GENDER DIFFERENCES ON MATHEMATICS ANXIETY AND ACADEMIC ACHIEVEMENT AMONG PRIMARY SCHOOLS' PUPILS

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Abstract
This study was carried out to investigate gender difference in mathematics anxiety and academic achievement among primary schools pupils. Based on the purpose of the study, three research questions and three hypotheses guided the case study. Descriptive survey research design was adopted in carrying out the study. The population consisted of all primary six (6) pupils in three (3) universities demonstration primary schools in Imo state of Nigeria. A sample of 330 pupils were drawn using simple random sampling technique .The instruments used for data collection were 30-item objectives test constructed by the researchers in assessing academic achievement and mathematics anxiety was measured using cartel's Anxiety Scale .The instruments had reliability coefficient(r) of 0.78 and 0.93 determined using Pearson product moment correlation coefficient. Results indicated that no significant difference existed between both male and female pupils of FUTO, IMSU and AIUE demonstration primary schools on their mathematics anxiety, while there is a significant difference on their academic achievement. A significant negative relationship between lack of self-sentiment, guilt-proneness and overall anxiety with the academic achievement of children was reported. Based on the results it was recommended that there is need for guidance counseling services for school pupils to overcome their higher mathematics anxiety and improve their academic achievement.

Introduction
Mathematics education is to a nation what protein is to a young human system. Mathematics is the oldest of all sciences that have developed through the ages having a direct impact on the quality of human life on our planet (Ezewani 2006).Scientists agreed that mathematics is the language of science and technology and also in some other disciplines like art and culture, holding the key to development and progress of the country as well as humility as a whole. According to Ezewani (2006), the competence gain in the study of mathematics is widely used in all spheres of human life example budgeting, Mathematics plays a key role in shaping how individuals deal with the various spheres of private, social and civil . This justifies the compulsory of the study of the subject by all students who go through basic and secondary education in most countries, particularly Nigeria. It is regrettable, therefore, that in the contemporary times many students struggle with mathematics and perform abysmally low in their examinations in

school. It has been realized that many students have developed negative attitude towards the study of mathematics as a result of mass failure of students in the subject. Research findings according to Yara (2009) indicate that effective teachers facilitate learning by involving their student's engagement and creating the right atmosphere that enhances students learning. From the Ministry of Education's statement reported by Rajak (2014) in the local newspaper, more than half of the students at primary schools failed their mathematics in their first assessment before sitting for their primary school public examination. There are several past research studies done locally that investigated the possible factors for the students' poor achievement in mathematics. Students were found to have a wide range of problems with the study of mathematics.

The problems have been observed to be due to lack of proper understanding of mathematical language and poor preparation of mathematical concepts. Anit & Suffock, 2001; Chin & Clements, 2001; Mundic, 2010; Vaiyatrutjami & Clments, 2004). Olunloye (2010) opined that poor achievement of students in mathematics is attributed to factors such as attitude of students, lack of instructional resources, instructional techniques .According to WAEC (2014), current results show that the conventional teaching approach is deficient in meeting the needs of majority of leaner. Research evidences show that students' failure of mathematics, poor achievement and lack of interest in mathematics is influenced by psychological factors such as mathematics anxiety and in the mathematical content, it appears that many students who are weak in mathematics exhibited of anxiety.

Anxiety means tension, or uneasiness characterized by phobia fear, or uncertainty about something the source of which is largely unknown or unrecognized by the individual. Anxiety is one of the most widely experienced emotion and one of the most essential constructs of all human behaviour. It is a displeasing feeling of uneasiness, nervousness, apprehension, fear, concern or worry (Barlow, 2002). Hurlock (2000) defined anxiety as a painful uneasiness of mood concerning impending or anticipated ills. According to Basavanna, (2000), anxiety is a highly unpleasant affective state similar to inference fear which can include feelings of threat, vague objectless fear, a state of uneasiness and tension, and a generalized feeling of apprehension. Basavanna identifies three types of anxiety, reality anxiety (an emotional reaction to perception of danger in the external world), neurotic anxiety (an affective reaction to threat from the internal world and Moral anxiety (an emotional reaction to perception of danger from the superego).

