may also be caused by the child's emotional growth. Feelings about oneself and the developing of these feelings, positive or negative, are called emotional growth. Emotional and social developments are often linked together because they

are relevant. In the initial stages, the children learn the feelings of trust, fear and love and later on as they grow they develop the feeling of friendship, pride and relationship which also guide towards social emotional development of the child. Veloo (2004) opines that the changes are very rapid in children.

Veloo (2004) goes on to say if the child is ignored at this stage and proper care is not provided to them, they build negative emotions and they avoid trust initially parents and later on, other people. They begin to isolate themselves. This makes them feel neglected, rejected, which will eventually result in a low self-esteem. The children feel they cannot do anything. No matter how good the teacher delivers the lesson, and how good and readily available the resources are, the children will not perform well because they do not have that inward drive to work.

Taylor, (2003) says slow learning is also a result of the environment in which the child is growing. An environment with all forms of abuse, both verbal and physical abuse, will cause stress to the child. A child who always feels threatened in his or her learning environment develops low confidence in himself. It demotivates them intrinsically making them stagger behind while others excel in they education.

Zaitun (2004) on the other hand says absenteeism is another cause of slow learning. When a student is often absent especially when a new concept is being introduced it shall be difficult to catch the same concept being taught when he shows up in the middle of the chapter as concepts are taught precepts upon precepts. In other words if he or she shows up the next lesson after the concepts foundation has already been laid, he or she is going to find it difficult to understand this concept until the end of the chapter.

Sattler (2001) opines that slow learning can also be a result of defective vision. A child with visual impairment might find it difficult to read what is on the board or even what is in the textbook. This will lead to slow mastery of concept being taught. Automatically such students with visual impairment, if not identified and helped adequately, will surely be left behind academically. Shaffer (2002) alludes that the size of the class also contributes largely to slow learning.

Overcrowded classes make it difficult for the teacher to teach all the students to understand a concept at the same time. Since the class is already composed of mixed ability children, of which statistics have shown that about 30% to 40% of the students in each class are slow learners, the teacher will try to move at a speed that is presumably adequate for all. Slow learners, who do not quickly understand are eventually left behind.

Sander (2009) says slow learning may also be a result of teaching methods used by the teacher. A good teacher uses different methods in teaching concepts so that every student understands. On the other hand, those teachers who used one method of teaching create slow learners in class, that is, all those who did not get the concept using that method will become the ones lagging behind.

Sander (2009) also says that transfer of teachers frequently is another cause of slow learning. One teacher has his method of working out differentiation problems in mathematics. This teacher's method becomes familiar with the students. But all of a sudden this teacher transfers and another teacher, with his or her own method of dealing with the same topic, comes and takes over. This will definitely affect the performance of these students. Differentiation as a concept becomes lower than expected.



## **2.5 Intervention methods for slow learners**

In an attempt to deal with students who are slow in learning, teachers usually design intervention strategies that would be most suitable or select teaching methods that are most appropriate.

Mark (2005) opines that effort should be made by the teachers to overcome mathematics problem through making educational pedagogy broad enough to encompass the many learning styles of students. In other words, the educational pedagogy should be created such that everyone benefits despite their rate of understanding.

Alan (2007) opines that compensatory teaching is another way of assisting slow learners. Compensatory teaching is an instructional approach that alters the presentation of content to circumvent a student's fundamental weakness or deficiency. This method recognizes content, transmits through alternate modalities, (that is pictures versus words) and supplements it with additional learning resources and activities, (that is learning centers and simulations, group discussions and co-operative learning). This may involve modifying an instructional technique by including a visual representation of content, by using more flexible instructional representations (films, pictures, illustrations or by shifting to alternate instructional formats that is self-paced texts, simulations, experience oriented workbooks).

Sheree et al (2008) on the other hand suggests another equally important strategy. They suggest the use of remedial teaching. This is an alternate approach for the regular classroom teacher in instructing the slow learner. Remedial teaching is the use of activities, techniques and practices to eliminate weakness or deficiencies that slow learners are known to have. For instance deficiencies in basic math skills are reduced or eliminated by re-teaching the content that was not learned earlier. The instructional environment does not change, as in the

compensatory approach. Conventional instructional techniques such as drill and practice might be employed.

