

**THE INFLUENCE OF SCHOOL ENVIRONMENTAL FACTORS AND
MENTOR-MENTEE RELATIONSHIP ON MATHEMATICS STUDENT-
TEACHERS' EFFICACY IN DELTA STATE**

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ABSTRACT

This study focused on the influence of school environmental factors and mentee-mentor relationship on mathematics student-teachers' efficacy in Delta State of Nigeria. To guide the study four research questions were raised and two hypotheses were formulated. A descriptive survey research design was adopted for the study. The research instrument used for data collection was a questionnaire titled: "An analysis of school environmental factors and mentee-mentor relationship on mathematics student-teachers' efficacy". It is a 12 item questionnaire derived from school environmental factors and mentee-mentor relationship. The questionnaire was administered to a sample of 97 mathematics education students at 300 and 400 level, department of curriculum and instructional technology, Delta state university, Abraka. The instrument was validated by three experts from the Faculty of Education, university of Benin, Edo State. To determine the reliability of the instruments, the split half method was used to administer the instrument to twenty (20) students that were drawn from 300 and 400 level mathematics education students, university of Benin, Benin-city. Cronbach's alpha coefficient was used to determine the internal consistency of the instrument and 0.739 r-value was obtained which show that the instrument is reliable. The data were analysed using simple percentage and t-test statistical tool. It was discovered that the school environment, weak mentor-mentee relationship existing in schools were the major factor affecting their efficacy. It was recommended that one way to avoid low efficacy of mathematics student-teachers is for the government and school owners to provide adequate physical learning environment. School mentors-mentees relationship should be made effective through the effort of the teaching practice coordinator and the co-operating schools should be made aware of their role.

Keywords: Mathematics student-teachers' efficacy, School environment, Mentor-mentee relationship.

INTRODUCTION

The quest for effective handling of prominent subject areas has become a phenomena debate in the 21st Century, Nigeria. Mathematics as a dominant subject in the school system has played a crucial and unique role in human societies and represents a strategic key in the development of the whole human race. Aminu (2005) stated that mathematics was developed as a result of human effort to solve their everyday problems

as well as their self-generated problems. Mathematics has the widest application that cut across many other disciplines hence it remains the queen and servant of sciences. As a universal tool, it is used to answer arising from social need, financial, industrial and commercial transactions and other human pursuits.

Since teachers play a significant role in determining the academic progress of students much emphasis has been placed on training and re-training of teachers. No education system can rise above the quality of its teachers, teacher education shall continue to be given major emphasis in all educational planning and development, this idea was supported in the National policy on Education (2012) which spelt out the goals of teacher education as follows:

- (a) To produce highly motivated, conscientious and efficient classroom teachers for all level of our educational system.
- (b) To encourage further the spirit of enquiry and creativity in teachers.
- (c) To help teachers fit into social life of the community and the society at large and enhance their commitment to national goals.
- (d) To provide teachers with intellectual and professional background adequate for their assignment and make them adaptable to changing situation.
- (e) To enhance teachers' commitment to the teaching profession.

In achieving these goals, mathematics student-teachers are made to acquire the pedagogical skills and knowledge in professional courses, general studies, mathematics courses and practical teaching. Teaching practice is an integral part of teacher education programme where student-teachers are given the opportunity in an actual classroom situation to demonstrate and improve in pedagogical skills over a period of time under supervision. Grootenboer (2006) posits that teaching practice experiences help student-teachers develop a contextualized understanding of the intricacies of teaching and provide an opportunity to develop competencies across a range of areas including classroom management skills, the fundamental of lesson planning, awareness of personal teaching style and the ability to interact with students. It offers student-teachers a place to observe and work with real students, teachers and curriculum in natural settings (Graham, 2006;48). It is through the teaching practice experience that student-teachers develop important professional knowledge of people, knowledge of themselves, self-control and inter-personal sensitivity—all of which would see them through their professional lives.

Apart from teachers being knowledgeable and being able to apply effective teaching techniques, there is another indicator of a qualified teacher which educators see as important, namely: teaching efficacy. Teacher efficacy has to do with the ability of the teacher to impact knowledge meaningful to the learners. Teacher efficacy transcends the teacher's ability to apply effective teaching techniques to embrace other environmental factors that are instrumental to effective and productive teaching. Teacher efficacy which is grounded in Bandura's social cognitive theory (1977,1986 and 1997) has emerged as an apparently significant construct in teacher education over the past two decade.