Tobias (1998) defined mathematics anxiety as a feeling of tension that appears when someone is engaged in the manipulation of figures to solve mathematical problems in both academic and day-life situations. Mathematics anxiety according to Marzita (2002) is a feeling of stress and anxiety when faced with numbers and mathematical problem solving in everyday life or when learning mathematics. Arem (2009) defined mathematics anxiety as feeling of worry, anxiety, resistance and rejection reaction in mathematics and problem solving. It is easy to forget mathematical equations and to lose confidence when one is experiencing mathematics anxiety. The research of Tobias (1998) revealed that there are many female student at primary, secondary and tertiary level who change from science to arts just because

mathematics. This has happened not because these female students have a lower intellectual level than males, but because of the belief factor among female students in mathematics. Female students reported that they were not able to understand and solve mathematical problems that they have previously studies. Mathematics anxiety was defined as the level of discomfort that occurs among students in response to situations involving mathematical tasks, which is seen as a threat to their self-ability Trujillo and Hadfield, (1999). It is described as a construct that involves cognitive and affective behaviours. This construct is related to personality type, negative attitudes towards mathematics, mathematics avoidance, mathematics background, teaching behavior, achievement level, lack of confidence and negative experiences in school (Harper and Damme, 1998, Hembree, 2000, Sloan, Damme and Giesen 2002). Puteh (2002) describes mathematics anxiety as a repetitive process that is based on information gathered by individuals from the surroundings. This information is accumulated and become the personal experience of individuals, which finally informs their beliefs towards mathematics.

According to Puteh (2002) teachers, peers and parents are responsible for triggering anxiety among students of mathematics. If students perceive that mathematics is difficult during their formative years, mathematics anxiety will be triggered. Due to the presence of mathematics anxiety, such students will surfer to escape from any situation that involves mathematic. This will strengthen their belief that they are not capable and lack the knowledge to engage in mathematics and they will continue to lose confidence in their mathematical skills as a result of anxiety. Although these students will continue their course of study in mathematics, mostly likely failure will gain occur because of their prescribed belief system. According to Arem (2009), mathematics anxiety is an emotional, mental and physical act related to the mathematical thinking and problem-solving process and resulting from uncomfortable past experiences related to mathematics. Based on the study, students who have experienced disappointment in their mathematical abilities will have difficulty believing in their abilities in the future. Arem (2009) found that contributing factors to mathematics anxiety are bitter experiences in mathematics, social pressure and the expectation to achieve outstanding result, the desire to excel, myths about the study of mathematics, societal gender stereotypes and negative self-talk. These factors give rise to feelings to deep shame for the student experiencing mathematics anxiety in the classroom setting.

According to Arem, students with mathematical anxiety will often appear preoccupied with something else to avoid meeting face-to-face with their teachers. They are afraid to look up in class and quickly panic when their names is called in the class to solve problem. They are also afraid to raise their hands and when the teacher is waiting for an answer from them, they become even more afraid.

Gender is a cultural construct that distinguishes the roles, behaviours, mental and emotional characteristics between females and males developed by a society. Umoh (2003) defines gender as a psychological term used in describing behaviours and attributes expected of individual on the basis of being born as either male or female. Several studies have been conducted to investigate the level of mathematics anxiety among male

and female students. Some researchers have argues that females have higher mathematics anxiety than males. (Salwami and Salleh, 2001; Woodard, 2004, Yuksel-sahni, 2008, Karimi and Venkatesen, 2009, Khatoon and Mahmood, 2010). In addition, female student are often labeled as shy and this characteristics can harm their ability to learn. Male students were found to be more active in a wider range of social activities than female students (Khatoon and Mahmood, 2010). Based on serial students, some researchers have argued that there is no significant difference in mathematics anxiety between male and female (Marsh and Tapia, 2002, Elenchothy, 2007, Mohamed and Tarmizi, 2010)

