Impact of Teachers' Gender and School Location on Students' Attitudes Towards Learning Basic Science: A Case Study in Ekiti State, Nigeria

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Abstract

This study investigated teachers' gender and school location on students' attitudes towards learning Basic Science in Ekiti State, Nigeria. The study adopted the descriptive research of the survey type. Participants were 720 students and 108 teachers teaching Basic Science in Junior Secondary Schools which were randomly selected across the four Local Government areas in Ekiti States Nigeria. Two instruments titled " Basic Science Student's attitudinal questionnaire" (BSSATQ)and Teachers' personal data were also developed to collect information for the study. The instruments were distributed based on school location. The reliability of (BSSATQ) was determined through the test and retest method and this yielded a correlation coefficient of 0.75 at 0,05 level of significance. Multiple Regression analysis was used to analyze the data. Findings revealed that teachers' gender significantly influences students' attitudes in the learning of Basic Science. It was recommended that teachers' gender should be recognized as one of the major factors which could influence students' attitudes towards Basic Science. Adequate measures should be taken by the teachers either male or female to ensure that students develop a positive attitude towards learning Basic Science. The male or female teacher should try to take cognizance of their student's attitude towards learning Basic Science in other to improve in their areas of weaknesses. Teachers (Male or Female) should intensify efforts by using various teaching styles which could influence students' attitudes.

Key words: *Teachers' gender, Students, Attitude, learning, Basic Science.*

INTRODUCTION

The responsibility of moulding and shaping the behaviour of learners in the society rests mostly on teachers. For instance, the study of Bayode (2004) supported that a teacher is a leader who attempts to shape the behaviour of learners through instruction and practical examples. In line with this, Popoola (2013) affirmed that there is a big responsibility on teachers as everything the teachers do or say will have an impact on students. It becomes, therefore, imperative for teachers themselves to be of quality, show competence and demonstrate good characteristics to serve as models for the learners. The society expects and requires that teachers lead exemplary lives because their students will obviously copy their patterns of behaviour. The

study of Hagger and McIntyre (2006) also supported that teachers are key players in the instructional activities that affect the success of students.

One of the major attributes of students towards learning is attitude. Attitude is a cognitive, emotional, and action towards a particular behavioural intent (Adesoji 2002). Positive changes are easily achieved by teachers who are effective in building on learners' experiences, abilities, interests and skills. Students' attitude to Basic Science teaching is also greatly influenced by the teachers' gender. Gender connotes either the male or female sexes. Basic science teachers (male or female) and students are supposed to work together and give themselves fully to the teaching and learning processes to influence effective learning.

It is generally believed that gender differences in attitude towards learning science subjects are so significant at all levels of education. A gender difference especially in secondary schools attitude towards learning of any subject was noted to have implications on the students' performance in such particular subject (Dan'inna 2016). A person's attitude towards a thing has a direct bearing on such a particular thing (Okoro and Uwah 2013). An individual's attitude affects his behaviour and performance. People tend to develop either positive or negative attitude towards a thing depending on what they feel. Therefore, a person can react positively towards whatever seems right and good to him or create negative attitude towards a thing that seems bad to him. In this context, students' attitude towards Basic Science is a major factor in the learning and performance in the subject.

Basic Science as one of the core subjects in all junior secondary schools gives rise to issues and complications for its teaching. Among these are teachers' inabilities to commit themselves fully to the teaching style of Basic science subject, master the basic skills of teaching and continuously adjust their teaching strategies to meet the diverse needs of their students. Commenting specifically on science education, Oke (2003) stressed that performance in separate science subjects such as Biology, Chemistry, Mathematics and Physics at senior secondary school may be due to the foundation laid that is, the attitude developed in learning Basic Science at the elementary and junior secondary school level. Most times, some Basic Science teachers (male or female) make their commitment not significant in the arrangement and organization of contents while teaching in the classroom. While a teacher may be so hatched with the students depending on the teacher's gender. This seems to contribute to the negative attitude developed towards the type of teacher teaching Basic Science.

The role of teachers in shaping students' attitudes towards learning is widely recognized. However, whether the gender of the teacher and the location of the school play a role in influencing students' attitudes is a subject that requires thorough exploration. This research aims to bridge this gap in knowledge by investigating the potential impact of these factors on students' attitudes towards learning. Gender is an important factor which can influence the teaching and learning process. For instance, Afolabi (2009) believed that students (both male and female) have specific ways by which they learn and that a teacher's teaching qualification, experience, attitude, teaching styles, among others could be based on his/her gender. However, good methods of teaching, as a characteristic of teachers, are supposed to produce positive attitude in both boys and girls, towards instruction, knowledge of the subject matter and self-esteem.