Another effective way of helping slow learners is to develop lessons that incorporate students' interests, needs and experiences. According to Khan (2008), this helps address the short attention spans of slow learners. Also these students should be made to feel that some of the instructions have been designed with their specific interests or experiences in mind. For instance, problems posed during the lesson should be word problems based on real life experiences which, when answered, will help impart skills which are needed in the child's day to day living.

Macmillan (1998) on the other hand suggests that slow learners can be helped by frequently varying instructional techniques. Switching from lecture to discussion and then to seat work provides the variety that slow learners need to stay engaged in the lesson throughout the learning process. In addition, to keeping their attention, variety in instructional technique offers them the opportunity to see the same content presented in different ways. This increases opportunities to accommodate the different learning styles that may exist among slow learners and provides some of the remediation that is necessary.

Incorporating individualized learning materials can also be used to assist slow learners. Genesee (1996) allude that slow learners respond favorably to frequent reinforcement of small segments of learning. Therefore programmed texts and interactive computer instruction often are effective in remediation of slow learners. In addition, an emphasis on frequent diagnostic assessment of the student progress, paired with immediate corrective instruction, often is particularly effective.

According to Lescano (1995), slow learners can also be assisted by incorporating audio and visual materials in the learning and the teaching process. One common characteristic of learners who are slow is that they often learn better by seeing and hearing than by reading. This should be no surprise because performance in basic skill areas including reading usually ranges below grade level among slow learners. Incorporating films, videotapes and audio into the lessons help accommodate the instruction to the strategies of learning among slow learners. Emphasizing concrete and visual forms of content also helps compensate for the general difficulty slow learners have in grasping abstract ideas and concepts.

Harmer (2001) suggests that slow learners can be assisted if the teachers develop their own worksheets and exercises. Textbooks and workbooks, when written for the average students often exceed the functioning level of the slow learner and sometimes become more hindrance than an aid. When textbook materials are too difficult or are too different from topics that capture students' interests, the teachers can develop their own. Sometimes only some changes in worksheets and exercises are needed to adopt the vocabulary or difficulty level to the ability of the students regarded as slow learners. Using textbooks and exercises intended for a lower grade could ease the burden of creating materials that are unavailable at the teachers' grade level.

Another suggestion is that teachers should provide study aids for students who are slow learners when testing them. Some students, even at higher grades are still field dependent. This means they depend on concrete media to find their answers. For example some students may not be good at working math problems by head. Such students need aids like electronic calculations to help them in making those calculations so that they perform as good as their peers. Mark (2005)

Inekwe (1997) opines that teachers should avoid overloading slow learners with too many math problems to solve. While other average students are being given about ten problems to solve during the lesson, Inekwe suggests that slow learners should be given five. If they get them correct, they will then be given, say, two more as extension work. This helps teachers to monitor pupils' progress.

Howell (2000) opines that teachers should reinforce good behavior as this boosts the slow learners' confidence. In other words, the little effort put by the slow learner should be acknowledged, for instance teacher should make other students applaud correct answers given by slow learners. The teacher must also put comments such as 'well tried', 'can do better', which will motivate the student to keep on trying harder.

Borah (2013) opines that teachers should encourage students to explore areas of interest to them. Career opportunities often come from these interests. In my own point of view, a student might be a slow learner in math but a fast learner in other areas like sport. So it is very important that teachers study their behaviors and identify areas they are very good in and try to reinforce those areas more. Haskvits (2012) also alludes that teachers should also involve students in activities discrete from routine home chores like sport and excursions to motivate such students to learn without cramming monotonous textbooks.

## **2.6 Summary**

This chapter focused with the literature review where the researcher defined a slow learner, gave the characteristics of a slow learner, gave the different causes of slow learning and finally gave the different strategies that can be used to assist slow learners so that they also improve in their performance. Finally, the researcher decided to wind up the whole chapter by writing the summary of the whole chapter.

