

## **Effect Of Selected Teachers' Abilities On Students' Attitudes And Academic Performance In Biology Among Secondary Schools In Sabon-Gari Local Government Area, Kaduna State, Nigeria.**

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**Abstract:** *This study researched on the effect of selected teachers' abilities on students' attitude and academic performance in biology, among Secondary Schools in Sabon-gari Local Government area, Kaduna State, Nigeria. The research design was an ex-post facto descriptive survey. Population of the study was all senior secondary biology students in the study area, from which 220 respondents, consisting of 24 biology teachers and 196 senior secondary school three (SSIII) students were selected from ten secondary schools using stratified random sampling technique. The instruments used for data collection were Teachers' Attitudinal Scale, Science Oriented Attitudinal Scale and an inventory detailing records on students' SSCE grades in biology. The data collected were analysed using t-test correlation and multiple regression analysis statistical methods. Findings indicated significant relationships between the teacher variables and students' academic achievement in biology. Also 64.5% of the variance observed in students' achievement in biology was explained by linear combination of the five-predictor variables. Students' attitude was the most potent contributor while teachers' workload was the least contributor to the prediction. Recommendations were proffered such as Government should organise constant workshops and seminars for teachers to improve their teaching skills. Teachers and students have to change their attitudes positively towards the teaching and learning of biology.*

**Keywords:** *Teachers' abilities, Students attitude, Academic performance, Biology*

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### **I. Introduction**

In every human endeavour, success is usually dependent upon certain factors. Academic achievement is one of such human endeavours. According to Ibrahim (2000), the qualification and exposure of a teacher could have far-reaching effects on students' academic performance and achievement. Good academic performance could in part, contribute to the cognitive, affective (attitude) and psychomotor domains of an individual. Adodo (2007) also noted that the teacher is one of the one major factors overriding the success of students' academic performance. Ibukun (2009) who stated that no system of education could rise above the quality of its teachers further buttresses this assertion. As such, the role of the teacher in the preparation of students to succeed in their examinations cannot be debilitated. Science is an inevitable ingredient for innovation and invention in today's world. Thus, a growing demand for specialized and practicing scientists abounds, as well as the need for others to be educated in the fields of science. Chepkorir, Cheptonui and Chemutai (2014) noted that there is quick rise in scientific knowledge, which has resulted in the incorporation of new materials into the school syllabus.

Ogunniyi (2015) noted that in recent times there is uproar among educational stakeholders over the increasing rate of poor performance, failure and subsequent dropouts in Nigerian Schools. The alarming failure rate is evident in the yearly decline in students' performance in the Senior School Certificate (SSCE) examinations. General unpreparedness by the students to study have pointed out as one of the reasons for students' failure. Lack of dedication to duty by the teachers is also pointed as a factor that has inadvertently affected the academic performance of the student. Ayodele (2011) noted that despite the variation on who takes the blame, the consensus is that high quality teachers are the best resources and assets of an education system. As pointed out by Usman (2003), the worrisome deficiency of qualified teachers could be responsible for the pitiable performance observed among the students. Ademulegun (2001) opined that the students taught by teachers that are more qualified and experienced teachers in terms of knowledge of a subject matter would perform better than those taught by less qualified but experienced teachers would. The Nigeria National Economic Empowerment and Development Strategy (NEEDS) in its educational analysis in 2005 revealed that that over 49% of the teachers in Nigeria are unqualified. This underscores the quality of teachers teaching various subjects to the secondary school students, biology inclusive.

The importance of the knowledge of biology to human beings makes it more worrisome when the fluctuation in academic achievement is readily observed. Ibe and Maduabum (2001) and Oyekan (2013) stated that the performance of candidates at the Senior School Certificate Examinations (SSCE) conducted by both

West African Examination Council (WAEC) and National Examinations Council (NECO) have constantly declined, with biology assuming one of the highest enrolments and the poorest results over the years. Shaibu (2014) noted that students' academic achievement in biology observed over a seven-year period is worsening than the other science subjects. A critical look at the importance of biology to the nation's development vis-à-vis poor academic performance in this subject calls for serious concern. Incidentally, biology serves as the foundation for higher learning and specialised courses in the fields of pharmacy, biochemistry, nursing, medicine and other allied courses.

The qualifications (QT), attitude (AT) workload (WT) and experience (ET) of biology teachers in the of teaching biology as a subject, along with the attitude of student (AS) toward the biology subject may be partly accountable for the downhill tendency in achievement observed in the results of the students.

