SELF-EFFICACY AND PERFORMANCE AMONG MATHEMATICS' DIPLOMA STUDENTS OF DELTA STATE UNIVERSITY, ABRAKA, NIGERIA

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ABSTRACT

Many students fail to realize the role of mathematics in the schools, for this reason they either develop negative attitude towards studying the subjects or hate the subject mathematics. They believed that mathematics is for a particular set of students or sex biased and as result performs poorly in the subject. This study discussed the role of self-efficacy to students' performance in mathematics. It was designed to look into students' self-efficacy as it relates to students performance in mathematics. Two research questions were formulated to guide the study, while questionnaire was used to collect data from the students. The data collected were analyzed using simple percentages. From the findings it was discovered among others that students with high self-efficacy performed better than those with low self-efficacy. Based on this, it was recommended amidst others that Teachers should device a means of encouraging the girls so as to help them build confidence in studying mathematics.

Keywords: *Self-efficacy, Performance, Students, Mathematics*

INTRODUCTION

In most of our schools, right from primary to tertiary institution, there have been poor performances among the students. In the higher institution the problem becomes worst and this could be traced back to the secondary schools background. The presence of some factors hinders the students' performance in mathematics. One of the factors is self-efficacy which is the main focus of this work. From the research carried out by various researchers, we noticed that some students do not want to hear, even to study mathematics because they believed that they do not have the ability to succeed despite their effort. These set of students doubt their learning capabilities and as such do not want to engage in learning mathematics, because they anticipate failure. Also from research conducted by other people, we observed that students with high sense of self-efficacy are ready to participate, work harder and persist longer when they encounter difficulties and at the end achieve higher in their performance.

Bandura (1986) defined self-efficacy as people judgements of their capabilities to organize and executive causes of action required to attain designated types of performance. It is the belief in one's effectiveness in performing specific tasks. It determines the level of students thinking, feelings, motivation and how they behave themselves. Students who regard themselves as highly efficacious are quite different from those who regard themselves as inefficacious in numerous ways. One's beliefs towards a particular course or subject affect the person performance in that particular field of study. Most students have the belief that mathematicians are born and not

made, and also sex biased. It means that, mathematics is a difficult subject that can be understood by some selected students. This belief has occupied the mind of most students. Majority of the students no longer prepared to work hard and study mathematics to excel.

Schunk (1985) states that self-efficacy is a personal judgement of performance capabilities in a given domain of activity that may contain unpredictable and possibly stressful features. It is widely believed that self-efficacy has great effects in terms of performance and that it influenced choice of activities. When a student study he/she must make decisions about causes of action to pursue and how long to continue with what have been undertaken. According to Adegoke (1992), learning is not effective unless the learners have the intention to learn. Students can only learn if they have the determination to do so. Bandura (1997) stated that "major concern as per the role of self-efficacy beliefs in human findings is that people level of motivation, affective states and actions are based more on what they believe that is objectively true". Bandura (1993), social cognitive theory perceive that self-efficacy affects an individual in all aspects of life, including educational experiences. The teaching and learning of mathematics especially in developing countries is faced with lot of problems. Students are not ready to work, they show unwholesome and non-chalant attitude due to lack of self-efficacy. This has resulted in engaging in acts of deviant-behaviour during lessons which has greatly affected their performance.

Pajares and Schunk (2001) stated that we all engage in things that provide some form of satisfaction and self-worth and tend to shy away form actions that devaluate self. Students tend to participate or study a subject that will provide them some from of satisfaction. Because of the general notion that mathematics is difficult, they tend to shy away because they feel the capability to cope or study the subject is not with them and as a result it has affected their performance in school mathematics. According to Bandura (1993), self-efficacy is the foundation of human motivation and personal achievement. According to him if a student do not believe that he can achieve a desire outcome from his tasks the result is either he withdraw or continue with little efforts when faced with difficulties.

Nikos and George (2005) stated that "students who feel more efficacious with respect to a certain task or course were more likely to report using all types of cognitive strategies to succeed in pursuing the task. From the research carried out by Pintrich & De Groot (1990), it was reported that self-efficacy was positively related to academic performance. Nikos and George (2005) findings also show that self-efficacy is a strong predictor of academic performance in mathematics. For students to do well in mathematics, he or she must have high sense of self-efficacy otherwise cannot persist. Pintrich and De Groot (1990) stated that increased self-efficacy beliefs may lead to increased use of metacognitive strategies and thus lead to increased performance level. According to Pintrich and De Groot (1990), the students must have both the "will" and the "skills" to be successful in classroom. In self-evaluation and mathematics performance students make judgement about their mathematical capabilities based on knowledge and experiences acquire previously.