Student-teachers sense of efficacy has been shown to be a powerful construct related to student outcomes such as achievement (Ross, 1992) and motivation (Midgley et al, 1989).

It was also found to be related to teachers' behavior in the classroom. It affects the effort they put into teaching, the goals they set and their level of aspiration. Student-teachers' sense of efficacy is the belief in his or her capability to organize and execute courses of action required to successfully accomplish a specific teaching task in a particular context. Efficacy of student-teachers has been linked to attitude toward children and control (Woolfolk and Hoy, 1990). The teaching efficacy of a teacher in any subject area centres on a number of factors. Erawan (2011; 47) accentuates this assertion when he observes:

Current policies relating to teacher production should be concerned with the subject that prospective teacher will teach as well as related knowledge, such as techniques and teaching strategies in the classroom and school experience. These classroom skills and techniques can be learnt through work experience programmes in schools as part of an undergraduate degree curriculum.

The school-mentors also affect student-teachers' efficacy. They determine the placement of the student-teachers, the class and when to teach. There is also the influence of preparatory programme on the student-teacher; his understanding of principles and their application in actual classroom situation. To the best knowledge of this researcher, not much researches have been done in this area with regard to factors affecting Mathematics student-teachers' efficacy in Delta State of Nigeria. Hence this research is of paramount important.

Statement of Problem

Teachers' effectiveness is the crux of students' academic achievement both in internal and external examinations. A well-grounded teacher is better disposed to produce knowledgeable and skilled students. Most student-teachers do not exhibit these qualities as a result of lack of teaching skills and confidence in teaching profession even if they did well in their course work. The reason for this is not known, because much research work have not been done in this field of study as regards factors affecting Mathematics student-teachers' efficacy.

The academics programme for the professional training of Mathematics teacher in Delta State University, Abraka result show a consistent high performance of students during coursework but coming to teaching practice they perform below expectation. The reason for this low performance is not known.

What is therefore responsible for the poor performance of these Mathematics student-teachers? Does the school environment constitute a factor? Do the school-mentors affect their efficacy? This research is therefore written to statistically prove factors affecting mathematics student-teachers' efficacy.

Research Question

1. Do mathematics student-teachers perceive the school environment as a factor affecting their efficacy?

2. Do mathematics student-teachers perceive the school mentors as a factor affecting their efficacy ?
3. Do the factors affecting mathematics student-teachers efficacy differ on the basis of gender?
4. Do the factors affecting mathematics student-teachers efficacy differ on the basis of level of studies?

Hypotheses

1. The factors affecting mathematics student-teachers' efficacy do not differ significantly on the basis of gender.
2. The factors affecting mathematics student-teachers' efficacy do not differ significantly on the basis of level of studies.

Purpose of the Study

This study is aimed at analyzing the influence of school environmental factors mentor-mentee relationship on mathematics student-teachers' efficacy. Specifically, it is intended in this study to:

- (i) Examine the influence of gender on mathematics student-teachers' efficacy.
- (ii) Examine the influence of level of study on mathematics student-teachers' efficacy.

Scope of the study

This study is intended to analyze the influence of school environmental factors on mathematics student-teachers' efficacy. The study is centred on Mathematics education undergraduate student in 300 and 400 level of Delta State University, Abraka. These undergraduates were chosen because of their teaching practice experience and their preparatory programme experiences.

Significance of the study

The first goal of education is to produce highly motivated, conscientious and efficient classroom teachers. It is now generally accepted that the teacher is the pivot on which the success of any programme of educational renewal hinge. There is evidence that mathematics teachers are very few in the educational system. There is need therefore to analyze factors affecting mathematics student-teachers' efficacy and map out strategies in eradicating such factors with major aim of actualizing the national goal of education in general and goal of Mathematics education in particular. This study will serve as eye opener to the government, curriculum planners and developers, parents, teachers, school-administrators and other non-governmental agencies to the factors affecting effective implementation of the curriculum since the teacher is the implementer of the curriculum. It will also suggest ways of eradicating them.