Attitude is a essential part of human characteristics. On a daily basis, people display acts of love and hate, like and dislike, agreeing and disagreeing, etc. All these are evaluative responses to an object. Mohammed and Waheed (2011) defined attitude as a summary evaluation of an object of thought. They further affirmed that attitude is inclinations and predispositions that guide an individual's behaviour and persuade to an action that can be evaluated as either positive or negative. According to Gbore and Daramola (2013), attitude is a feature viewed as the totality of an individual's inclination towards object, institution or idea. Attitude could be acquired, formed or learned from members of the family, teacher and peer group. Bandura in Gbore and Daramola (2013) maintained that behaviours are obtained by observation of an individual's behaviour who could be the parent, teacher or a peer group member.

In the school, the teacher stands as role model to the students insomuch that the students demonstrate and perfect the act or behaviour of a teacher. It is quite saddening very few teachers realise that the way and manner they handle, behave and interact with students in the teaching of biology as a subject, could produce a major effect on their academic performance and subsequent achievement. Gbore and Daramola (2013) noted that some teachers seem to have developed negative attitude to the students in the teaching and learning of biology subject. This might be the reason for the negative attitude developed towards learning biology by the students. They further stated that biology, as a subject that is very vital to human living, shouldn't be taken with levity. Duyilemi (2007) opined that some science teachers have showed positive attitude towards teaching science subjects while some exhibited negative attitude towards teaching the subjects to the students. Ali, Toriman and Gasim (2014) maintained that the extent to which a student prefers a subject is proximate to the extent the student works hard to achieve academically in it. Therefore, one could infer that a student's academic performance may be reliant upon positive attitude displayed by both the teachers and the students in the teaching and learning process.

Okebukola (2006) argued that the quality of science teachers (biology inclusive) is a key factor ascribed to the basis of students' constant poor academic performance in examinations. Oredein and Oloyede (2007) agreed to this assertion when they observed a positive significance between the performance of students taught by professionally trained and non-professionally trained teachers in biology. Researches have been undertaken on teachers' variables such as age, gender, experience, qualifications, attitude and students' academic performance. For instance, Abe and Adu (2013) reported a positive significant relationship between teachers' variables such as area of specialization, gender, educational qualification and the learning outcomes of secondary school students. However, Izumi and Evers (2002) observed no significant relationship between teachers' qualifications and students' achievement in science based subjects at the Senior Secondary School Certificate level. While Adesoji & Olatunbosun (2008), Osokoya (2008) and Adodo & Oyeniyi (2013) reported that teacher's qualification contributed marginally to students' academic achievement; Bilesanmi-Awoderu (2006) and Oyekan (2013) observed a high significance between teacher's experience and students' academic achievement in science. Although Wiki (2013) and Abe & Adu (2013) noted a positive relationship between teachers' qualifications and students' academic achievement, Edu, Edu and Kalu (2012) reported that the inadequate qualifications of teachers contributed to students' repetition of a class.

Researches have also revealed that teachers' experience exercises a huge impact on students academic achievement. Ilugbusi, Falola and Daramola (2007) reported that a teacher's experience in school is a significant determinant in students' academic achievement in examinations such as West Africa Senior School Certificate Examination (SSCE), National Examination Council (NECO), National Technical Examination Board (NATEB) Examinations and the Unified Tertiary Matriculation Examination (UTME). They further noted that inexperienced teachers are easily distressed and undermined by unusual circumstances. This may imply that inexperienced teachers could get perplexed and mixed up the content of the topics taught to the students. As such the students will receive wrong information which would definitely affect their academic achievement, while the experienced teachers are already immune to challenging classroom situations and have developed the necessary resistance and panacea to agents of classroom bewilderment.

Literature has also indicated that the attitude of teachers and students have applied some control on the students' academic achievement. Igwe (1990) reported that teachers attitude have more effect than the students'

attitude on the students' academic achievement in mathematics. Also, Ajayi (1999), disclosed that there is no significant relationship between the teachers' workload and students' academic achievement. However, Ogunwuyi (2000) reported a significant relationship between the attitude of teachers and students' academic achievement in Integrated Science. In a similar study, Yara (2009) stated that there is exists a strong relationship between teacher's attitude towards science and students academic achievement in science, as well as the students' attitude towards science. Abe (2013) argued that teachers' attitude towards science is a potent predictor of students' academic achievement in science and attitude towards science learning.