## **CHAPTER 3: RESEARCH METHODOLOGY**

### **3.1 Introduction**

The previous chapter reviewed literature related to the teaching and learning of slow learners in mathematics at secondary school level in Gweru. The definition of a slow learner was given followed by the characteristics of slow learners. The causes of slow learning were also exhumed and the possible ways to aid the slow learners were also given in detail.

In this chapter, the researcher is focusing on the research design, the population he used, the sample size he selected as well as the sampling techniques he used in his study. He also discusses about the data analysis procedures used in his research. This chapter further highlights the ethical considerations as well as the two research instruments he used in the study. After that the validity and reliability of the instruments used is also discussed. This is followed by the data analysis procedure which was used in this study, and the summary of the whole chapter is given at the end.

### **3.2 Research design**

The researcher used descriptive survey, which, according to Mehroo (2014), enabled him to ascertain respondents' perspectives or experiences on a specified subject in a predetermined structure. A descriptive study was the best method of collecting information that enabled the researcher to demonstrate relationships and describe the situation as it was. The researcher conducted a one-time interaction with groups of pupils hence; the instruments used in this research are interviews and questionnaires.

### **3.3 Population**

The researcher used a population which consisted of all the second schools found in the whole district of Gweru urban. These schools were selected because they were found to be in close proximity to the researcher's learning institution. The researcher used a population which was made up of ordinary level students who were all doing mathematics. These students were taken from the below average classes since the research targeted slow learners. All the schools selected screened their students according to ability.

The population was also made up of all mathematics teachers from each school selected who used the same syllabus in teaching mathematics and who also had undergone the same teaching courses at college. These teachers had worked with slow learners before. The idea was to create a homogeneous population which is easier to work with. All in all the total number of participants that made up the population was 129, comprising of teachers and students.

### **3.4 Sample**

The researcher chose his sample of respondents from this population which consisted of 3 secondary schools. The researcher selected all mathematics teachers in each of the schools to be part of the sample. This was because each school had as few as four math teachers making them a total of 12 and this was too small to do any further sampling. 12 was also good a number to represent the entire population of 44 mathematics teachers in the 11 schools of Gweru urban district. From the population, the sample extracted was also made up of 7 ordinary level students all taken from below average class from each school giving a total 21 students all together. The total number of participants in the sample, comprising of both teachers as well as students came to 33 which were consisting 25.8% of the entire population.

### **3.5 Sampling Procedure**

In making up this sample of 33 participants, the researcher used purposive sampling which is a judgmental form of sampling in which the researcher purposefully selected certain groups of individuals for their relevance to the issue being studied. It is through this method that these 3 schools were selected. For anonymity, the names of the 3 selected schools were not disclosed. These schools chosen by the researcher were all in close proximity to each other as well as to the researcher's home and learning institution.

In drawing the sample, researcher selected from 4 students from the last class or below average class. This was done because in the process of screening, the last class comprises of all the students who are not very good in terms of their academic performance and these were the ones which this research targeted.

To make the sample of students, researcher used systematic sampling. Since each class consists of 35 students, he randomly gave the students some numbers 1 up to five to all the students. He then selected all the students who had the number 5 with them of which these were seven of them. He selected this number because it was the only one which had a fair distribution of girls and boys to show that he was gender sensitive. This method allowed all participants from both genders to be equally selected. This method was also quicker and easier to use. Through this method, 21 students were selected, 7 from each of the 3 classes.

The researcher's sample also comprised of 12 mathematics teachers who were automatically selected. Each school selected has 4 mathematics teachers and because of their small number they all participated in this research. This is how the researcher came up with a sample of 33 participants in this research.

### **3.6 Data Collection Procedure**

The researcher went into the 3 schools administering questionnaires to all the mathematics teachers in each school. This means each school received 4 questionnaires. The questionnaires were filled in during their spare time at home and were returned the next day. The total number of questionnaires produced and administered in the whole research was 12.

The researcher also carried out face to face group interviews with 7 students selected using systematic sampling from each of the three schools. These interviews were done so that the researcher could capture answers required in the study both verbally as well as through gestures and facial expressions which helped the researcher reveal the respondents deeper feelings about the questions which were being asked. Interviews were also done to students for triangulation purposes. They were also done to hear the slow learners' point of view about how they are being assisted

### **3.7 Ethics Considerations**

The researcher started by sorting permission to carry out this study from the Provincial Education Offices in Gweru. The researcher then made some appointments with school heads in order to be granted permission to interview and administer questionnaires to their students and their teacher.