Academic achievement means the level of the student, it can be defined as what a student does or achieve at his school. It is a common practice to promote students from a lower class to higher class on the basis of his academic achievement. It helps in declaring students successful or unsuccessful, choosing students for various courses and selecting students for different jobs. It is the level of learning in a particular area of subject in terms of knowledge, understanding, skill and application usually evaluated by teachers in the form of test scores in their examinations. According to Sherman and Wither (2003) a five year study conducted on students from the age of 6 to the age of 10 revealed that the level of mathematics anxiety in students is strongly related to student achievement. Zakara (1997) also explained that students with high performance levels in mathematics have a positive attitude towards mathematics. Also Hembree (2001) carried out a meta-analysis of 562 studies in which the relationship between test anxiety and student performance were addressed. The study found a significant relationship between anxiety levels and academic achievement at 0.01 was found, that is, test anxiety was a key factor in undermining student performance.

Syokwaa, Aloka & Ndunge (2014) investigated the relationship between anxiety levels and academic achievement among students in selected secondary schools in largata district kenya. The results showed a presence of high personality anxiety levels of 79%, while the test anxiety indicated a relatively low –normal anxiety level of 27%. Also the found out that there was a correlation between levels and academic achievement and that high anxiety levels had a negative impact on the quality of academic results recorded by students. Merell (2008) studied the relationship between anxiety and task performance. The study reported that as anxiety regarding performance of school task becomes more severe students ability to adequately perform these tasks gradually declines, and even plummets as the anxiety becomes extreme. The obvious result is a rise of their anxiety their anxiety levels leading to a drop in their academic achievement. This study there sought to investigate mathematical anxiety and its relationship to academic achievement among primary school pupils. Gender achievement studies include Abiam and Odok (2006) who found no significant relationship between gender and achievement in number and mineration, algebraic processes and statistics. They however found the existence of a weak significant relationship in Geometry and Trigonometry.

The decline in performance in mathematics has created anxiety in students and strengthens the perception that they are weak in mathematics. This response will ultimately be a belief that

hard to be change. According to McNeil (1999) most students experience mathematics anxiety since elementary school. This fear is transmitted by school teachers through teaching methods. Research by Yuksel-shani (2008), Elenchohy (2007), Marzita (2002), Salwami (2001), Arem (2009) and Tobias (1998) has shown that mathematics anxiety had become one of factors contributing to the decline of the mathematical achievement of the students.

The main purpose of the study was to explore the gender difference in the level of anxiety and academic achievement among primary school pupils. Specifically it find out the

i. Mean score of mathematics anxiety of primary six male and female pupils in mathematics.
ii. Mean scores of components of mathematics anxiety of primary six male and female pupils.
iii. Comparison the mean scores of academic achievement of primary six male and female pupils in different schools in mathematics.
Iv. Relationship between components of mathematics anxiety and academic achievement pupils.

Research Questions

The following research questions guided the study.

1. What are the mean scores of mathematics anxiety of primary six male and female pupils in different school in mathematics?
2. What are the mean scores on components of mathematics anxiety of primary six male and female pupils in different schools?
3. What are mean scores of academic achievement of primary six male and female pupils in different schools in mathematics?

Research Hypotheses

The following research hypotheses were tested at 0.05 level of significance.

1. There is no significant difference between the mean scores of mathematics anxiety of primary six males and females pupils in difference schools.
2. There is no significant difference between the mean scores of primary six male and female pupil on components of mathematics anxiety in different schools.
3. There is no significant difference between the mean scores of primary six male and female pupils on mathematics academic achievement in different schools.
4. There is no significant relationship between the components of mathematics anxiety and academic achievement of pupils in different schools.