The concept of teaching efficacy

The concept of teaching efficacy can be defined as what the teacher will do to bring about effective learning outcomes on the part of the learners. It is the teacher's belief related to self-efficacy on managing and operating successful teaching through instructional strategies, classroom management and student engagement. Ashton (1984) identified two dimensions of teaching efficacy. The extent to which a teacher believes his students can

learn material and the extent to which a teacher believes his students can learn under instruction.

Teacher efficacy is derived from Bandura’s social cognitive theory and self-efficacy theory. Bandura (1997) defined self-efficacy as belief in one’s capability to organize and execute the course of action required to produce given attainments. Ashton (1984) argued that teachers’ belief about their ability to bring about outcomes in their classroom and their confidence in teaching in general, play a central role in their abilities to effectively serve their students. Since then, studies on teaching efficacy and its inclusion in studies of teacher effectiveness have grown exponentially.

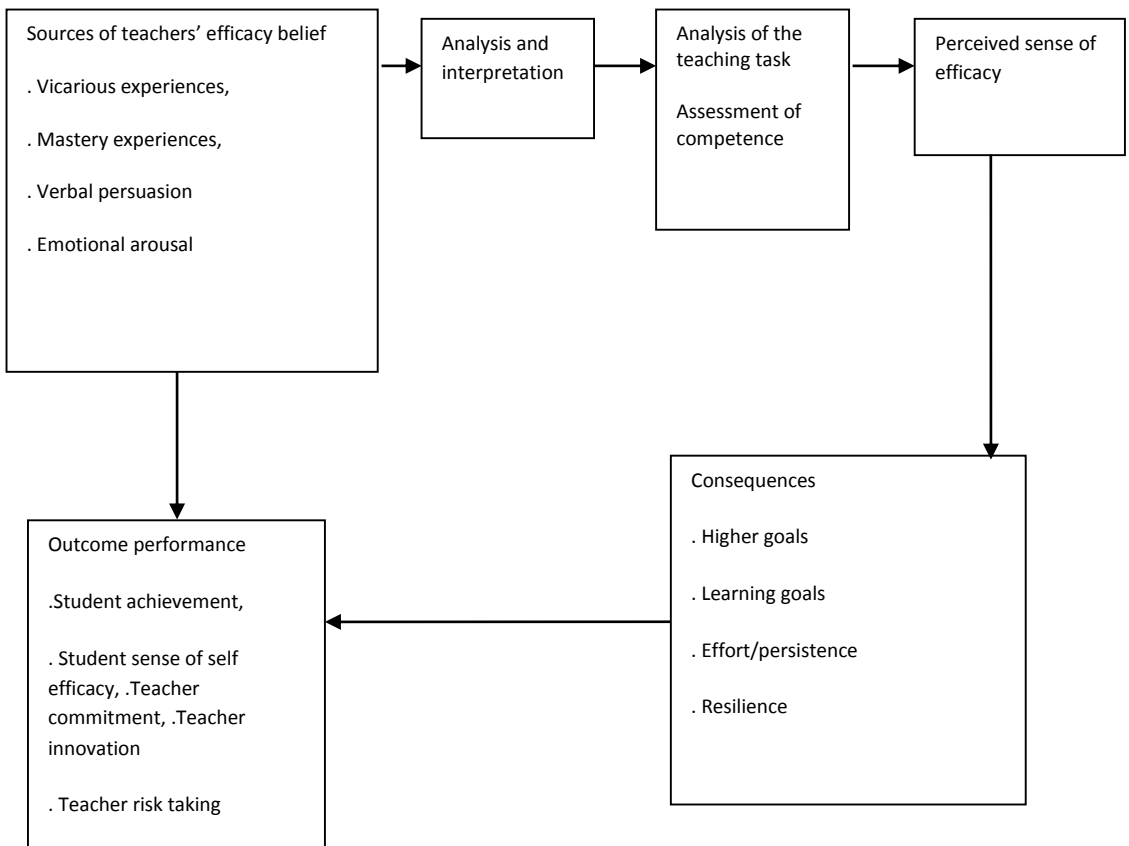


Figure1: the cycle of teachers’ efficacy judgements

Source: Adapted from Tshcannen-Moran, Woolfolk Hoy and Hoy (1998)