For confidentiality purposes the researcher did not record the names of the schools involved in this research. Questionnaires did not need to be written names of respondents so that each respondent answers from the bottom of his or her heart with all the truth they know and freely without any fear of being followed afterwards.



### **3.8.0 Research Instruments**

In this research, questionnaires and interview guides were used to gather data needed. Here the idea of two instruments was to check for consistencies in the manner in which responses were being given to the questions asked. In other words two research instruments were used so as to discuss the validity issue of the information gathered.

#### **3.8.1 Questionnaires**

A questionnaire can be viewed as a document containing a set of questions which the participants are allowed to answer or respond to usually through writing. In this research, questionnaires were administered so as to obtain factual information on the ways in which slow learners are being assisted in mathematics as well as the challenges faced by teachers in assisting these slow learners in mathematics at secondary school level. The questionnaire was used because it is easy to use, and to produce. It is also a cheaper means of collecting data. They also allow respondents to express themselves freely without any external factors influencing. They can also be used to collect data from a large group of participants at the same time. They also have greater capacity to extract the required information.

The questionnaires used were structured in such a way that they contained systematically compiled and organized questions. The questionnaires contained both open ended and close ended questions. For close ended questions, teachers were required to tick the appropriate box or column. For open ended questions, spaces were provided so that the respondents will fill in the given gaps with answers they felt were appropriate. The questions on the questionnaires were derived from the research questions discussed in Chapter1. These questionnaires were administered to 12 teachers.

### **3.8.2 Interviews**

The researcher also used interviews to collect data on the ways in which slow learners are being assisted in the class in mathematics as well as the challenges faced by teachers in assisting these slow learners in mathematics at secondary school level as well as the slow learners' perspectives on the assistance they are getting from their math teachers.

The interviewer (researcher) had a group interview of 7 students from each school. The main reason for using interviews was that they yield the richest data. Details and new insights into the study can also be obtained as more information can be derived from interpersonal exchange according to Vengesayi (1995). A mixture of open and close ended questions was used in the interview to avoid ambiguity and monotony. The researcher used a semi structured interview which permits the interviewer to adjust the questions according to how the interviewee is responding or if the question is not clear. The contents of the interview guide were derived from the research questions discussed in Chapter 1.

### **3.9 Validation and Reliability**

A pilot study was conducted on five students from a school whose name shall not be disclosed for confidentiality purposes. Questionnaires and interviews were administered to evaluate their reliability and validity. Adjustments were made to the questions on both the questionnaires and interview guides after this pilot study. The researcher conducted a pilot study so as to examine the questions in the instruments for biases, sequence as well as clarity. This helped the researcher to identify ambiguity in questions as well as complexity of the questions, especially students' questionnaires.

### **3.10 Data Analysis Procedure**

The researcher took all the collected data, organized it sequentially according to the research question in chapter one, processed it and then presented it in the form of tables showing responses and frequencies. The responses from the interview guides responses were also analyzed qualitatively. Open ended responses were analyzed thematically and categorized into groups.

### **3.11 Summary**

This whole chapter has described the research design that guided the study, that is, the survey method. The population used in the study was discussed about, including the size and its characteristics. A detailed explanation of the sampling procedure was also discussed. The research instruments which were used in the research that is the questionnaire as well as the interview guide were also discussed in this chapter. The researcher clearly outlined the data collection procedure which he was used in this research. Lastly the researcher outlined how the data was going to be analyzed. The presentation and analysis of the data collected will be done in the next chapter.

## **CHAPTER 4: DATA PRESENTATION, ANALYSIS AND DISCUSSION OF FINDINGS.**

### **4.1 Introduction**

This chapter focuses on data presentation. The presented data is then analyzed. All the findings gathered will also be discussed at the end of the chapter.

### **4.2.0 DATA PRESENTATION AND ANALYSIS.**

This research was aimed at answering three research questions which are written below.

