PERCEIVED ACADEMIC STRESS ON PRIMARY SCHOOL PRE-SERVICE TEACHERS' PERFORMANCE AND INTEREST IN MATHEMATICS

BY

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Abstract
The study investigated perceived academic stress on primary school pre-service teachers' performance and interest in Mathematics. Survey research design was adopted in the study. The population for the study comprised all the primary school pre-service teachers' in Emmanuel Alayande College of Education, Oyo and random sampling method was employed to obtain 100 respondents as sample size for the study. The research instrument used for this study was questionnaire tagged "Academic Stress Questionnaire (ASQ) with a reliability coefficient of 0.74. Two research questions were generated and answered in this study. Frequency count, percentages and Pearson Product Moment Correlation coefficient were used to analyse the data. Findings revealed that primary school pre-service teachers' academic stress has low influence on performance in Mathematics while academic stress is not related to primary school pre-service teachers' interest in Mathematics. Based on the findings, school administrator should implement stress reduction programmes for students and Teachers and parents should not put unnecessary pressure on students so as to reduce stress and improve their performance and increase their interest in Mathematics.

***Keywords*:** Primary School, Pre-service, Mathematics, Teachers, Stress

Introduction

Primary school pre-service teachers are trainees in colleges of education embarking on three years teacher training programme bringing a range of mathematical experiences, to acquire new knowledge to become teacher at the completion of their programme. They are required to have confidence in their abilities to teach mathematics effectively in primary schools as the say goes that

it is impossible for a teacher to give what he/she did not have. Hill and Bilgin (2018) asserts that primary school pre-service teachers are important people to shape future generations, as they will be the first face of mathematics teacher a young child meets when he/she starts school.

The mathematical attainments of primary school pre-service teachers are considered an important factor in high-quality mathematics instruction of which behaviours, knowledge and skills they exhibit in order to find solution to a given mathematical problem; with good sense and ability to organize and execute teaching that promotes learning are important. Moreover, primary school pre-service teachers' learning has a major influence on the practice of education especially as regards to how pupils can best learn, and what educational resources could be more efficiently organized by the educational body for the purpose of teaching mathematics in primary school. For instance, Tonya et al. (2018) submitted that primary school pre-service teachers have limited understanding of mathematics and preparation for effectively teaching mathematics, despite the claim that primary school mathematics teachers are the front lines of mathematics instruction. They provide the foundation for future science, technology, engineering and mathematics learning for pupils despite these teachers' unpreparedness, lack of conceptual knowledge, as well as lack of deep understanding of mathematics needed to teach, and Tella (2018) stated that the purpose of mathematics education is to produce more effective, efficient and highly motivated teachers to tackle the task of helping students to learn mathematics.

Thus, primary school pre-service teachers lack deep understanding of mathematics needed to teach (Xinrong et al., 2020). In the research of Ji-won and MiYeon (2021), primary pre-service teachers' conceptions or problem solving influence their performance. Also, Kwan et al. (2015) found that primary school pre-service school teachers' performance is below average in both mathematics content knowledge and mathematics pedagogical content knowledge. Enu et al. (2015) are of the opinion that inadequate teaching and learning materials, as well as method of instruction are factors which affect pre-service teacher performance in mathematics; also, Animasahun & Akinsola (2019) stated that performance of pre-service mathematics teachers in colleges of education in South-western Nigeria is poor.

It is evident that primary school pre-service teachers' performance in most mathematics examinations is still below average despite its importance in the overall development of a nation. This situation is worrisome to stakeholders in the field of mathematics education and literature documents many contributing factors to pre-service teachers achievement in mathematics; primary school pre-service teachers attitude to mathematics (Hill & Bilgin, 2018), future teachers' mathematics cognitive failures and their learning styles (Awofala & Lawal, 2020), school factors (Animasahun & Akinsola, 2019) and Kwan et al. (2015) also reported that primary school pre-service teachers' performance in mathematics is below average. This poor performance in

mathematics might have resulted to situation whereby students develop lack of interest in the subject.