### **Statement Of The Problem**

From the studies reviewed above, it is evident that most previous researches centered mostly on investigating the relationship or difference of a single teachers' variable on students' academic achievement. It is the opinion of the researchers that there is the need for further studies to investigate the combination of selected teachers' abilities on students' academic performance. Therefore, this study sought to investigate the effect of selected teachers' abilities on students attitudes and academic performance in biology among secondary schools in Sabon-gari Local Government Area, Kaduna State.

### **Purpose Of Study**

The main purpose of the study is to investigate the effect of selected teachers' abilities on students attitude and academic performance in biology among secondary schools in Sabon-gari Local Government Area, Kaduna State.

Specifically, the study is aimed to determine;

- i. The relationship between teachers' abilities on students' attitude to biology.
- ii. The effect of selected teachers' abilities on the academic performance of students in biology

### **Research Questions**

In addressing this situation, the following research questions were generated to guide the study:

- (i) Are there any relationship between teachers abilities and students attitude towards biology at SSCE level?
- (ii) What is the effect of teachers' qualification, experience attitude and workload on students attitude and academic performance in Biology?

## **II. Materials And Methods**

This study adopted the descriptive survey research with an ex-post facto design. It surveyed the abilities of the teachers in teaching biology and the students attitude towards learning biology. Ex-post facto was involved because the researchers do not have direct control on the dependent and the independent variables, hence no treatment or manipulation of subjects instead data were collected from records.

### **Population Of The Study**

The population for this study includes all the teachers and students in the senior secondary schools in Sabon-gari Local government Area, Kaduna State Nigeria. As at the time of this study, there are eight Government secondary schools in the study area with senior secondary section.

### **Sample And Sampling Technique**

The sample for the study consists of 220 respondents, made up of 24 biology teachers and 196 SS II students randomly selected from the eight senior secondary schools in the study area. Stratified random sampling technique was used to similar number of teachers and students from each of the eight schools.

The instruments used for the study included; Science Oriented Attitudinal Scale (SOAS) adopted from Omirin (1999), Teachers Teaching Attitudinal Scale (TAS) adapted from Craig, Franklin and Andrew (1984), Tschannel-Moran and Woolfolk-Hoy (2001) Teacher sense of efficacy scale, and an inventory which requested for data on students' senior secondary school certificate examination grades in biology.

Both the teachers teaching attitudinal scale and the SOAS were re-validated by two research experts at the Department of Science Education, Ahmadu Bello University, Zaria. The estimates of construct validity and internal consistency reliability for the TAS and SOAS as described by the test-re-test value were 0.64 and 0.78 respectively. The academic performance of the participating students was measured by their grades in the senior secondary school certificate examination collected from records.

### **Procedure**

A copy of their respective questionnaire was given to each of the 220 respondents (24 teachers and 196 students) to respond to for thirty-five minutes. For the purpose of data analysis, the completed copies of the questionnaire were collected from the respondents and scored while the senior secondary school certificate letter

grade for biology was converted to point for each participating student. The range of scores of the respondents in the TAS and SOAS fell between 35-100 and 40-130 respectively.

**Data Analysis**

The data collected were analysed using t-test correlation and regression analysis. The data analysed were presented in table

**III. Results And Discussion**

The results of the data analysis are as shown in tables 1, 2 and 3.

**Table 1: t-test Correlation showing the inter correlation among the variables.**

	WT	AT	AS	ET	QT	SGB
WT	1.00					
AT	0.412	1.00				
AS	0.410	0.560	1.00			
ET	0.261	0.315	0.240	1.00		
QT	0.243	0.312	0.205	0.320	1.00	
SGB	0.415	0.532	0.611	0.402	0.571	1.00

In Table 1, it is observed that a positive significant relationship exists between teachers' abilities (AT and SGB, QT and SGB), and students' grade in biology with Attitude of Teacher (AT) versus Students Grade in Biology (SGB) = 0.532 and Qualification of Teacher (QT) versus SGB = 0.571. The attitude of students also presented a significant relationship with their grades in biology. However, the Workload and Experience of the teachers (WT & ET) revealed low significant relationship with students' grades in biology (WT versus SGB = 0.415 and ET versus SGB = 0.402) at 0.05 level of significance.