- a) How are slow learners in mathematics being assisted by teachers at secondary school level.
- (b) What are the challenges being faced by teachers in assisting slow learners in mathematics at secondary if any.
- (c) What are the slow learners' perspectives towards the assistance they are being given by their mathematics teachers?

#### **4.2.1 How are the slow learners in mathematics being assisted in secondary schools?**

The research question was aimed at finding out the different strategies that are being used by the teachers to assist slow learners in mathematics. The table below shows the findings.

**Table 4.1 Table showing responses to the question. How are teachers helping slow learners in maths at secondary level?**

<b>Strategies</b>	<b>A</b>	<b>S</b>	<b>R</b>
* Modifying language to suit their level of reasoning	8	3	1
* Make use of excellent students to support slow learners	7	5	0
Use variety of techniques to suit the different learning styles	9	2	1
* Engage slow learners in co-curriculum activities	2	1	9
* Analyze and breakdown complex task into easy task	8	4	0
* Provide longer wait time after asking questions to give slow learners time to think	8	3	1
* Call slow learners after lessons to give them extra work	1	4	7
* Make lessons short, limit the working time and have several short work periods rather than one long one	4	4	4
* Use concrete media	5	6	1
* Emphasize strengths, use lots of praises and good performance	6	4	2
* Make use of multi-sensory prompts to elicit correct responses	6	6	2
* Repeat concept to reinforce	6	3	3
* Contextualizing the content being taught	7	4	1
* Moving at the speed of slow learners	1	5	6

**Key: A = always                    S = sometimes                    R = rarely**

Above is table 4.1 which shows the strategies that teachers claim to be using in teaching/helping slow learners. The table also highlights how frequent they use these methods in assisting slow learners. The study has revealed that the most commonly used strategies in helping slow learners are use of variety of teaching techniques to suit the different learning styles, modifying language to suit the level of reasoning of learners, breaking down and analyzing complex tasks into easy tasks, providing longer wait time after asking a question to give them time to think.

The table also shows us 4 methods that are being used by the least twelve teachers namely calling slow learners after lessons to give them extra work, moving at the speed of the slow learner, engaging slow learners in co-curriculum activities, making lessons short, limiting the working time and having several short work periods rather than one long one.

These twelve teachers in their questionnaires further asked to provide other techniques other than the ones given to them. The one given were, to respond politely to them even if they provide a wrong answer, try to understand the reason behind their weakness, repeat concept to reinforce as well as contextualizing the context being taught.

#### **4.2.2 What are the challenges being faced by teachers in assisting slow learners in mathematics at secondary school level.**

With this question, the researcher was looking for the different challenges which mathematics teachers are facing when they assist slow learners .The responses gathered from the twelve teachers were summarized in table 4.2 below.

*Table 4.2 showing responses to the question “what are the challenges being faced by the teachers in assisting slow learners in mathematics at secondary school level”*

<b>Responses</b>	<b>Frequencies</b>
* The size of the class is too big for the teacher to provide individual attention to all the pupils	9
* Timetable is too packed such that there is little time to deal with slow learners	6
* Pupils have fear of the subject which leads to low self-esteem towards mathematics	4
* Frequent changes of teachers every term	5
* No problem being faced	3

From the data given in the table we see that the majority of the teachers see the size of the class being the major challenge that is affecting their efforts to help slow learners while a few of them indicated that their biggest challenge emanates from the time table which is too

packed such that they don't find time to help slow learners effectively. An interesting observation the researcher made is that three teachers said they had no challenges at all in helping slow learners in their class.

#### **4.2.3 What are the slow learners' perspectives or views on the assistance they are getting from their mathematics?**

In this section, the researcher was seeking to find out how the pupils feel about the methods being applied by their mathematics teachers to sooth their mathematics problems. In their interview, the students were asked whether the teachers find time to help slow learners in mathematics. Students gave interesting responses. The majority that is 67% disagreed strongly. One of the students was quoted to have said,

*“Teachers are too busy rushing to complete the syllabus before the end of the year so that by the time final ‘O’ level exams begin, the syllabus will be through”.*

Another student was quoted to have said,

*“The teacher doesn't care much about slow learners. He prefers moving with fast learners because slow learners pull them or slow them down”.*

Only a few of them, 33% said they get help from their teachers.