Owora and Chika (2019) defined interest as the desire to learn or understand a subject, person, or condition, as well as the inclination to become engrossed in an experience and to persist in it. Interest is a critical factor in determining the quality of learning, as it draws the attention of students and motivates them to pursue further knowledge or engage in a particular activity. In the view of Okeke, Egara, Orga, and Nzeadibe (2023), interest is the enthusiasm of students to focus in a subject from which they derive some enjoyment. A student who is interested in Mathematics may devote more time to the subject. According to Azmidar, Darhim, and Dahlan (2017), students who demonstrate a strong interest in Mathematics are more inclined to engage actively in the learning process and exhibit a high level of curiosity. Consequently, it is imperative for educators to guarantee that students' interest for Mathematics is maintained, realizing that students' interest in Mathematics yields high academic performance and vice versa.

In the effort to improve students' mental and affective outcomes in mathematics and school learning, mathematics educators have continued to identify reasons/major cause for the poor performance of primary school pre-service teachers' in mathematics and search for variables that could be employed in favour of performance and interest in mathematics. Various factors may predict performance and interest of primary school pre-service teachers', however, this study is interested in academic stress.

Stress is the demand made on an organism to adapt, cope or to adjust. Stress is the "imbalance" between demands and resource, or as occurring when the "pressure exceeds one's perceived ability to cope". Stress is a main source of problems being faced by primary pre-service mathematics teacher during their academic carrier when they are struggling to get good performance for their future life. It is a factor that could affect performance in mathematics, which is the product of a combination of academic related demands that exceed the adaptive resources available to an individual. In an academic context, stress is caused by environmental and internal demands that need to be managed because it has pronounced influence on mathematics performance in particular and total academic achievement in general. Stress is one of the factors that have negative effect on the mastery of the academic curriculum. Stress can inhibit and suppress learning, which is called 'unfavourable stress' and is associated with inhibition of students' academic performance. For example, if a student is unable to cope effectively with academic stress, then it will result to serious psycho-social-emotional health consequences. Harlina et al. (2014) conceived that students are highly resourceful to manage their stress well and thus denying the negative effect of stress towards their academic performance.

Academic stress appears when students perceive that the resources they have are not enough to cope with situations that are challenging for them. Academic stress arises as a consequence of increased demands in the teaching and learning processes, where new challenges appear, for which the student

does not feel prepared, which generates discomfort, anxiety, headaches, shortness of breath, uneasiness and dizziness. According to Aihie and Ohanaka (2019) academic stress in the educational environment expresses the unpleasant situations that arise due to many demands of the student's learning environment. In other words, stress arises from the mismatch between supply and demand in the education mechanism. Students are faced with a unique set of stressors that can be overwhelming during the transition from secondary education to pre-service Teacher College leading to changes in the social, academic and personal spheres of the individual, which tends to generate stress and anxiety among primary pre-service teachers and thus impact their performance in mathematics.

Academic stress experienced by primary school pre-service teachers refers to factors related to the academic environment such as coursework, group projects, and organizational involvement, as well as perceptions, attitudes, the student–teacher relationship, as well as the adaptation to a new lifestyle, in which new obligations, demands and lifestyles arise. It is important to note that in academic situation, stress can have both positive and negative impact on students; for example, stress that comes from schooling and education, where a student is approaching a deadline, which is causing the student a lot of stress. The stress that is caused due to this time frame is considered good because it is temporary and hence helps the student to focus and complete their task before the given time. Also, pressure exerts by families of students can also be a source of stress; for example, parents expect their children to get high grade and this is another source of stress to students. A student being stressed during an examination is a common depiction. Some of the symptoms by which stress is identified include headache, shortness of breath, and dizziness. Previous research shows that stress is strongly associated with students' educational performance (Von et al., 2011). Rizwan and Ahmad (2010) identified that academic stress has led a number of university-going students towards depression and hopelessness and in extreme cases, towards suicidal attempts as well.

Muhammad and Kaleem (2018) examined impact of stress on academic performance at secondary school level at District Vehari and found that there are significant impacts of stress on students' academic performance. Yuda et al. (2022) examined confidence, academic stress and coping strategies as predictors of student academic performance and found that academic stress was related to academic performance. Parveen et al. (2015) examined perceived academic stress of university students across gender, academic streams, semesters, and academic performance. The findings disclosed that female students experienced more academic stress compared to male students and students with better academic performance reported experiencing more academic stress. However, another study Karimi et al. (2014) revealed contradictory findings, did not find any relation between stress and academic performance. Yousif et al. (2022) also revealed contradictory findings that academic stress has a negative physiological and social impact on students and may affect their learning and overall performance. There are assorted

perceptions regarding the influence of stress in students' performance. It is sometimes addressed in negative context; whereas, some find positive outcomes of stress in students' life. Studies of Affum-Osei et al. (2014) showed that majority of students experienced moderate stress levels and that, none of the students experienced high stress levels. The study also indicated that, there is no significant correlation between the level of perceived stress and academic performance of students. Tiwari and Balani (2013) in their study discovered that study hours, workload, lack of resources to carry out their study and low level of reward were frequently stressor most students counted as high level of stress when they receive lower grade because they link their grades with their future.