Method

This study used the descriptive design which involves the collection of data at current status for description of phenomena, without deliberate effort to control the variables. The area of the study, Imo State is one of the thirty six (36) states of the Federal Republic of Nigeria, situated in the south-East Geopolitical Zone. It has twenty-seven local government area and lies between latitude 5o and 56 North of the Equator and longitude 6o and 350 East of the Greenwich meridian. The state has Owerri as its capital, and is one oil producing state in Nigeria, with attractions like Oguta Lake Hotel, water fall and Nekede Zooo. The population of the study comprised of all primary six pupils of demonstrations primary schools in all the tertiary institutions in Owerri Imo State namely Demonstration Staff Primary School Alvan Ikoku University

of Education, Demonstration Staff Primary Imo State University Owerri, Demonstration Staff Primary Federal University of Technology, Demonstration Primary School Federal Polythetnice Nekede Owerri and Demonstration Staff Primary Federal College of Land-Resources Egbeada Owerri Imo State with a population size of 3,462 pupils. The sample of the study consisted of 330 pupils, comprised of 165male and 165female from the three purposively selected university schools, namely FUTO, AIUE and IMSU. Their age ranged between 14-16 years. The instruments used for data collection was adopted mathematics anxiety scale developed by Cartel (1963). It has a five point likert-scale consisting of 12 items, of which 7 positive statements and 5 negative statements. It was used to assess the level of mathematics anxiety in mathematics and second instrument was multiple choice mathematics achievement test (MAT) of four options, A to D, was constructed by the researcher based on the primary school mathematics curriculum which cover the basic areas of number and numeration, Algebraic process, Geometry and Statics and trigonometry. The validity of the instruments was done by three experts, two of mathematics education and one of educational measurement and evaluation department. The mathematics anxiety scale and MAT has reliability coefficient 0.72 and 0.83 showing that the instruments is reliable for use. The instruments was administered by the researchers with the aid of schools mathematics teachers. The data was analyzed using mean, standard deviation for the research questions while t-test, ANOVA was used to test the hypotheses at 0.05 level of significance with the aid of statically package for the social science (SPSS) version 17.00.

Results

Research Question one: What are the mean scores of mathematics anxiety of primary six male and female pupils in different school?

Table 1: Means scores between male and female on mathematics anxiety (N = 330 Males = 165 Females = 165)

S/No	School	Male (Mean)	Female (Mean)
1	FUTO	40.40	36.94
2	AIUE	41.61	37.20
3	IMSU	42.92	37.07
	Average	41.64	37.07

Results in Table 1 shows that the mean scores of male (41.64) and female (37.07) pupils on their mathematics anxiety. This implies that male (41.64) were more anxious than the female (37.07). **Research Question two:** What are the mean scores on components of mathematics anxiety of primary six male and female pupils in different schools?

Table 2: Mean and standard deviation between male and female on the components of mathematics anxiety (N = 330 male = 165 female = 165)

S. Components of Anxiety	SCHOOLS	MALE		FEMALE	
		M	**SD**	**M**	**SD**
1. Lack of Self Sentiment	FUTO	7.45	2.41	6.56	1.86
	AIUE	7.60	2.55	6.15	2.33
	IMSU	7.43	2.66	5.07	2.81
2. Ego Weakness	FUTO	5.82	2.07	5.09	2.09
	AIUE	60.03	1.98	5.34	2.11
	IMSU	5.81	2.13	5.63	1.62
3. Suspiciousness	FUTO	4.12	1.61	4.38	1.32
	AIUE	4.40	1.72	4.25	1.58
	IMSU	4.32	1.73	3.92	1.76
4 Guilt Proneness	FUTO	12.46	2.77	10.72	2.52
	AIUE	12.10	3.04	10.96	2.99
	IMSU	13.01	2.71	11.99	2.76
5 Frustration Tension	FUTO	10.56	3.18	10.18	2.31
	AIUE	10.41	3.26	10.10	3.26
	IMSU	12.52	2.44	11.20	3.63
6 Anxiety	FUTO	40.40	7.21	36.94	6.01
	AIUE	41.61	8.31	37.20	8.21
	IMSU	42.92	6.61	37.07	7.43
	Total	**41.49**	**7.45**	**37.12**	**7.03**

Results in table 2 shows that the mean scores on components of mathematics anxiety of primary six male (41.49) and female (37.12). This implies that male pupils were higher than female pupils in components of anxiety.