The general assumption that within the secondary education career, boys tend to prefer courses in sciences and social sciences while female students are destined to pursue courses in languages and arts depends also on teachers' disposition whether male or female. For instance, Mbajiorgu in Nworgu, Ugwuanyi and Nworgu (2013) asserted that female enrolment in science subjects, in general, is very poor. Also, the study of Gonzuk and Chargok (2001) revealed that the number of females who study Physics in secondary and tertiary institutions is small

compared to the number of boys. They reiterated that the difference in the number of males and females has created gender disparity in the academic performance of students in science subjects as a whole. But on the contrary, Lindberge, Hyde, Petersen, and Linn in Dan'inna, A. A. (2016) asserted that there were no significant gender differences between males and females towards learning in the classroom.

Also, the notion that male teachers are hostile to the opposite sex while female teachers play motherly roles to both sexes also seems to depend on the teacher's disposition. It is believed that the threat resulting from the presence of a particular teacher (both male and female) teaching in the classroom may generate a loss of interest in students. The implication of this is that a student may develop a negative attitude towards a subject basically on such a teacher's reaction. From the researchers' personal observation as a teacher in the classroom, teachers' positive relationship either male or female conveys to students (boys and girls) that they share and value their feelings. Teachers' good rapport with students increases the attitude of students (boys and girls) positively towards the learning of Basic Science.

Studies revealed that students react to teachers' gender disparity in the classroom. A study carried out by (Okoro and Uwah 2013) affirmed that male teacher gender has the most persuasive influence on students' attitudes than female teachers in the classroom. Likewise, Mallam in Okoro and Uwah (2013) found a significant difference between the attitude of female students taught by male teachers and of female students taught by female. Also, Lee and Lockheed in Okoro and Uwah (2013) contributed that female students taught by female teachers had a more positive attitude than female students taught by male teachers. Also, Al-Jawarneh and Ababneh (2014) supported that the responses of female students to learning reflect their preference to be taught by a male teacher while the male students prefer to be taught by a female teacher.

In line with this, finding from Van (2010), who looked at the different attention students received in the classroom, revealed that male students are often praised by their teachers for speaking out, acting confidently and expressing opinions, whereas females are often praised for being quiet, studious, and polite. In the same vein, Wenglinsky (2001) specifically highlighted some negative behaviour in teachers' gender reactions while teaching in the classroom such as loss of temperament, shouting, and noises, among others. With students (both boys and girls), he discovered that female reactions towards teaching seem to be more comfortable and higher than that of males.

In the same manner, Alghzo, Dodeen and Algaryouti (2003) found that female teachers have more positive attitudes towards the teaching profession than male teachers. Cakir (2005) also believed that female teachers demonstrate a positive attitude towards the teaching job compared to their male counterparts. Adam and Ababneh (2014) asserted that teachers' attitude towards the teaching profession is a significant indicator of students' attitude. Attitude towards learning is considered a major part of learning. This is why Al-jawarneh and Ababneh (2014) reiterated that both male and female students should have the same attitude in relation to their needs in the classroom. These researchers believe that the gender of students has a significant role in the student's attitude towards learning. In the study carried out by these researchers, it was affirmed that the responses of female students reflect their preference to be taught by a female teacher while the male students prefer to be taught by a male teacher. This shows that they like their teachers to have the qualities that can help them to feel relaxed, friendly and develop a positive attitude towards learning.

Vaidya in Garcia (2003) affirmed that many elementary teachers (male and female) although competent and enthusiastic in most of the subjects they teach, but do not enjoy science and do not feel comfortable teaching it. This implies that students' experience under this condition

would be limited, which consequently makes them develop a negative attitude towards the subject.

The relationship between teachers' gender and students' attitude and performance implies that the more students develop a positive attitude towards a subject, the higher the performance level in the subject (Olaleye, 2011).Attitude developed by the students towards learning is very important to the performance of students in the classroom. Therefore, teachers' gender seems to influence students' attitude in the classroom.

School location seems to be another factor which can influence Basic Science teachers and students' attitude towards teaching and learning. The physical characteristics of where a school is located have a variety of effects on teachers' effectiveness and students' attitude. Both teachers and students suffer under unfavorable environmental conditions. According to Akporehe (2011), teacher controls and able to improve based on the physical condition where he works. He is able to diagnosis student's feeling and tries to match up with their learning status in the classroom. School location could be urban or rural. For instance, students and teachers in urban areas enjoy social amenities such as electricity, pipe-borne water, laboratory, library, laptops and other teaching materials which can aid teaching and learning of Basic Science. In fact, these items can help students to develop positive attitude towards learning of Basic Science. It can also influence positive attitude in teachers that could make them to be effective. Adelabu in Aborisade (2013) commented that, lack of social amenities such as electricity, pipe-borne water, and technical resources, safe and secure facilities that are essential to successful learning in the rural areas impinges on education services. Adebule and Aborisade (2013) remarked that urban and rural areas are still unequal because students in urban settings could have more access to libraries, laboratories among others than rural areas. From researcher's observations, students and teachers feel more comfortable to their class work where all the requisite materials that could support learning are made available to them. Omotere (2013) also posited that dissatisfaction is a common precursor to low teacher enthusiasm and it is possible that the aforementioned characteristics of school facilities have an effect on teachers and student effectiveness in the classroom.