Tshcannen-Moran and colleagues(1998) developed a model of teacher efficacy identifying the ways in which efficacy judgements result as a function of the interaction between teachers’ analysis of teaching task in context and their teachers’ assessment of their personal teaching capabilities as they relate to the task (figure 1). In addition, Bandura also

identified four sources of efficacy beliefs: mastery experiences, vicarious experiences, verbal persuasion and emotional arousal. Mastery experiences are direct encounters with success through engagement in a behaviour that bring about a desired outcome. For instance, student-teachers who facilitate laboratory experiments in which students demonstrate conceptual understanding may believe that their actions led to student learning. These judgements are likely to increase their efficacy for conducting laboratory experiments in the future. This may be why some studies have found a connection between teacher education course-work and pre-service teacher efficacy.

If student-teachers watch experienced teacher successfully facilitate laboratory experiments they might also develop a sense of efficacy because they saw how to implement the actions necessary to bring about students' success. This would be an example of vicarious or observed experience leading to higher efficacy.

When student-teachers do not have opportunities to observe, their mentor teachers might remind them of the teaching skills they have developed and provide them with specific suggestions. This would be example of verbal persuasion, which appeals to the teacher's ability to bring about success. Finally, emotional arousal is a physiological state involving the release of hormones that signal an individual to prepare for action. Emotional arousal can be interpreted as both pleasant and unpleasant. On one hand, the body natural release of hormones while teaching can help teachers feel alert or excited to take on the challenges of the lesson. On the other hand, heavy release of hormones (as in the case of extreme nervousness) can be paralyzing rather than helpful.

How Teacher Efficacy Affects Classroom Learning

In light of so many different ways of defining teachers' belief about themselves, why is teacher efficacy such an important construct? Simply put, empirical studies have recognized teacher efficacy as a major predictor of teachers' competence and commitment to teaching—more powerful than self-concept, self-esteem and perceived control. Four seminar reviews of the impact of teacher efficacy by Ross(1998), Goddard et al. (2000), Labone(2004) andWheatley (2005) revealed consistent findings: Teachers who report a higher sense of efficacy, both individually and as a school collectively, tend to be more likely to enter the field report higher overall satisfaction with their jobs, display greater effort and motivation, take on extra roles in their schools and are more resilient across the span of their career. Moreover, the extent to which shifts in teacher efficacy take place as teachers' transition into new contexts appears to depend upon the level of support in the context; greater support from administrators and colleagues buffers against declines.

How School Environment Affect Student-teachers' Efficacy

The school environment where student-teacher carryout their teaching practice go a long way in affecting their efficacy either positively or negatively. The school environment is the setting where interaction between students and teachers take place. Basic physical requirements of the school facility like minimum standard for classroom size, acoustics, lighting, heating and air-conditioning, in addition to pedagogical, psychological and social variables add together as a whole in shaping the context within which learning takes place(Lackney, 2006).

Classroom environment is that part of the school facility which includes classrooms, laboratories, lecture halls, library and other services. Classrooms cover students' arrangement in the class, size, natural lighting, optimal thermal conditions and indoor air. Usually a conducive classroom should have 20-35 students under the control of a single teacher.

Several studies indicated that classroom arrangement affect student performance, especially in relation to their distances from the teacher(Snow,2002). It affects their grades, absences and participation (Ezenweani, 2006). Children in smaller classes(13-17 per room) perform better than those in regular-sized class(22-25 per room).

Aduwa in his lecture on theory of learning and instructions posited that light and thermal conditions are bound to affect students' performance and teacher's delivery. Students had better achievement and behavior in class with more light. McGuffy noted that thermal comfort influence task performance, attention spans and further stated that reading speed and comprehension and mathematical skills operations such as multiplication, division, addition and factorization were adversely affected by temperatures above 74 F Degrees.

It is obvious in Nigeria where electricity is not available in most schools that this comfort cannot be obtained. Urevbu lamented the situation of our schools in his inaugural lecture titled creating the school we deserved. According to him, the nature of our schools is characterized as follows: inadequate working space and facilities, dilapidated schools and classrooms, outdated libraries and laboratories, prolong strike action by teachers, a pervasive decay in values, low teacher morale and so on. From the above one can say that the school environment where mathematics student-teachers carryout their teaching practice would go a long way in affecting their efficacy.

