Comparative Analysis of the Impact of Mathematics Teaching Anxiety on Service and Pre-Service Teacher Teaching Experience

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Abstract
This study examines comparative analysis of the impact of mathematics teaching anxiety on service and pre-service teacher teaching experience. The study made use of simple random sampling For the study, four hundred (400) pre-service teachers were selected from Federal College of Education (Special) Oyo and Emmanuel Alayande College of Education Oyo. Among the pre-service teachers two hundred and seventy-five (275) were males and one hundred and twenty-five (125) were females. Two hundred (200) practice teachers out of which one hundred and seventy (170) were male and thirty (30) were female randomly selected across thirty secondary schools within Oyo metropolis. The instrument used was Mathematics Teaching Anxiety Scale (MTAS) by Akinsola (2004) with r=0.92.The data were analyzed using t-test, appropriate recommendations were given based *on* the findings *of the study, it was recommended that mathematics practice and pre-service teachers should employ and adopt Mathematics teaching strategies that can alleviate the persistence mathematics anxiety.*

Keywords: Teaching Anxiety, Practice Teacher, Pre-service Teacher.

Introduction

Mathematics is an essential school subject and has its relevance in all fields of human endeavors. It is also scientific in nature, creation of human mind with ideas, processing and reasoning. Makarfi (2001) noted that Mathematics has played an important role in the development of society from the pre-historic era to the present and its role is more significant than ever before and still be more significant in the future. The great recognition given to Mathematics as a result of its key function to develop the society is expected to translate to a satisfactory students performance but, the reverse is the case in Nigerian Society. Elekwa (2010) remarked that students exhibit nonchalant attitude towards Mathematics, even when they know that they need it to forge ahead in their studies and in life. Students who have already conditioned their minds that Mathematics is a difficult subject are usually not serious and therefore perform poorly in Mathematics tests and examinations, and Mathematics-involving situations (Ihendinihu, 2013).

Anxiety resulted to stress, tension, and strain in ones mind. It is a strong feeling of wanting to do something or of wanting something to happen. Despite the important of Mathematics to societal development it has always been perceived as the most difficult subject in the school curriculum. This has resulted in learners having a negative attitude toward the subject and the attitude seems to have passed from one generation to another. Over the years, experts have continued to draw attention to the grave consequences of constant decline in the enrolment and performance of pre-service teachers in Mathematics (Akinsola, 2002; Onabanjo, 2007). National development is the ability of a nation to improve the basic welfare of her citizen and these could be done through the applicability of Mathematics.

Malinsky, Ross, Pannells and Mcjunkin, (2006) stated that the origin of pre-service teachers negative believe and anxiety about

mathematics could be attributed to prior schools experience, and teachers training programme. Akinsola, (2009) aver that the important of Mathematics does not only lie in its contributions to scientific and technological development but also in its utility to day-to-day interactions at the market places, in transportation, business and all sorts of areas in which it is used by both literate and illiterate members of the society. Anxiety is the emotional condition in which there is fear and uncertainty about the future (Hornby 2009). The importance of Mathematics including producing versatile and resourceful graduates that can enhance sustainability of Mathematics for sustainable development of science and technology; but majority of service and pre-service teachers often dreads and show negative attitude towards Mathematics. Uusimaki and Nason (2004) opined that pre-service primary school teachers negative experience and anxiety about mathematics were attributed to their teachers rather than to other factors such as mathematical concepts, parents or peers. They also claimed that situation which causes most anxiety for the participants included communicating ones mathematical knowledge, whether in a test situation or in teaching of mathematics such as were required on practicum.

Statement of the Problem

Mathematics anxiety exhibited by some service and majority of pre-service teachers affects students in the learning mathematics. Many students have little confidence in their ability to do mathematics because of their belief that mathematics is very difficult to pass. The teachers that suppose to alleviate the fear have high mathematics anxiety and as such skipping vital topic in mathematics curriculum. Not only this, many service mathematics teachers eluded teaching profession because of the anxiety they have for mathematics thereby constitute to the problem of lack of mathematics teachers in our institution of learning even the pre-

service ones have no passion for mathematics. The phobia for mathematics exhibited by service and pre-service teachers had done havoc to our educational setting because students were no longer reason logically and creative in their thinking. As we know mathematics enhance creativity and critical thinking for a nation to be relevant in the world of technology such nation must produce mathematics teachers that can teach mathematics with passion and without fear.

Purpose of the Study

The main purpose of the study was to compare the anxiety levels of mathematics among service teachers and pre-service teachers in Oyo metropolis of Oyo State.

Research Hypotheses

HO1. There is no significant difference between mathematics teaching anxiety of service and pre- service teachers in Oyo metropolis.

HO2. There is no significant difference between mathematics teaching anxiety of service and pre-service teachers in Oyo metropolis based on gender.

HO3. There is no significant difference between mathematics teaching anxiety of service and pre-service teachers in Oyo metropolis base on age.

Research Methodology

The study adopted a descriptive research design, it examines the comparison of practice and pre-service teachers mathematics teaching anxiety and its effect on national development. The study made use of simple random sampling in selecting participant for the study four hundred (400) pre-service teachers were selected from Federal College of Education (Special) Oyo and Emmanuel

Alayande College of Education Oyo. Among the pre-service teachers two hundred and seventy-five (275) were males and one hundred and twenty-five (125) were females. Two hundred (200) service teachers out of which one hundred and seventy (170) were male and thirty (30) were female randomly selected across thirty secondary schools within Oyo metropolis. The instrument used was Mathematics Teaching Anxiety Scale (MTAS) by Akinsola (2004) with r=0.92.The data were analyzed using t-test.