Statement of the problem

The poor performance and lack of interest of primary school pre-service teachers in mathematics over the years calls for concern. Studies revealed that high percentage of primary school pre-service teachers failed mathematics examination which resulted to lack of interest and generated much concern to stakeholders in education. Studies have documented several factors to be responsible for this. In a situation where students are blamed for poor performance, emphasis is placed on students' cognitive ability. Little or no attention is given to the fact that academic stress can affect primary school pre-service teachers' performance and interest in mathematics. Therefore, this study investigated perceived academic stress on primary school pre-service teachers' performance and interest in Mathematics.

Research Questions

- What is the influence of academic stress on primary school pre-service teachers performance in Mathematics?
- What is the relationship between academic stress and interest in Mathematics of primary school pre-service teachers?

Methodology

The study adopted a descriptive research design of the survey type. The population consisted of primary school pre-service teacher in Emmanuel Alayande College of Education, Oyo. The sample for the study comprised one hundred (100) pre-service primary school teachers that were randomly selected through simple random sampling techniques. The instrument used in the study was Academic Stress Questionnaire (ASQ) with 25 items. The responses were measured on a four (4) Likert Scale of strongly agree = 4, Agree = 3, Disagree = 2 and Strongly Disagree = 1. The instrument was subjected to face and content validity by giving copies to experts in Science and Technology Education Department, University of Ibadan. Cronbach alpha coefficient of 0.74 was obtained. Data collected were analysed using frequency count, percentages and Pearson Product Moment Correlation coefficient.

Results

Research question 1

What is the influence of academic stress on primary school pre-service teachers' performance in mathematics?

Table 1: Influence of Academic stress on primary school pre-service teachers performance in Mathematics

S/N	ITEMS	SA(%)	A(%)	D(%)	SD(%)	Mean
1.	I attended all mathematics classes	21 (22.11)	37 (38.95)	16 (16.84)	21 (22.11)	2.61
2.	I obtained high grades in Mathematics	15 (15.79)	20 (21.05)	45 (47.37)	15 (15.79)	2.37
3.	I can easily adjust my performance	22 (23.16)	39 (41.05)	22 (23.16)	12 (12.63)	2.75
4.	I am always good in solving Mathematics questions	11 (11.58)	21 (22.11)	37 (38.95)	26 (27.37)	2.18
5.	I am good in presentations of work in class	10 (10.53)	30 (31.59)	45 (47.37)	10 (10.53)	2.42
6.	I intervened in class (e.g., asking questions, participating in debates)	17 (17.90)	39 (41.05)	11 (11.58)	28 (29.47)	2.48
7.	I find it difficult to trust my classmates	-	26 (27.37)	42 (44.21)	27 (28.42)	1.99
8.	I get worry a lot that my teacher might not like me	9 (9.47)	29 (30.53)	24 (25.26)	33 (34.74)	2.15
9.	I misfortunes result from the mistakes the teacher made	5 (5.26)	20 (21.05)	40 (42.11)	30 (31.59)	2.00
10.	I always missed the question where my teacher make mistake on the point	10 (10.53)	40 (42.11)	20 (21.05)	25 (26.32)	2.37
11.	I always lack enough time to fulfill all the activities we are asked to do	22 (23.16)	28 (29.47)	23 (24.21)	22 (23.16)	2.53
12.	I enjoy competition among my classmates	21 (22.11)	16 (16.84)	21 (22.11)	37 (38.95)	2.22
13.	I hate doing tasks that involve tedious mathematical problem solving	17 (17.90)	26 (27.37)	26 (27.37)	26 (27.37)	2.36
14.	I work with classmates on mathematics tasks in my class	16 (16.84)	37 (38.95)	10 (10.53)	32 (33.68)	2.39
15.	I never have problems or conflicts with teachers	5 (5.26)	16 (16.84)	42 (44.21)	32 (33.68)	1.94
16.	I sometimes have problems or conflicts with classmates	5 (5.26)	32 (33.68)	32 (33.68)	26 (27.37)	2.17
17.	I have solid plan for my future academic and professional perspectives	22 (23.16)	45 (47.37)	17 (17.90)	11 (11.58)	2.82
18.	I manage family pressure to obtain good grades	15 (15.79)	15 (15.79)	25 (26.32)	40 (42.11)	2.05
19.	I do not have support from my teachers	20 (21.05)	20 (21.05)	35 (36.84)	20 (21.05)	2.42
20.	I keeping up with the academic activities and tasks	16 (16.84)	32 (33.68)	32 (33.68)	15 (15.79)	2.52
21.	My relationships with my classmates is good	11 (11.58)	26 (27.37)	21 (22.11)	37 (38.95)	2.12
22.	Doing things well in all the subjects in the course is my priority	22 (23.16)	22 (23.16)	34 (35.79)	17 (17.90)	2.52
23.	My family disruption and conflicts affect my studies	5 (5.26)	20 (21.05)	50 (52.63)	20 (21.05)	2.11
24.	Making leisure time and academic work compatible is my ultimate goal	6 (6.32)	39 (41.05)	28 (29.47)	22 (23.16)	2.31
25.	Teachers' pressure about my work and behaviour make me panic	15 (15.79)	25 (26.32)	35 (36.84)	20 (21.05)	2.37