Students were also asked how often their mathematics teachers assist slow learners. 67% said the teachers never offer assistance to slow learners. One student was quoted to have said,

*“...our mathematics teacher has negative attitude towards slow learners. He does not choose a slow learner to answer a question he has asked. Actually, if a slow learner puts his or her hand up, the teacher does not even look at him or her”.*

On the same question, 37% said their teacher offers them help once a while especially if the topic is very complex.

The students were also asked if they feel the help they are getting is effective enough to make them understand concepts in mathematics.

The few who said they got help from their teachers said the help they got is not very significant since it comes once a while in a week. Some of the students were commented saying they might not write their mathematics 'O' level results this year. Other students remarks were that they feel they need to concentrate on the other seven subjects this year then they will tackle mathematics on its own some time later on next year.

All the responses given by the students show that they are not happy with the assistance they are getting from their teachers in mathematics. In fact, the responses they gave show a completely opposite picture of what the teachers said. In other words, what the teachers are claiming to be doing for slow learners is not what they are doing according to the responses given to the pupils.

#### **4.3.0 Discussion**

The study is aimed at finding out how slow learners in mathematics are being assisted at secondary school level. It is also aimed at finding out the different challenges that teachers are facing in assisting slow learners, if any, as well as revealing the slow learners' perspectives towards the help they are being given by their teachers in mathematics.

##### **4.3.1 How are slow learners in mathematics being assisted at secondary school level?**

Regarding this research question, a lot of strategies were highlighted by all the teachers who were selected in this study. The most commonly used strategies in the schools selected is, the



use of a variety of learning techniques to suit different students learning style. This strategy was also suggested by MacMillan (1998) who says switching from lecture, to discussion then to seat work provides the variety that all pupils need in order to stay engaged throughout the lesson. In other words this strategy is very important since it also captures every student's different learning style. Whosoever did not understand the concept when the first method was being used can eventually understand it when it has been introduced to him in another way.

The teacher also highlighted that their second preference is breaking down complex task into easy task. This strategy, in my own opinion should have been the first and the most used because slow learners need to be given work and tasks which not very complex as this will motivate them to work. These tasks should be easy and understandable. This goes hand in hand with Hermer (2001)'s suggestion that says teachers should create their own worksheets and exercises which should be understood by slow learners since sometimes the textbooks used in the classroom are often written for the average as well as the excellent pupils level of reasoning. This, in my own opinion should be the first strategy a teacher should use when dealing with slow learners in mathematics.

Modifying language used to match the level of understanding of slow learners as well as giving pupils some wait time after asking questions to give slow learners time to think before responding are also other strategies which teachers highlighted which are also very important when dealing with slow learners.

Surprisingly, it seems as if only one teacher moves at a slow rate when teaching so as to accommodate the rate of thinking of slow learners. This is also very important as slow learners require patience when being taught.

#### **4.3.2 What are the challenges being faced by teachers in assisting slow learners in mathematics if any**

A good number of the teacher so the class size being one of the biggest challenges which has slowed down their progress in dealing with slow learners in mathematics. Shaffer (2002) alluded that the size of the class makes it difficult for teachers to teach every child a concept since each child has got his or her own rate of understanding. In other words each learner needs individual attention and this is not possible.

Another challenge mentioned was limited time since timetable is packed from morning till afternoon every day. In other words the teacher has only 30 minutes a day in which a concept must be taught. This will make the teacher rush through the concept so that he or she finishes before the bell rings for the beginning of the next lesson. This means slow students may not follow and understand well as their rate of understanding is quite slow.

Teachers also felt that pupils generally have fear of mathematics. This fear results in negative attitude towards the subject which makes it a big challenge to assist slow learners as opined by 30% of the teachers.

75% of the teachers felt that a frequent change of teachers in a small period of time also slows down the process of assisting slow learners. One teacher has his or her method of teaching. If teachers are transferred every now and then, the slow learners receiving help from the different teacher will end up being confused.

