Approaches to Ameliorating Negative Perception towards the Learning of Mathematics

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Abstract
The high rate of students failure in Mathematics has become of great concern since it is a foundation building subject and its application cuts across all areas of human endeavors'. Studies have shown that negative perceptions which emanate from parents as well teachers, individuals and also from some myths and misconceptions are responsible for the decline in the performance of students in Mathematics. This paper emphasizes the effective teaching of the usefulness, value, importance and relevance of Mathematics in relation to other fields of study, career path and every aspect of life using clear presentation with references to real life situations. This will go a long way to ameliorate the negative perception of students towards the learning of mathematics.

Keywords: *Mathematics; Ameliorating; Negative; Perception.*

Introduction

In any society, development in technology largely depends on the knowledge of mathematics not just as an intellectual exercise but its relevance and applications to every aspect of life. Mathematics as a subject has proven to have significant impart on matters such as interpretation of issues, logical reasoning, critical thinking, problem solving skills and decision making (Nzekwe-Excel, 2010). It also inculcates in the learner, the foundation to excel in other subject areas. Mathematics plays a key role in sharpening how individuals deal with the various spheres of private, social and civil life (Anthony and Walshaw, 2009).
According to Odili (2006), mathematics is a body of knowledge, a collection of techniques and methods, and the product of human activity for solving problems and also as a subject that helps students to form the habit of clarity, brevity, accuracy, precision and certainty on expression. Mathematics forms a major aspect of our lives since its application cuts across all areas of human endeavors'. This is because wherever a person belongs in the society, he utilizes the knowledge of mathematics in one form or the other (Tali, Mbwas and Abe , 2012). The competence gained in the study of mathematics is widely used in all spheres of human life (Mensah, Okyere and Kurachie 2013). For example, to accurately budget earnings, to use numbers in different situations such as in measurements of length area, volume, time, skeptic for instance in measuring materials needed for e.g. bed sheet in tailoring, calculating amount of wood for carpentering or even to calculate amount of raw food to purchase for the family etc. (Aina 2006) and also to make decisions both critical and logical ones e.g. like calculating when to cross the road, interpretation of issues, map reading, weather forecast etc.

Although, the complexity of our society today has made the need for a functional knowledge of mathematics a necessity, this knowledge as well as its real life applications has been gradually declining thereby posing the question, what could be responsible for the decline in

learning mathematics and how can it be ameliorated. Studies have shown that negative perceptions which emanate from parents as well teachers, individuals and also from some myths and misconceptions are responsible for the decline in the performance of students in Mathematics. Lim (1999) in his study says people who expressed dislike for mathematics felt they lacked the ability to learn Mathematics and commonly believed that mathematics is only for the clever ones. They also believed that they were not taught properly or rather badly taught and thus blamed their teachers.

The term "Learning" which is defined as the activity or process of gaining knowledge or skill by studying, practicing, being taught or experiencing something (Merriam Webster dictionary, 2015), is an effective way to acquire the required knowledge of Mathematics. However, students need to have the right disposition for effective learning of mathematics. This is because, mathematics is one of the compulsory and foundation building subject for both pre-primary and post-primary education and regarded as a backbone of all fields. Despite its importance, in the past decades, mathematics has become one of the subjects which most Nigeria students especially at secondary level develop dislike for and likewise perform poorly in (Odili 2006). This can be attributed to some negative perceptions (Willi 2010). This study seeks to address ways of ameliorating negative perception of students towards learning mathematics so as to obtain required result.

NEGATIVE PERCEPTION TOWARD LEARNING MATHEMATICS

The term 'Negative perception'- which has to do with the expression of dislike in the way a person thinks or understands something (Merriam Webster Dictionary 2015) has been a major reason for the decline in the effective learning, performance and application of mathematics.

Some reasons according to Willis (2010), Paul and Hlanganipi (2014), Sarah((2013)

for the negative perception towards learning mathematics may be as a result of certain myths and misconceptions. Such as:

- mathematics is meant for only the gifted or most intelligent;
- there is nothing wrong with not being good at mathematics since most people are not;
- there are only a few areas of application of mathematics in real-life;
- mathematics is a subject solely for male folks;
- people learn mathematics just to become a teacher- a profession which is often relegated in the society.

Other negative perceptions which abound are:

- mathematics is mostly about symbols and technical analysis with numbers which may be too tasking to memorize or understand. It is also not relevant in other fields;
- There is also the attitude syndrome "my parents said they were never good at Mathematics, so they don't expect me to be any different";

- the phobia that one will always fail or not do well in mathematics exams;
- mathematical ability is inherited or divinely acquired;

Negative perception towards learning mathematics also results from teachers' attitude (Mensah, Okyere and Kurachie (2013) as well as their behavior in relation to teaching the subject. In most cases students perception as well as performance is negatively affected when teachers avoid some topics which must be taught or approach the teaching of the subject via a poor instructional behavior.

If all these and other negative perceptions which may arise can be corrected, then students will develop the drive to learn and apply the knowledge acquired form learning mathematics effectively and this will lead to higher technological development. To achieve this, students need to understand the importance and application of mathematics to every day life, career development and in the society at large.

CAUSES OF NEGATIVE PERCEPTION

In our society today, where nobody wants to be patient or spend more time to understand details, it becomes increasingly difficult for students to take out time to study and understand mathematical concepts. This is usually because of the thinking, concentration, discipline and consistent practice that is involved. This may in turn lead to discouragement and a final conclusion that mathematics is too difficult.