Research Question Three: What are mean scores of academic achievement of primary six male and female pupils in different schools in mathematics?

Table 3: Mean score of male and female achievement (N = 330 Male = 165 Female = 165)

S/No	SCHOOLS	MALE (Mean)	FEMALE (Mean)
1	FUTO	86.31	79.81
2	AIUE	84.92	82.37
3	IMSU	85.79	74.82
	Average mean	**85.67**	**79.67**

Results in table 3 shows that the average mean scores of male pupils (85.67) were higher in their academic achievement compared to male (79.00)

Hypothesis Testing

Hypothesis one: There is no significant difference between the mean scores of mathematics anxiety of primary six male and female pupils in different schools.

Table 4: AOVA analysis between male and female pupils on mathematics anxiety

Sources	'F' Value	Standard Error	Critical difference
Gender	31.96	0.57	1.57
Standard	0.90	0.70	
Gender schools	0.74	0.99	

The results in table 4 revealed no significant difference between male and female on their mathematics anxiety (in row, = gender F' value = 31.96 P = 1.57).

Hypothesis two: There is no significant difference between the mean scores of primary six male and female pupils on components of mathematics anxiety in different schools.

Table 5: Test analysis on gender components of anxiety (N = 330 Male = 165 Female = 165)

S. Components of Anxiety	**SCHOOLS**	**MALE**		**FEMALE**		't'value
		M	**SD**	**M**	**SD**	
1. Lack of Self Sentiment	FUTO	7.45	2.41	6.56	1.8	2.164
	AIUE	7.60	2.55	6.15	2.3	2.648
	IMSU	7.43	2.66	5.07	2.8	4.523
2. Ego Weakness	FUTO	5.82	2.07	5.09	20	1.921
	AIUE	6.03	1.98	5.34	21	1.747ns
	IMSU	5.81	2.13	5.63	16	0.502ns
3. Suspiciousness'	FUTO	4.12	1.61	4.38	13	0.905ns
	AIUE	4.10	1.72	4.25	15	0.459ns
	IMSU	4.32	1.73	3.92	17	1.200ns
4. Guilt Proneness	FUTO	12.46	2.77	10.72	25	3.378
	AIUE	12.10	3.04	10.96	29	2.018
	IMSU	13.01	2.71	11.99	27	2.923
5. Frustration Tension	FUTO	10.56	3.18	10.18	23	0.720ns
	AIUE	10.41	3.26	10.10	32	2.103
	IMSU	12.52	2.44	11.20	36	2.240

6. Anxiety	FUTO	40.40	7.21	36.94	60	2.726
	AIUE	41.61	8.31	37.20	82	2.804
	IMSU	42.92	6.61	37.07	74	4.354

S =significant at 0.05 level of NS =Not Significant

Results in table 5 showed a significant difference was observed between the male and female in relation their lack of self sentiment development, ego-weakness, guilt proneness and frustration tension and overall anxiety, whereas no significant difference was observed on suspiciousness.

Hypothesis Three: There is no significant difference between the mean scores of primary six male and female pupils on mathematics academic achievement in different schools.

Table 6: ANOVA analysis between male and female pupils on academic achievements.

Source	**'F' Value**	**Standard Error**	**Critical difference**
Gender	54.18	0.64	1.75
School	5.17(S)	0.78	2.15
Gender School	7.20(S)	1.11	3.04

The results table 6 revealed that there is significant difference between male and female pupil of different schools on their academic achievement.

Hypothesis Four: There is no significant relationship between the components of mathematics anxiety and academic achievement of pupils in different schools.

Table 7: Relationship between anxiety and academic achievement (N = 330 male = 165 female = 165)

S/N	**Components of Anxiety**	**Academic Achievement**
1	Lack of self sentiment	-0.134*
2	Ego weakness (C)	-0.035
3	Suspiciousness (L)	-0.030
4	Guilt proneness (O)	-0.157**
5	Frustration tension (O4)	-0.106
	Anxiety	-0.162**

Note: * Correlation is significant at the 0.05 level

The results of the Table 7 indicated the relationship between the components of anxiety with academic achievement of the selected residential high school children. These results showed that, among the five components of anxiety, lack of self-sentiment development, guilt-proneness and also overall anxiety had the significant negative relationship with the academic achievement of the respondents.