**Table 2: Summary of Regression Analysis of the Predictor Variables on the SGB**

Multiple R	0.781	Source of Variance	SS	Df	Ms	Fc	Ftab
R <sup>2</sup>	0.615	Regression	178.211	5	46.056	151.14	2.21
R <sup>2</sup> adjusted	0.620	Residual	110.950	352	0.309		
Standard Error	0.551	Total	288.161	359			

Table 2 shows that there is linear positive relationship between the predictor variables (the workload, attitude, experience and qualifications of teachers, and attitude of students) and the criterion variable (SGB) performance in biology among the senior secondary school students. The table depicts that the multiple R was 0.781 which implies that there is high positive relationship among the predictor variables and the criterion variable.

About 61.5% (as indicated by R square of 0.615) of the variation observed in the achievement in biology among secondary school students was explained by the combination of the teachers abilities while the standard error of 0.551 indicates that on the average the predicted performance in biology will deviate from true value by 0.551 limits of that measure. The analysis of variance for the multiple regression data yielded an F-ratio of 151.14 which was significant at P < 0.05. This implies that the combination of the five predictor variables (WT, AT, ET, QT and AS) have significant effect on the academic performance of students in biology.

**Table 3: Test of Significance of Regression Coefficients**

	B	SEB	Beta	T
Workload of Teachers (WT)	5.711E.02	0.030	0.067	1.825
Attitude of Teachers (AT)	0.191	0.021	0.317	8.346
Experience of Teachers (ET)	0.125	0.020	0.209	6.015
Qualification Teachers (QT)	0.183	0.021	0.394	8.853
Attitude of Student (AS)	0.322	0.026	0.451	12.243
Constant	-0.110	0.136		-0.787

P < 0.05 critical t = 1.960

From Table 3, the regression equation derivable is:

Performance in biology (SGB) = 5.711E.02 (WT) + 0.191 (AT) + 0.332 (AS) + 0.125 (ET) + 0.183 (QT) – 0.110. Hence, the attitude of students indicates the best predictor to performance in biology. The table also reveals the relative contribution of each of the predictor variables to the prediction as shown in the values of the regression coefficients ranges from 0.067 (6.7%) to 0.451 (45.1%) while the standard error ranges from 0.020 to 0.030. The t-values ranges from 1.825 to 12.243. The t-values associated with teachers' attitude, students' attitude, teachers' experience and teachers' qualification were significant at 0.05 alpha level.

## **Discussion of Findings**

The findings of this study revealed that there exist a positive significant relationship among the teachers' abilities on students attitude towards biology. This finding is in agreement with the findings of Yara (2009) and Abe (2013). This result may be due to the manner of interaction between the teachers and the students which possibly resulted into the unconscious learning of behaviour from the teachers by the students. The finding also revealed that a moderate and positive significant relationship exist between teachers abilities and students academic performance (grade points) in biology. This finding is in line with the findings of Gbore and Daramola (2013), Adepoju (2002) and Ogunwuyi (2000). The low and significant relationships observed between workload and experience of teachers and students performance in biology could be due to lack of commitment on the part of the teachers, as well shallow knowledge of application of methodology and psychology of imparting the biology course content by the teachers into the students.

The result of this study further indicated that 64.5% of the variation in the academic performance of students in biology was explained by a linear combination of teachers' attitude, qualification, experience, workload and students' attitude. It also indicated that students' attitude has the most potent contribution to the prediction followed by qualification and attitude of teachers respectively, while teachers' workload showed the least contribution to students' academic performance in biology. This finding disagrees with the finding of Igwe (1990) but agrees with the findings of Izumi and Evers (2002) and George (2004). Findings from this study have shown that teachers abilities positively affect students' attitude and their academic performance in biology among the senior secondary school students.

## **IV. Conclusion**

This study concludes that teachers' abilities could affect positively on students attitude and their academic performance in biology and should be given serious consideration for effective learning outcome.

## **Recommendations**

1. The government at the Federal and State level, should as a matter of urgency, organize regular seminar and workshops for the teachers to refresh their memories about new innovations and skills currently in use in the teaching and learning of biology to secondary school students. This will help improve the quality of teaching strategies of the teachers as well as improving the learning processes of the students.
2. Teachers and students of biology at the Senior Secondary School levels need to develop positive attitudinal change towards teaching and learning of biology accordingly to improve on the learning outcomes of secondary school students in biology.
3. There is the need for teachers to create a conducive atmosphere for healthy academic interaction with their students to reinforce the students' confidence in the teacher and attitude towards achievement in biology.