Another challenge given by one teacher that caught the researcher's attention was that teachers have the fear of being falsely accused of child molestation especially in cases where

individual attention is needed in helping the student either of the same sex or of the opposite sex. One male teacher wrote,

*“...I have two girls in my form four class that have severe problems with math such that the speed they operate at is twice as slow as others. Since cases of child molestation and teachers being accused of having affairs with students are increasing daily, I fear to interact with these students separately from others. I would rather live them and keep my distance so as to keep my job, but the truth is some of them really need individual assistance”.*

These false accusations might start cropping up especially where the students frequently get help from the teacher yet sometimes it will be genuine.

#### **4.3.3 What are the pupils perspectives on the assistance they are receiving from their maths teachers**

The responses given by students were quite interesting. They showed that teachers do not offer much help for slow learners. 34% of the students highlighted that teachers offer help once a week, the rest of the time they rush through trying to finish the syllabus before the end of year before final exams start. The other 66% highlighted that teachers don't offer any help for slow learners at all. They prefer average students who are fast in grasping concepts.

The picture that came out from the students responses showed a great contradiction of what teachers were saying. In other words what teachers said they are doing is not what they are doing on the ground.

#### **4.4 Summary**

In this chapter, the researcher presented the data given by the teachers and the pupils. The data presented was then analyzed. The data was presented in the form of tables. The data was then discussed linking it with the research questions and the literature review.

## **CHAPTER 5 SUMMARY, CONCLUSION AND RECOMMENDATIONS**

### **5.1 INTRODUCTION**

This chapter provides the summary of the research as a whole which was focusing on the teaching and learning of slow learners in mathematics at secondary level. The conclusion arrived at is also highlighted to answer the research questions mentioned in Chapter 1. Finally recommendations are also discussed at the end of the chapter for further studies.

### **5.2 Summary of Chapters**

In this study, the researcher was investigating on the teaching and learning of slow learners in mathematics at secondary school level. In Chapter 1 the researcher gives a brief background of the study which pointed out how slow learners' performance is causing a great negative impact on the pass rate in mathematics. The background was followed by the Problem statement. The researcher went further to discuss the 3 research questions which he wished to answer in his research. The significance of the study is also discussed showing who is going to benefit from the findings of the study. Delimitations of the study are also discussed. These are both geographical and theoretical. Furthermore, the limitations of the study as well the definitions of terms are also highlighted in this chapter. Lastly this chapter is rounded up with a summary of the chapter.

The second chapter reviews the literature on the teaching and learning of slow learners in mathematics in secondary schools which the researcher was using. An interpretation of other research studies done on the teaching and learning of slow learners in mathematics in secondary schools is done. Literature presented reveals what a slow learner is, it also reveals the different characteristics of slow learners as given by different authors. The causes of slow learning as well as intervention methods are also discussed where different authors brought

out excellent ideas of assisting slow learners which would totally improve performance of slow learners in mathematics. Finally, literature on challenges faced by teachers in teaching slow learners in mathematics at secondary school level is also discussed where most challenges are being discussed by different authors.

In chapter 3, the researcher discusses about the research methodology where he talks about the design he used in this research. This goes on to define the population used in this study as well as explaining why he chose this population. It also discusses about the sample used, including the size of the sample as well as the sampling procedure used in this research clearly outlining the procedures taken to come up with the sample chosen from the population. The data collection procedure as well as the instruments used in the research are also discussed namely the interviews and the questionnaires. This chapter also goes on to explain the validation and reliability of the questionnaires and the interviews, as well as the data analysis procedure used in this research. This is followed by the summary of the whole chapter.

In chapter 4, the researcher presents all the data he collected in the form of tables. The data is then analyzed and discussion of the findings acquired through the teachers' questionnaires and the pupils' interview guide follow. Here each research question's responses generated from the questionnaires and interview guides are tabulated. All these responses are also analyzed and conclusions are drawn. Finally, discussion of the findings follows, being linked with the literature review.

### **5.3.0 Findings and Conclusion**

#### **5.3.1 Research question 1: How are slow learners being assisted in mathematics at secondary school level?**

A majority of the teacher showed that the most commonly used method in teaching slow learners in secondary schools is the use of variety of learning techniques to suit different students learning styles. They also modify language used to match the level of understanding of slow learners as well as give slow learners some wait time after asking questions to give them time to think. These are the three strategies being used according to the findings.