There is also the problem of a shaky foundation which may be as a result of a syllabus not being taught completely at a lower level by tutors. In most cases, this result in a decrease in participation or boredom when learning mathematics because the concepts being learnt or to be learnt may be built on others which weren't taught in an earlier class. If mathematics is taught properly from a young age and a strong foundation is laid, learners will not struggle with the subject later.

Students may also get frustrated and develop negativity toward learning mathematics when they learn by just memorizing the procedures without properly understanding the reason for each step when they are not made to see the relevance and value of learning mathematics and how it can be applied in everyday life as well as in their career path.

Another cause for the negative perception toward mathematics is the attitude of the teacher towards the subject. This is usually the case when the teacher sees no usefulness of the subject in the real world and believes that mathematics should be learnt as a set of rules and algorithms and then, they are required to memorize procedures and rules without meaning. This approach will

make students to develop a lasting negative perception towards the learning of Mathematics.

Furthermore, teachers who believe that mathematics is "gender-specific" i.e. a subject for males (Earnest 1995), may see nothing wrong when female students are under performing in the subject. This misconception on the part of the teacher will impact negatively on the girls in the class who will begin to believe that they cannot do mathematics and at some point develop the "I cannot do maths" syndrome.

APPROACHES TO AMELIORATING NEGATIVE PERCEPTION

Students should be taught the usefulness, value and importance of mathematics. They should be aware that mathematics is paramount for progress in any part of the world and there will be minimal technological development without the sound knowledge of mathematics. It is important that students should be made to see the relevance of mathematics in relation to

other subjects, field of study and career paths. They need to know that mathematics is relevant to every area of human endeavor as it helps in reshapening thoughts, solve challenging problems and provide thinking skills invaluable to everyday life (Sarah 2013).
Teachers should teach mathematics with reference to how it applies to real life. Its values and usefulness should be made clear in its presentation. A good foundation in mathematics should be given to students and syllabuses completed. Teachers should also upgrade themselves on better ways to impact mathematics effectively with a view to reducing negative perception in students.
Teachers should be more devoted to their students by having their interest at heart, being good role models to them, creating the right learning environment, support and encourage them. Studies have shown that teachers are invariably role models as their behaviors either consciously or unconsciously influence the students. Yara (2009) asserts that teachers with positive attitude towards Mathematics were inclined to stimulate positive perception towards learning mathematics in their pupils.

Furthermore, in the work "A guide to effective instruction in Mathematics" (Ontario Ministry of Education, 2004), the following can be inferred: teachers can motivate learners to have a strong positive perception toward learning Mathematics which can help build their confidence by:

- Instilling the "I can do it" belief, emphasizing effort, not innate ability;
- Modeling enthusiasm for teaching and learning Mathematics;
- Improving learning styles of students by providing variant of ways to gaining understanding of difficult mathematical concepts;
- Helping students to appreciate the value of mathematics in their everyday life by citing examples of how some concepts apply in real life;
- Mathematical activities should be carefully chosen and initiated (not too easy, not too hard), so that students can be both challenged and successful.

The use of good and up-to-date instructional aids such as audio visuals, pictorials, chats, real objects etc. by teachers and students for learning Mathematics should be put into consideration as it will make teaching/learning of mathematics more effective. It should be seen as a necessity because it will enhance good Mathematical skills. Since a lot of mathematical concepts are abstractions from various real-life situations, instructional aids will help the students to appreciate and better understand the concepts. The use of instructional aids can also help students discover Mathematical principles and as well develop first-hand experience of technical concepts that may not be easily explained by the ordinary chalk and talk approach(Aina 2006). However, as important as the instructional aids, they should not take the place of the teacher, rather they should serve as means of helping the students understand the lesson. The instructional materials should also be relevant to the lesson being taught and should be varied for various lessons.

Also, the use of well equipped Mathematical laboratories can ameliorate negative perception towards learning Mathematics as it will help students according to Aina (2006) to:

- Easily understand Mathematical concepts especially when relevant apparatus are used;
- Have a first-hand opportunity to learn by practicing what they have been taught and also apply the knowledge to real life situations;
- Develop the attitude of cooperation as they work together in groups;

It will also relieve the teacher of making long explanations since the students will have a first -hand experience.

The use of games in a mathematics classroom will also help in ameliorating the negative perception since it will arouse student's interest and make the teaching lively. Moreover, organizing of mathematically oriented programmes with interesting topics will also go a long way to help.

CONCLUSION

For students to triumph in the field of mathematics, the need to change their negative perception towards learning Mathematics becomes imperative. This paper emphasizes on the effective teaching of the usefulness, value, importance and relevance of Mathematics in relation to other fields of study, career path and every aspect of life using clear presentation with references to real life situations. This will go a long way to ameliorate the negative perception of students towards the learning of mathematics

RECOMENDATIONS

It is advised that students' interests and confidence in mathematics should be encouraged by employing good mathematical skills as well as activities aimed at curbing negative perception. Students should also be made to enjoy the pleasure of curiosity, perseverance when tackling new problems. The effect of a conducive study environment as well as providing qualified mathematics staff should not be underestimated. The methods of impacting mathematics should be investigated and improved upon and teachers should adequately be trained through organized seminars and workshops.

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