## **References**

- [1]. Abe, T. O. (2013): The effect of teachers' qualifications on students' performance in mathematics. Sky Journal of Educational Research Vol. 2(1), pp. 010 - 014, February, 2014. Retrieved from: <http://www.skyjournals.org/SJER>
- [2]. Abe T. O., Adu E I (2013) Influence of Qualification on Development and Assessment of Computer Programmed Instructional Package on Energy Concept in Upper Basic Technology in Ekiti State, April. Journal of Science and Technology, 3 (6): 611-618.
- [3]. Ademulegun, D. (2001). monitoring learning achievement of junior secondary school students in Lagos State. A prototype of state assessment. Unpublished Ph.D Thesis. University of Ibadan.
- [4]. Adepoju, O. A. (2002). Evaluation of the school conservation programme of the Nigerian conservation foundation. Unpublished M.Ed Dissertation, University of Ibadan, Ibadan.
- [5]. Adesoji, F. A. and Olatunbosun, S. M. (2008). Student, teacher and school environment factors as determinants of achievement in senior secondary school chemistry in Oyo state, Nigeria. The Journal of International Social Research 1. 2:15,30.
- [6]. Adodo, S.O. (2007). Effect of diagnostic remediation instructional strategies and students learning outcomes in junior secondary school integrated science. Unpublished Ph.D Thesis, University of Ado-Ekiti, Ekiti State.
- [7]. Adodo, S. O and Oyeniyi, J. D. (2013). Student variables as correlates of secondary Schools students' academic performance in Biology. International Journal of Science and Research 2:7.
- [8]. Ajayi, I.A. (1999). Teachers' assessment of parents teachers association roles in administration of Secondary Schools . Journal of Educational Research and Evaluation 3(2), 110 -116.
- [9]. Ali, A.R., Toriman, M. E. and Gasim, M. B. (2014): Academic Achievement in Biology with Suggested Solutions in Selected Secondary Schools in Kano State, Nigeria International Journal of Education and Research Vol. 2 No. 11. Pp 215-224.
- [10]. Ayodele, K. O. (2011): Fostering adolescents' interpersonal behaviour: an empirical assessment of enhanced thinking skills and social skills training. Edo Journal of Counselling Vol. 4, Nos. 1& 2, 62-74
- [11]. Bilesanmi-Awoderu, J.B. (2006). Effect of Computer-assisted Instruction and Simulation/Games on the Academic Achievement of Secondary School Students' in Biology. Sokoto Educational Review, 8 (1), 49-60.
- [12]. Edu, G. O. (2006). Teachers' variables and their perception of difficult topics in primary science in Ikom Educational zone of Cross River State. An unpublished M.Ed thesis, University of Calabar, Calabar.
- [13]. Edu, D.O. Edu, G.O. & Kalu, I.M. (2012) Influence of Academic qualification on gender on teachers perception of difficult concept in primary science in Ikom, Educational Zone of Cross River, Greene & Journal of Educational research 2(2). Retrieved from <http://www.gjournals.org>. on 4/4/13.
- [14]. Duyilemi, A. N. (2007). Girl Child Education and Empowerment. Keynote Address Presented at Workshop for Senior Secondary School Female Student Teachers and Education Officers in Ondo South West Senatorial Districts, Okitipupa.