#### **5.3.2 What are the challenges being faced by teachers, in teaching/assisting slow learners, if any.**

**The teachers gave the following challenges?**

- \* The class size is too big for teacher to move slowly so that slow learners will catch up.
- \* Pupils have negative attitudes towards mathematics. They fear the subject such that they end up absconding the mathematics lesson.
- \* Frequent changes of teachers each term slow down the rate of understanding of slow learners as each a teacher brings his or her own strategies and this confuses students.
- \* Fear of being accused of child molestation especially if the child needs individual attention.

#### **5.2.3 What are pupils' perspectives on the assistance they are receiving from their mathematics teacher?**

The researcher found out the following:

- \* Slow learners are not being given enough assistance since they are being helped once a week.
- \* Teachers move too fast as they are trying to finish the syllabus in time for the final examinations.
- \* Teachers have negative attitudes towards slow learners

In conclusion, pupil's responses seem to be showing the opposite of what the teachers are saying. Teachers are not adequately helping these slow learners in the schools. The research has shown that teachers know what to do for slow learners but are not putting what they know to practice and because of this the performance of slow learners shall remain low.

#### **5.4.0 Recommendations**

- \* The researcher recommends the teachers to try by all means to help slow learners in any way possible. This will help slow learners improve in mathematics as well as improve the pass rate in mathematics.
- \* Since teachers showed that they do not normally use this method, the researcher recommends teachers to move slowly to accommodate slow learners when teaching concepts. If time permits, they should go over the concept again at the conclusion of the lesson as well as the next lesson as a flash back so that students can understand better.
- \* The researcher also recommends the authorities reduce the teacher-pupil ratio so that teachers can handle a few students whom they can closely monitor. This will also allow for individual assessment of pupils throughout the concept being taught.
- \* The pupils should get a platform where they can say out their grievances to the ministry of education concerning their learning experiences in their classes, where



they can be clearly heard and corrective action can be taken so that they learn effectively in their classroom.

### **5.5 Further Study**

This research was examining the teaching and learning of slow learners in mathematics at secondary school level. Further studies can be done to examine how to improve performance of slow learner in mathematics at secondary school.

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## APPENDIX I

### Teacher's Questionnaire

1. What is a slow learner?

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2. Do you have slow learners in mathematics in your class?

Yes                      No

3. Do you ever find time to help them?

Always                  Sometimes                  Rarely                      Never

4. Listed below are methods teachers can use to teach slow learners. Tick the appropriate box.

	<b>METHOD</b>	<b>A</b>	<b>S</b>	<b>H</b>	<b>N</b>
a)	Modify language to suit the level				
b)	Make use of excellent students to support slow learners				
c)	Use variety of techniques to suit the different learning styles				
d)	Engage slow learners in co-curricular activities				
e)	Analyze and break down complex tasks into easy tasks				
f)	Provide longer wait time after asking questions so slow learners will find some time to think				
g)	Call them after lessons to give remedial work				
h)	Make lessons short, limit the working time and have several short work periods rather than one long one				

KEY: A =(ALWAYS) S= (SOMETIMES) H= (HARDLY) N=(NEVER)

5. As a mathematics teacher, do you have any challenges that you feel are hampering progress in the teaching of slow learners in mathematics?

Yes.....

No.....

6. If your answer is yes, list any 3 challenges you are facing in teaching slow learners in math.

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7. How best do you think these challenges can be solved list any 3 ways?

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**APPENDIX II**

**PUPILS' INTERVIEWE GUIDE**

1. Are you good in mathematics?

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2. Is mathematics a difficult subject?

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3. Does the teacher find time to assist those who are having problems in mathematics?

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4. How often do the teachers help slow learners in mathematics in your class?

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5. Is the time given to slow learners adequate enough to make them understand the concepts?

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6. In what ways does your teacher help slow learners to understand the concepts in mathematics?

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7. Do you find this help being effective enough to make you understand the concepts being taught?

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8. What do you think are the best ways the teachers can help slow learners to understand the concepts being taught in mathematics? Give two suggestions.

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