Discussion of Findings

The results of table 1 revealed a difference between male and female in their anxiety. The mean scores showed that male (41.64) were more anxious than the female (37.07). The ANOVA results also reported no significant difference between the pupils of FUTO, IMSU and AIUE schools in relation to their anxiety. The interaction between gender and schools also indicated no significant difference in relation to their anxiety. These results are in line with the study conducted by Sherman & Wither (2001) which highlighted that male are more prone to externalizing symptoms such as physical and verbal aggression than the female who are caused by psychological problems like depression, anxiety, internal distress, etc. This may be due to the fact that girls are hereditarily more prone to mature early. They develop the tendency of high exploration and commitment in their day- to- day activities and they are less prone to conflicting situations and ideas and thus they are less prone to the development of anxiety.

The analysis in table 2 shows that male was higher than female in components of anxiety. The AONVA analysis showed a sig-nificant difference was observed between the male and female in relation to their lack of self sentiment development, ego-weakness, guilt proneness and frustration tension and overall anxiety, whereas no significant difference was observed on suspiciousness. The result is in line with Bharati (1993) who reported that majority of the male students belonged to the distinction group with 70-80 percentages than female students.

The results in Table 3 showed that male (85.68) were higher in their academic achievement compared to female (79.05). The ANOVA analysis revealed that there was significant difference between female and male of different schools on their academic achievement.

The results of the Table 4 indicated the relationship between the components of anxiety with academic achievement of the pupils.

The results showed that, among the five components of anxiety, lack of self-sentiment development, guilt-proneness and also overall anxiety had the significant negative relationship with the academic achievement of the pupils.

Conclusion

The results clearly indicated that residential high male were sig-nificantly having higher anxiety level than female while female were higher in their academic achievement. Majority of the male had developed lack of self sentiment, ego-weakness, suspiciousness, guilt-proneness and frustration-tension to a higher level and a significant negative relationship was observed between lack of self-sentiment development, guilt-proneness and overall anxiety with the academic achievement of the pupils.

Recommendations

Based on the findings of the study, the following were recommended as follows:

1. Scholl management should promote counseling services among pupils

2. Pupils must be guided by the school personnel at every stage of their schooling to perform well in their academics.

References

Abiam,P.,O & Odok.,J., K. (2006). Factors in students' achievement in different branches of secondary school mathematics. *Journal of Education and Technology 1(1)161 – 168.*

Anit, S. & Suffolk, J. (2001). Investigating understanding of primary six pupils of word problems involving multiplication and division. *Journal of education 21(3),45 – 54.*

Arem, C.A. (2009). *Conquering Math Anxiety.* 3rd Edn. Cengage Learning. Belmont, *ISBN-10:0495829404. Pp: 215.*

Barlow, D.H. (2002). Unraveling the Mysteries of Anxiety and its Disorders from the Perspective of Emotion *Theory. American Psychologist 55, 1247-1263.*

Basavanna, M. (2000). *Dictionary of Psychology.* Alaved Publishers Ltd. New Delhi.

Chin, K. S., & Clements, M. A. K. (2001). *O-level students' understanding of lower secondary school geometry.* In W. K. Yoong & M. A. K. Clements, Eneinginee science, mathematics, and technical education for all: Proceedings of the sixth annual conference of the Department of Science and Mathematics Education (pp. 213-222). Gadong: University of Brunei Darussalam.

Elenchothy, D. (2007). Kebimbangan Matermatik Dan Hubungannya Dengan Pencapaian Pelajar Tingkatan Empat Di Daerah Klang. M.Sc Thesis. University Puta Malaysia.

Ezeweani, U.L. (2006). Mathematics and Classroom Teaching (1st Ed). University printing Press.