Table 1 reveals that the weighted mean of influence of academic stress on performance in mathematics of primary school pre-service teachers is 2.33 which signify a low influence of academic stress on performance in mathematics. This shows that the primary school pre-service teachers' academic stress has no/low influence on performance in mathematics.

Research Question 2

What is the relationship between academic stress and interest in Mathematics of primary school
pre-service teachers?

Table 2: Relationship between Academic Stress and Interest in Mathematics of primary school pre-service teachers?

Variables	N	r	Sig	Remark
Academic Stress	100	0.054	0.112	N. S.
Interest in Mathematics	100			

N.S denotes not-significant at p<0.05 level of significance

Table 2 showed that the relationship between academic stress and primary school pre-service teachers' interest in Mathematics was not significant (r=0.054; p>0.05). This implies that academic stress is not related to primary school pre-service teachers' interest in Mathematics.

Discussion of Findings

Research question one states that "what is the influence of academic stress on primary school pre-service teachers performance in Mathematics? The result revealed that primary school pre-service teachers academic stress do not influence performance in mathematics. The finding of this study agrees with the submission of Omar (2014) which did not find any relation between stress and academic performance. Yousif et al. (2022) also revealed contradictory findings that academic stress has a negative physiological and social impact on students and may affect their learning and overall performance. Students studying mathematics had stress more compare to students studying other subject which could lead to psychological problems such as depression and anxiety, affecting them mentally, physically and emotionally.

The findings in Table 2 revealed that the relationship between academic stress and interest in Mathematics is not statistically significant. The finding of this study agrees with the submission of Yousif et al. (2022) who revealed contradictory findings that academic stress has a negative physiological and social impact on students and may affect their interest in learning and overall performance. Students studying Mathematics had stress more compare to students studying other subject which could lead to psychological problems such as lack of interest in learning, depression and anxiety, affecting them mentally, physically and emotionally. Also, students who experience academic stress are more likely to attain low grades and, as a result, exhibit a lack of interest in learning Mathematics.

Conclusion

The study investigated perceived academic stress on primary school pre-service teachers' performance and interest in Mathematics. It was concluded that primary school pre-service teachers' academic stress has no/low influence on performance in mathematics. It also shows that relationship between

academic stress and primary school pre-service teachers' interest in Mathematics was not significant. So as a conclusion in this study, it can be said that there is no logical influence of academic stress on academic success and interest of primary school pre-service teachers in Mathematics.

Recommendations

Based on the findings of this study, the researcher wish to make the following recommendations:

- Teachers and parents should not put unnecessary pressure on students so as to reduce stress and improve their performance and increase their interest in Mathematics.
- Lecturers should find out the sources of stress and coping strategies used by students to help them deal with problems and situations.
- Lecturers should create conducive learning environment in which primary school pre-service teachers' do not feel stressed when dealing with Mathematics concepts in order to improve their performance in the subject.
- College administrators should help primary school pre-service teachers' to focus on ways to deal with stress and learn the strategies to manage it.

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