How School-mentors affect Student-teachers' Efficacy

School-mentors are the mentor teachers (the principal, head of departments and subject teachers) which student-teachers are to mimic during teaching practice exercise. Mentor-teachers have become key players in launching student-teachers into the teaching profession. Mentor-teachers are recognized for their practical knowledge of the teaching profession, which complement the theoretical knowledge that the student-teachers have acquired from the university.

According to Graham (2006) there are two components, critical to the success of the teaching practice experience, namely: the mentor-teachers who guide and support student-teachers and the site where the experiences occur. Padua (2003) developed a model for mentor teachers. According to him, mentor-teachers are usually experienced, have a deeper understanding of a specific content area and know how to build capacity in others. He itemized the primary goal of a mentor-teacher as follows:

- To assist classroom teachers in refining existing instructional strategies
- To introduce new strategies and concepts
- To engage teachers in conversation about their teaching
- And to provide overall support.

In achieving the major aim of mentor and mentee relationship, five things could be done.

1. Demonstration lessons
2. Team teaching
- 3.Independent practice/observation
4. Feedback and
5. Ongoing support.

Empirical Perspective

This section is used to discuss some related researches done and recorded findings in the study of teacher efficacy. Erawan (2011) works on factors affecting pre-service teachers teaching efficacy. Based on his findings, the factors found to have significant effect on teaching efficacy were practicum experience preparatory programme effectiveness and attitude toward the teaching profession.

Woolfolk, Hoy and Spero (2005) investigated changes in teacher efficacy during the teacher preparation programme and in the early year of teaching experience. Findings indicated that student-teachers' efficacy belief inclined during teacher preparation and student learning but fall with actual experience as teachers during first year of teaching and efficacy belief of teachers are difficult to change as they are attained.

Lekeatch and Assan (2010) worked on the challenges and prospects for teacher education in the North-west province, South Africa. Findings revealed that teaching practice for the 21st century is plagued by challenges that affect the success of the programme. Some of the challenges identified are:

1. Teacher trainees use wrong criteria to select practice schools.
2. Teacher trainees are not adequately prepared for teaching practice
3. Mentors are not sufficiently involved in teaching practice because they lack knowledge of mentorship the assessment and awarding of teaching practice marks are subjective.

Methodology

Research Design

This study adopted survey research design. A survey research is a systematic way of describing the characteristics of fact about the population of a study. This study attempted to find out the influence of school environment and mentors on mathematics student-teachers' efficacy in Delta State.

Population of the Study

The population for this study shall consist of all the 300 and 400 level mathematics education students in the Department of Curriculum Studies and Instructional Technology, Delta State University, Abraka.

Sample and Sampling Techniques

The sample for this study consist of 97 students of 300 and 400 level Department of Curriculum Studies and Instructional Technology, Delta State University, Abraka.

Research Instrument

The instrument that was used for data collection was a questionnaire titled: "Analysis of factors affecting Mathematics student-teachers' efficacy". The instrument consist of twelve (12) items which were derived from school environment and mentors factors affecting Mathematics student-teachers' efficacy.

Items 1-6 measures school environment as it affects mathematics student-teachers that was created by the researcher.

Items 7-12 measures school mentors as it affects mathematics student-teachers that was created by the researcher.

Validity of the Instrument

To validate the instrument, copies will be given to the supervisor and other two experts in the Department of Curriculum Studies and Instructional Technology, University of Benin, Benin-City. Their correction will be effected before drafting the final copy. This is to ensure that the instrument contains the appropriate items in term of language and adequacy of the quality of the instrument to measure the research variables.

Reliability of the Instrument

To determine the reliability of the instruments, the split half method was used. The researcher administered the instrument to twenty (20) students that were randomly selected from 300 and 400 level mathematics education unit, Department of Curriculum Studies and Instructional Technology, Delta State University, Abraka. Cronbach's Alpha Coefficient was used to determine the internal consistency of the instrument and 0.739 r-value was obtained which show that the instrument is reliable.

Method of Data Collection

The researcher visited the school, having obtained permission from the head of the Department, the course adviser will introduce the researcher to the students and students needed for the study shall be selected. The questionnaires were administered to the students individually and collected on the spot.