- [15]. Gbore, L.O. and Daramola C.A (2013): Relative Contributions of Selected Teachers' Variables and Students' Attitudes toward Academic Achievement in Biology among Senior Secondary Schools Students in Ondo State, Nigeria.
- [16]. George H (2004) Issues in teacher education in England and Wales. London: Greenwood Press.
- [17]. Gibbons, S.; Kimmel, H. and O'shea, M. (1997). Changing teacher behaviour through staff development: implementing the teaching and content standards in science. *School Science And Mathematics*, 97 (6), 302-310.
- [18]. Ibe, B.O., and Maduabum, M.A. (2001) Teachers qualification and experience as correlates of secondary school students' achievement in biology. *Journal of Education Thought*, 1(2), 176-183.
- [19]. Ibrahim, A. (2000). Evaluating the pedagogical competence of junior secondary school Integrated Science. Teachers' 40th STAN Annual Conference Proceedings. 138-142.
- [20]. Ibukun, W.O. (2009). Building the future: Invest in teachers now. A paper presented at the Ondo state world teachers day Monday, 5th October.
- [21]. Igwe, D.O. (1990). Science teachers' qualifications and students performance in secondary schools in Kano State. *Journal of Science Teachers Association of Nigeria*, 26(2), 47-51.
- [22]. Ilugbusi, A.A.; Falola, E.O. and Daramola, M.A. (2007). Relative effects of demographic variables on levels of anxiety of integrated science trainee teachers in junior secondary school in Ekiti State. *Journal of Educational Focus*, 1(1), 88-95
- [23]. Izumi, L. T. & Evers, W. M (Eds.) (2002). *Teacher Quality*. Stanford, California: Hoover Institute Press, p. 50.
- [24]. Mohamed, L. and Waheed, H. (2011). Secondary students' attitude towards mathematics in a selected school of Maldives. *International Journal of Humanities and Social Science*, 1 (15), 277-278.
- [25]. National Economic Empowerment and Development Strategies (NEEDS, 2005). National planning commission, Central Bank of Nigeria, Abuja, 3, 34-38.
- [26]. Odunsi, T.O. (1988). A study of the attitudes of some Nigeria teachers towards science and science teaching. *Journal of Research in curriculum*, 6 (2), 205-211.
- [27]. Olatunde, Y. (2009). Relationship between Teachers' Attitude and Students' Academic Achievement in Mathematics in Some Selected Senior Secondary Schools in South-western Nigeria. *European Journal of Social Science*, 11(3), 364-369.
- [28]. Ogunniyi, S. O. (2015). Resource utilisation, teaching methods, time allocation and attitude as correlates of undergraduates' academic achievement in cataloguing in library schools in Southern Nigeria. Ph.D Thesis, Department of Library, Archival and Information Studies. University of Ibadan, pp155.
- [29]. Ogunwuyi, O. (2000). A causal model of teacher and student factors as determinants of achievement in secondary school integrated science. Unpublished Ph.D Thesis. University of Ibadan, Ibadan.
- [30]. Okebukola, P.A. (1986). Some presage, context and process variables relative to students' achievement in biology. *Journal of Science Teachers Association of Nigeria*, 24 (1&2), 171 -176.
- [31]. Okebukola P. A. (2006). Students' performance in practical chemistry: A study of some related factors. *Journal of Research in Science Teaching*, 24(2): 119-216.
- [32]. Omirin, M.S. (1999). Construction and validation of science-oriented attitude scale for Nigerian schools Unpublished Ph.D Thesis, Ondo State University, Ado-Ekiti.
- [33]. Oredein A. O. and Oloyede D. O. (2007). Supervision and Quality of Teaching Personnel Effects on Student Academic Performance. *Educational Research and Rev.* Vol. 2 (3): 032-035
- [34]. Osokoya, I. O. (2008). Towards maximizing Women's contribution to National Development through Education in Nigeria. In M. Boucouvalas, & R. Aderinoye (eds.), *Education for Millennium Development (Vol II, pp. 68- 76)*. Essays in honour of Professor Michael Omolewa, Ibadan, Spectrum Books Ltd.
- [35]. Oyekan, S. O. (2013): Effect of Diagnostic Remedial Teaching Strategy on Students' Achievement in Biology. *Journal of Educational and Social Research*, MCSER Publishing, Vol. 3 (7), 282-287
- [36]. Shaibu A. A. M. (2014) Navigating the maze of students underachievement in science: Does science education research provide a road map? 3rd inaugural lecture of the Faculty of Education, Ahmadu Bello University, Zaria. 9-13.
- [37]. Tschannel-Moran, M., and Woolflk-Hoy, A. (2001). Teacher efficacy: capturing an elusive construct. *Teaching and Teacher Education*, 117,783-805.
- [38]. Usman, K.O. (2003). Influence of shortage of human resources on the effective instruction of mathematics in secondary schools. *The Journal of WCCI Nigeria Chapter Forum*, 4 (2), 176-184.
- [39]. Wiki, M. (2013) Teaching qualification Retrieved from [http://en.wikipedia.org/wiki/teaching\\_qualification](http://en.wikipedia.org/wiki/teaching_qualification) on 4/4/13
- [40]. Yara, P. O. (2009). Relationship between teachers attitude and students' academic achievement in mathematics in some selected senior secondary schools in South West, Nigeria. *European Journal of Social Sciences*, 11(3), 364- 369.