Results

Hypothesis 1: There is no significant difference between mathematics teaching anxieties among service and pre-service teachers in Oyo metropolis.

Table 1: t-test shows the level of mathematics teaching anxiety among service and pre-service teachers in Oyo metropolis.

Anxiety	N	Mean	Std. Dev	Cri-t	Cal-t	Df	P
Service teachers	200	54.7891	12.441 4	2.00	5.211	299	.000
Pre-service teachers	100	44.9836	8.6534				

In table 1 above, the mean value and standard deviation values for service teachers are 54.7891 and 8.6534 and that of pre-service teachers are 44.9836 and 8.6534. The cri-t=2.00 for service teachers cal-t=5.211 while cal-t for pre-service teachers is 1.203; df=299, $p<.05$ level of significant. From the findings, cal-t is greater than the cri-t the hypothesis is therefore rejected, indicating that there is significant difference in the level of mathematics anxiety.

Hypothesis 2: There is no significant difference between mathematics teaching anxiety of male and female service and pre-service teachers in Oyo metropolis.

Table 2: t-test shows the level of mathematics teaching anxiety among service and pre-service teachers based on gender in Oyo metropolis.

Anxiety	N	Mean	Std. Dev	Cri-t	Cal-t	Df	P
Service teachers	200						
Male	170	52.7891	7.1121		3.10	299	.000
Female	30	50.2100	4.3712	2.00			
Pre-service teachers	100						
Male	60	50.4451	48.4528				
Female	40	46.2204	36.7001				

In table 2 above, the mean value and standard deviation values for service teachers are 52.7891; 50.2100 and 7.1121; 4.3712 and that of pre-service teachers are 50.4451;46.2204 and 48.4528; 36.7001. The cri-t=2.00; cal-t=3.10 ; df=299, $p<.05$ level. From the finding the cal-t value is greater than cri-t the hypothesis is therefore rejected indicating that there in significant difference in the level of mathematics anxiety base on gender.

Hypothesis 3: There is no significant difference between mathematics teaching anxiety of service and pre-service teachers base on age in Oyo metropolis.

Table 3: t-test showed the level of mathematics teaching anxiety among service and pre-service teachers based on age in Oyo metropolis.

Anxiety	N	Mean	Std. Dev	Cri-t	Cal-t	Df	P
Practice teachers (Age: 20-30 yrs)	200	55.7321	10.6692	2.00	5.211	299	.000
Pre-service teachers (Age:17-25yrs)	100	41.1117	6.4360				

In table 3 above the mean value and standard deviation values for practice teachers are 55.7321 ; 10.6692 and that of pre-service teachers are 41.1117 ; 6.4360. The cri-t=2.00; cal-t=5.211; df=299, $p<.05$ level of significant the hypothesis is therefore rejected indicating that there is significant difference in the level of mathematics anxiety based on age.

Discussion of Results

The study reveals a significant difference between service teachers and pre-service teachers mathematics teaching anxiety. From table 1, it is significant due to the fact that calculated t- value is greater than cri-t value. This corroborates the submission of Eraikhuemen and Oteze (2008) who describes the majority of students studying Mathematics as a course of last resort in tertiary level of education. The importance and usefulness attached to Mathematics education have motivated Mathematics educators, mathematician and association to find out the courses of students poor achievement in both internal and external examination.

It was also revealed in table 2 that the mean value and standard deviation values for service teachers are 52.7891; 50.2100 and 7.1121; 4.3712 and that of pre-service teachers are 50.4451; 46.2204and 48.4528; 36.7001. The cri-t=2.00; cal-

t=3.10; df=299, p<.05 level. From the finding, the cal-t is greater than the cri-t the hypothesis is therefore rejected indicating that there is significant difference in the level of mathematics anxiety based on gender. Preis and Biggs (2002) stated in their findings that older women often experience more Mathematics anxiety.

Finally, In table 3 above the mean value and standard deviation values for service teachers are 55.7321 ; 10.6692 and that of pre-service teachers are 41.1117 ; 6.4360. The cri-t=2.00; cal-t=5.211; df=299, p<.05 level of significant the hypothesis is therefore rejected indicating that there is significant difference in the level of mathematics anxiety based on age. This was supported by (Baloglu, 2003; Baloglu, 2006) that previous research on mathematics have shown that gender, age and prior Mathematics experiences are related to subject

Conclusion

The findings of the study revealed that both service and pre-service teachers have fear for the teaching of mathematics. Service teachers and pre-service teachers experience various level of anxiety and this make them skip some topic in mathematics curriculum during teaching and learning process. The relationship between anxiety and achievement is significant and for this reason, Mathematics instruction should made teachers and students centered and appropriate teaching and learning strategies should be adopted.

Recommendations

In view of the findings, practice teachers and pre-service teachers should develop positive attitude towards Mathematics.

There is need for both service teachers and pre-service teachers to have confidence in their ability to learn and teach Mathematics.

Emphasize the importance of original, quality thinking rather than rote manipulation of formulas.

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