Method of Data Analysis

The data analysis shall centred on research questions and the hypotheses formulated for the study. The statistical tool which was used to analyze the responses relating to the personal issues of the respondents was the simple percentage. The test for differences as stated in the hypotheses on the factors affecting Mathematics student-teachers' efficacy scale (QFAMSTES) was done by the t-test statistical tool at 0.05 level of significance.

RESULTS

This chapter presents the results of the analysis of data collected based on the research questions and the hypotheses formulated for the study. The hypotheses formulated for the Study were tested. The presentation is done in accordance with the research questions and stated hypotheses

Research Question 1: Do mathematics student-teachers perceive the school environment as a factor affecting their efficacy?

Table 1: Analysis of school environment as a factor affecting mathematics student-teachers' efficacy.

S/N	Items	SA %	A %	D %	SD %
	School environment factors				
1	Classrooms which were poorly furnished affect teacher's delivery in mathematics	34 (35.1)	36 (37.1)	21 (21.6)	6 (6.2)
2	Poor conducive teaching environment makes mathematics teaching difficult	34 (35.1)	47 (48.5)	13 (13.4)	3 (3.1)
3	Class size not adequate for teaching of mathematics	13 (13.4)	39 (40.2)	38 (39.2)	7 (7.2)
4	Availability of instructional materials do influences teacher's ability in teaching mathematics	48 (49.5)	4 (42.3)	7 (7.2)	1 (1.0)
5	Poor conducive staffroom affect my teaching of mathematics	17 (17.5)	54 (55.7)	20 (20.6)	6 (6.2)
6	Lack of mathematics laboratory affect teacher's preparation	27 (27.8)	51 (52.6)	16 (16.5)	3 (3.1)

The Table 1 above revealed that the school environment constitute a factor affecting mathematics student-teachers' efficacy. One of the school environmental factors is, classroom which were poorly furnished affect teacher's delivery in mathematics had 34 respondents or 35.1% (strongly agreed), 36 respondents or 37.1% (agreed), 21 respondents or 21.6% (disagreed) and 6 respondents or 6.2% (strongly disagreed). Poor conducive teaching environment makes mathematics teaching difficult had 34 respondents or 35.1% (strongly agreed); 47 respondents or 48.5% (agreed), 13 respondents or 4) and 3 respondents or 3.1% (strongly disagreed). Again, class size not adequate for teaching of mathematics had 13 respondents or 13.4% (strongly agreed); 39 respondents or 40.2% (agreed), 38 respondents or 39.2% (disagreed) and 7 respondents or 7.2% (strongly disagreed).availability of instructional materials do influences teacher's ability in teaching mathematics, 48 respondents or 49.5 (strongly agreed) ; 41 respondents or 42.3% (agreed); 7 respondents or 7.2%(disagreed). While 1 respondent (strongly disagreed). In the same vein poor conducive s staffroom affect students or teachers teaching of mathematics had 17 respondents or17.5% (strongly agreed); 54 respondents or 55.7% (agreed), 20respondents or20.6% (disagreed) and 6 respondents or 6.2% (strongly disagreed). Finally, lack of mathematics laboratory affect teacher's preparation, 27 respondents or 27.8% (strongly agreed), 51 respondents or 52.6% (agreed) , 16respondents or 16.5% (disagreed) and 3 respondents or 3.1% (strongly disagreed).

Going by the analysis above, it could be said that the school environment affects mathematics student-teachers' efficacy to some extend; as a combined respondents of 75.8% attested to this fact while 24.2% objected to this fact.

Research Question 2: Do mathematics student-teachers perceive the school mentors as a factor affecting their efficacy?

Table 2: Analysis of school mentors as a factor affecting mathematics student-teachers' efficacy

S/N	Items	SA %	A %	D %	SD %
7	Observing experienced teachers has positive impact on my teaching during teaching practice	27 (27.8)	26 (26.8)	41 (42.3)	5 (5.2)
8	Motivation from heads of school has improved my interest in teaching mathematics	15 (15.5)	34 (35.1)	40 (41.2)	8 (8.2)
9	I was properly guided by the head of my department and other teachers during the teaching practice	15 (15.5)	22 (27.7)	36 (37.1)	24 (24.7)
10	Teachers who perform well in mathematics are not rewarded by the school authorities	26 (26.8)	33 (34.0)	30 (30.9)	8 (8.2)
11	The time schedule for teaching of mathematics is not conducive	4 (4.1)	33 (34.0)	50 (51.5)	10 (10.3)
12	The behavior of principal and other teachers in the school help me to have interest in mathematics teaching	12 (12.4)	37 (38.1)	35 (36.1)	13 (13.4)