Many students doubt their capabilities to succeed in mathematics being one of the most dreadful subject in schools. Mathematics as one of the compulsory subjects in the Nigerian educational system has been a major problem to students in primary level up to higher institution. Students believed that this subject "mathematics" is meant for some selected students because they lack sense of efficacy. They believed that they can never do well in mathematics, no matter the effort put in by them. As a result of this, it has become a major problem in Nigeria system of education and the world in general. Students are no longer performing well in mathematics due to lack of self-efficacy. Based on this, the research is being carried out, supported by the following questions:

1. What are the levels of academic performance of students in diploma mathematics?
2. What are the levels of self-efficacy of boys and girls and their performance in diploma mathematics?

METHODOLOGY

Comparative study was conducted on the self-efficacy and students performance in mathematics, using diploma students of Delta State University, Abraka. Eighty students were selected using stratified systematic sampling. Questionnaire was the main instrument used for the study. Section A was designed to collect information on their GPA (Grade Point Average) while section B was on their self-efficacy and some information on performance. The data collected were analyzed using simple percentages.

RESULTS AND DISCUSSION

Table 1: What are the levels of academic performance of students in diploma mathematics?

Group	**GPA**	**Remark**	**Freq.**	**(%)**
High self-efficacy	1.00 - 2.39	Below average	20	25
	2.40 - 3.49	Average	45	56.25
	2.50 - 5.00	Above average	15	18.75
Total			80	100
Low self-efficacy	1.00 - 2.39	Below average	55	68.75
	2.40 - 3.49	Average	25	18.75
	3.50 - 5.00	Above average	10	12.50
Total			80	100

Source: Survey 2010

Table 1 shows the levels of academic performance of students with high and low self-efficacy in mathematics. It shows that students with high self-efficacy performed better than those with low self-efficacy through the assessment of their GPA (Grade Point Average). From the table above 18.75% of students with high self-efficacy performed above average while 12.50% of low self-efficacy students performed above average. We also discovered that 56.25% of students with high self-efficacy fall within the average whereas 18.75% of students with low

self-efficacy fall within the average. From table 1 also, only 25% of students with high self-efficacy falls below average whereas 68.25% of low self-efficacy students fall below average. From the result, we discovered that self-efficacy is very necessary as per student's academic performance. It is a major predictor of student's performance in mathematics (Pintrich and De Groot, 1990). We can conclude that self-efficacy is a motivating factor to student's performance in mathematics which is in line with Bandura (1986) and Jane William-Webb (2006).

Table 2: Self-efficacy of boys and girls compared with their performance in mathematics.

	Self-efficacy		**Performance**	
	Freq.	**%**	**Freq.**	**%**
Male				***Male***
High	18	45	High	62.5
Low	22	55	Low	37.5
Total	40	100		100
Female				***Female***
High	14	35	High	55
Low	26	65	Low	45
Total	40	100		100

Source: Survey 2010

On table 2 above it was observed that boys with high self-efficacy were 45% while their corresponding performance was 62.5%. Here also, the girls have 35% while their corresponding performance was 55%. We observed that the boys are more confident in mathematics, than the girls that are why their performance was higher than the girls. Table 2 also we discovered that the students with high self-efficacy performed better than those with low self-efficacy. The implication of this is that the boys are more confident to study mathematics than the girls and that is the reason the performance of the boys are higher than the girls. From the result we can conclude that self-efficacy is the foundation of human motivation and personal achievement which is in line with Bandura (1993).

CONCLUSION AND RECOMMENDATIONS

This study highlighted the importance of self-efficacy to students' performance in mathematics. From the study it was revealed that self-efficacy is a contributing factor to student's performance in mathematics. From the findings we discovered that boys are more confident than the girls. Bandura (1994), proposed a number of ways in which a strong sense of efficacy can enhance human accomplishment and personal well being. According to him if teachers develop a strong sense of efficacy in their students it will be of benefit to them in their future life. The teachers need to develop their students' perceptions of self-efficacy. From the findings, boys perform better than the girls because they are more confident. The girls self-efficacy should be developed so that they can perform better as well.

The teachers should try as much as possible to encourage group work among students by so doing students with low self-efficacy can be developed. To help struggling learners with low self-efficacy, the teacher should invest sufficient effort and persist in challenging tasks to develop high self-efficacy in the students. The teacher should try to develop self-efficacy in the students by linking new work to recent success and also by reinforcing effort and persistence. To strengthen self-efficacy in the student, teacher should give struggling learners work at their proper instructional and independent levels and be strict to instructional principles so as to develop self-efficacy in the students. Teachers should device a means of encouraging the girls so as to build confidence in them in studying mathematics. They should as well motivate the students and develop positive interest and attitude in the students in order to discourage the notion that mathematics is difficult and that is meant for some sets of students.

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