Hembree, R. (1990). The Nature Effects of Relief of Mathematics Anxiety. *Journal of Research in Mathematics Education 21, 33-46.*

Hurlock, C.E (2000). Anxiety ; Alternate method of evaluation. *Journal of instructional Psychology 21(4),353-389.*

Karimi, A. & Venkatesen, S. (2009). Mathematics Anxiety, mathematics Performance and Academic Hardiness in High School Students. *Int. J. Educ. Sci., 1:33-37.*

Khatoon, T. & Mahmood, S. (2010) Mathematics Anxiety among Secondary School Students in India and its Relationship to Achievement in mathematics. *Eur. J. Soc. Sci., 16:75-86.*

Marsh, G.E & Tapia, M. (2002). Feeling Good about mathematics: Are there sex Differences? Proceedings of the Annual Meeting of the Mid-South Educational Research

Association. Nov. 6-8, Chattanooga, TN. Pp: 1-12.

Marzita, J. (2002). Mathematics Anxiety: *Mathematics Teacher 77(9) 662-664.*

McMeil, H. (1999). The Relationship Between Myers-Briggs Personality Type and Mathematics Anxiety among Preservice Elementary Teachers. *Journal of Instructional Psychology 21(4) 375-354.*

Ministry of Education (2014). Primary school completeion examinations. Retrieved on 3 February 2016 from http://wwwmoe.gov.mv/

Mohamed, S.H & Tarmizi, R.A (2010) Anxiety in Mathematics Learning among Secondary School Learners: A Comparative Study between Tanzania and Malaysia. Proc. Soc. *Behav, Sci., 8: 498-504. DI: 10,1016/j.sbspro.2010. 12.068.*

Mundia, L. (2010). Problems in Learning Mathematics: Comparison of Brunei Junior High School Students in Classes with and without Repeaters. *Journal of Mathematics Research,* 2(3), 150-160.

Rajak, W. (2014, May 20). Over 50% of pupils failed maths. The Brunei Times. Retrieved from http://www.bt.com.bn/

Salwani, T & Salleh, A. (2001). Perkaitan Antara Kerisauan Matematik Dengan Pencapaiannya Di Sebuah Institusi Pengajian Teknikal. M.Sc Thesis, University Kebangasaan Malaysia.

Salwani, T. & Salleh, A. (2001). Perkaitan Antara Kerisauam Metemafik Design Pencapaianinaya di Sebuab Institutes Pengajian Teknikal. M.SC Thesis University Kebangsan Maloysis.

Sherman, B.F & Wither, D.P. (2003). Mathematics Anxiety and Mathematics *Achievement. Math Educ. Res. J., 12:138-150*

Syokwaa, K.,A. & Ndunge N.,F.(2014).The relationship between Anxiety levels and Academic Achievement among students in selected secondary schools in Lang'ata District, Kenya. *Journal of Educational and Social Research 4(3), 403 – 413.*

Tobias, S.(1998). Maths anxiety: What can we do about it. Today's Education 69, 26 – 29.

Umoh, C.G. (2003). A Theoretical Analysis of the Effects of Gender and Family Education on Human Resource Development. *Journal of Curriculum Organization of Nigeria 10(1), 1-4.*

Vaivatvutjama.,P. & Clements, M.A.K.(2004). Analyzing errors made by middle school students on six linear inequalities tasks Globalization trends in science mathematics and technical education.

Woodard, T. (2004). The Effects of Math Anxiety on Post-Secondary Developmental Students as Related to Achievement. Gender Age.

Yara,P.,O.(2009).Mathematics Anxiety and Academic achievement in some selected senior secondary school in south western Nigeria . *Pakistan journal of social science (PJSS)6(3)133 – 137.*

Yuksel-Sahin, F. (2008). Mathematics Anxiety among 4th and 5th Grade Turkish Elementary School Students. *Int. Elect. J. Math. Educ. 3:179-192*

Zakaria, E. (1997). Stkap Pelajar Terhadap Matematik Tembahan: Hubungannya Desgan Pencapaian Matematik. *Classroom Teacher, 2, 22-25.*