The analysis on table 2 above showed the school mentors (administrators) as a factor affecting student-teachers' efficacy. One of such factor is, observing experienced teachers have a positive impact on my teaching during teaching practice; 27 respondents or 27.8% (strongly agreed), 26 respondents or 26.8% (agreed), 41 respondents or 42.3% (disagreed) and 5 respondents or 5.2% (strongly disagreed). Motivation from heads of school has improved my interest in teaching of mathematics had 15 respondents or 15.2% (strongly agreed), 34 respondents or 35.1% (agreed), 40 respondents or 41.2% (disagreed) and 8 respondents or 8.2% (strongly disagreed). I was properly anided by the head of my department and other teachers during teaching practice had 15 respondents or 15.5% (strongly agreed); 22respondents or 22.7% (agreed), 36 respondents or 37.1% (disagreed) and 24 respondents or24.7% (strongly disagreed).

Furthermore, in response to teachers who perform well are not rewarded by the school authorities had 26 respondents or 26.8% (strongly agreed); 33 respondents or 34.0% (agreed); 30 respondents or 30.9% (disagreed) and 8 respondents or 8.2% (strongly disagreed). The time schedule for teaching of mathematics is not conducive had 4 respondents or 4.1% (strongly agreed); 33 respondents or 34.0% (agreed), 50 respondents or 51.5% (disagreed) and 10respondents or 10.3% (strongly disagreed).

Finally, the behavior of principal and other teachers in the school help me to have interest in the teaching of mathematics had 12 respondents or 12.4% (strongly agreed); 37 respondents or 38.1% (agreed), 35 respondents or 36.1% (disagreed) and 13 respondents or 13.4% (strongly disagreed).

Going by the analysis above, 48.8% of the total respondents had combined (agreed and strongly agreed) to the support and motivation of school mentors while 51.6% of the total respondents objected to school mentors support and motivation.

Hypothesis 1: The factors affecting mathematics student-teachers efficacy do not differ significantly on the basis of gender.

To test the hypothesis, the t- test statistical tool at 0.05 level of significance is used. The analysis is presented in Table 7.

Table 3: t-test Analysis of male and female mathematics student-teachers opinion of factors affecting their efficacy.

Group	N	\bar{X}	SD	Df	Calculated t – value	Critical t-value	Decision
Male Mathematics Student-teachers	63	70.21	4.84	95	-0.002	1.96	Not Significant
Female Mathematics Student-teacher	34	72.41	4.71				

The table 3 above showed the t-test analysis of male and female mathematics student-teachers opinion about factors affecting their efficacy. The mean for male mathematics student-teachers was 70.21 and that of the female was 72.41. The calculated t-value was -0.002 while the critical t-value was 1.96. Since the critical t-value was greater than the calculated t-value, the null hypothesis is therefore accepted. The results showed that the factors affecting mathematics student-teachers efficacy do not differ on the basis of gender. This implies that the factors identified by both male and female mathematics student-teachers are the same.

Hypothesis Two: The factors affecting mathematics student-teachers efficacy do not differ on the basis of level of studies.

Using the t-test for the two independent variables, the hypothesis was tested and the result is presented in table 8.

Table 4: T-test Analysis of difference between 300 and 400 Level mathematics student-teachers’ opinion about factors affecting their efficacy.

Group	N	\bar{X}	SD	Df	Calculated t – value	Critical t-value	Decision
400 level Mathematics Student	50	71.94	4.92	95	0.216	1.96	Significant
300 level Mathematics Student	47	69.85	4.74				

P>0.05

Table 4 above revealed the results of the test analysis between 400 level and 300 level mathematics student-teachers in the opinion of factors affecting their efficacy. The mean for the 400 level mathematics student-teachers was 71.94 while that of 300 level was 69.85.

The calculated t- value was 0.216 and the critical t-value was 1.96. Since the critical t-value was greater than the calculated t-value, the null hypothesis is therefore accepted. The result revealed that the factors affecting mathematics student-teachers efficacy do not differ significantly on the basis of level of studies. This may be due to the fact that factors affecting the teaching of mathematics are superior to any person, hence the factors may be the same.

DISCUSSION

School environment as a factor affecting mathematics student-teachers efficacy

The school environment is an undeniable factor in any academics settings. For instance, classrooms which were poorly furnished affect teacher's delivery in mathematics had as much as 70 respondents or 72.2% (strongly agreed and agreed). Similarly, poor conducive teaching environment makes mathematics teaching difficult had 81 respondents or 83.6% (strongly agreed and agreed). Also, class size not adequate for teaching of mathematics had 52 respondents or 53.6% (strongly agreed and agreed); the availability of instructional materials do influences teacher's ability of teaching of mathematics had as much as 89 respondents or 91.8% (strongly agreed and agreed). Moreover, poor conducive staffroom affect student-teachers teaching of mathematics had 71 respondents or 73.2% (strongly agreed and agreed). Similarly, lack of mathematics laboratory affect teacher's preparation had 78 respondents or 80.4% (strongly agreed and agreed).

The study revealed that poor teaching environment makes the teaching of mathematics difficult and this has a negative effect on mathematics student- teachers' efficacy. This is in line with the work of Lackney(2006) who noted that the physical dimension of the school includes various micro environment characteristics such as physical properties and spatial components of place, as well as the overall building typology (i.e. configuration of spaces) which when not adequately provided, teaching and learning process would be incomplete and cannot produce good results on the part of the teachers.

School mentors as a factor affecting mathematics student-teachers' efficacy.

Yet another factor that affected mathematics student-teachers efficacy to some extend is the role of the school mentors. For example, 46 respondents or 47.5% are of the opinion that observing experienced teachers has no impact on their teaching during teaching practice; i.e. there was no demonstration class for them as expected to be done by school mentors. Moreover, motivation from heads of school has improved my interest in teaching of mathematics had 48 respondents 49.4% (strongly disagreed and disagreed). I was properly guided by the head of my department and other teachers during teaching practice had 60 respondents or 61.8% (strongly disagreed and disagreed). Teachers who perform well in mathematics are not rewarded by the school authorities had 59 respondents or 60.8% (strongly agreed and agreed). Again, the time schedule for teaching of mathematics is not conducive had 37 respondents or 38.1% (strongly agreed and agreed). The behavior of principal and other teachers in the school help me to have interest in mathematics teaching had 48 respondents or 49.5% (disagreed and strongly disagreed).

On the whole, 51.6% of the total respondents are of the opinion that school mentors as a factor affected their performance negatively. Based on this figure, one can say that, one of the factors responsible for poor performance of mathematics student-teachers to some extend is the school mentors/mentees relationship that is not effective enough.

This is a counter view of Maphala who work on understanding the role of mentor-teachers during teaching practice session; university of South Africa, department of curriculum and instruction. His findings revealed that mentor-teachers understand their role to be that of facilitating, socializing of student-teachers into the teaching profession, by assisting them to gain competence in various areas of the school functioning including lesson planning and presentations, classroom management and appropriate use of teaching strategies and resources.

Conclusion

The study investigated the factors affecting mathematics student-teachers efficacy in Delta state university, Abraka and the following conclusions have been drawn:

1. For effective teaching and learning of mathematics to take place, a very conducive school environment have to be provided by both the school authorizes and the government of the state to avoid the difficulty of teaching of mathematics.
2. It was observed from the study that there was a weak school mentors/mentees relationship among secondary schools in the state. It seems as if some of the school-mentors do not know their role and therefore fail to perform s expected. There is a need for the university teaching practice coordinating unit to sensitize the co-orperating schools of their expectation in order to bring about effective launching of mathematics student-teachers into the teaching profession.

Recommendation

From the foregoing therefore, the researcher wishes to recommend that:

1. The government of the state should provide adequate physical learning environment (buildings, classrooms, libraries, laboratories, computers, instructional materials, lightings and proper ventilation).
 1. School-mentors/mentees relationship should be effective through the effort of the teaching practice coordinators and the cooperating schools be made aware of their role.
 2. Student-teachers should be empowered by the school authorities during teaching practice exercise in order to get total control of students under their teaching.

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