Purpose of the Study

The purpose of this study was to examine the influence of teachers' gender and school location on students' attitudes towards learning Basic Science in Ekiti State, Nigeria. The study also examined the relationship between teachers' gender and students' attitude towards learning Basic Science. It also examined the teachers' gender on students' attitudes towards learning in Basic Science.

Research Questions

1. Will teachers' gender influence students' attitudes towards learning Basic Science?
2. Will teachers' gender determine students' attitudes towards learning Basic Science?
3. Will school location influence students' attitudes towards learning Basic Science?

Research hypotheses

Based on the purpose of this study, the null hypothesis generated was that:

1. Teachers' gender will not significantly influence students' attitudes towards learning Basic Science.
2. Male teachers' characteristics will not significantly determine students' attitude towards learning Basic Science.
3. Female teachers' sex will not significantly determine students' attitude towards learning Basic Science

4. Location of the school will not significantly influence students' attitudes towards learning Basic Science

Significance

Understanding how teacher gender and school location influence students' attitudes towards learning has significant implications for education. It can aid educators in adopting teaching strategies that are more effective for different student groups. Policymakers can use the insights gained to design policies that promote equitable and inclusive education. Moreover, institutions can create targeted interventions to enhance students' engagement and enthusiasm for learning.

Methodology

The study adopted descriptive research of the survey type and correlation design to examine the influence of teachers' gender towards learning Basic Science. The sample for this study was made up of 720 junior secondary students and 108 Basic Science teachers that were selected from rural and urban areas using multistage and purposive sampling procedures. The first stage was the selection of three senatorial districts available in the state. The second stage involved the random selection of three Local Government Areas from each of the Senatorial districts of the state, making a total of 9 Local Government Areas. The third stage involved the use of a simple random sampling technique to select four public secondary schools from each of the selected Local Government Areas making a total of 36 public secondary schools. Stage four involved the selection of 20 students from each of the selected schools (making a total of 720 students) using a simple random sampling technique. The fifth stage involved the selection of three teachers teaching Basic Science in junior secondary school classes from each of the selected schools (making a total of 108 teachers). The Local Government headquarters were selected as urban while the suburbs were selected as rural.

Basic Science Teacher's gender (BSTTGQ) and Basic Science Students' Attitudinal Questionnaire (BSSAQ) and teacher's personal data, were developed to collect information for the study. Basic Science Teachers' personal data Questionnaire (BSTTSQ) was used to collect information about teachers' teaching skills and the sex of the teacher). Section B was Students' attitudinal contained 25 structured items which was used to request information about the attitude of students towards learning Basic Science and the sex of the students. These items were given to six experienced secondary school Basic Science teachers, three science educators and an expert in the area of test, measurement and evaluation from a university for face and content validities respectively. Test-retest was used to determine the reliability of the instruments which yielded reliability co-efficient of 0.87 and 0.89 for BSTTSQ and BSSAQ respectively.

The researcher met with the heads of science departments of each school who linked the researcher with the Basic Science teachers and students for the administration of the instruments (BSTTSQ) and BSSAQ). The instruments were jointly administered by the research assistants to students. Students were required to fill out the Basic Science Teachers' Teaching Skills Questionnaire and the sex of teachers. The researcher administered the students' attitudinal questionnaire to students requesting to pick the best option on their attitude towards learning Basic Science and copies of the completed questionnaire were collected by the researcher and research assistants.

Data Analysis

The data collected were analyzed using descriptive mean, ranking order and inferential statistics of multiple regression analysis.

Results

Descriptive Analysis.

Research Question 1: What is the extent of students' attitudes towards Basic Science?

In analyzing the question, respondents' scores on students' attitudes towards Basic Science were used. Frequency counts, percentages and mean scores were used to illustrate the responses to items 1 –28 in section B of the instrument. To determine the extent of students' attitudes towards Basic Science (negative and positive), the mean score of the responses was used. The positive and negative attitude towards Basic Science was determined by the mean score (84.09). The negative attitude towards Basic Science was determined by a score less than the mean score (<84.09) while the positive attitude towards Basic Science was determined by a score greater than the mean score (>84.09). Therefore, a negative attitude towards Basic Science starts from 28.00 to 84.08 while a positive attitude towards Basic Science starts from 84.09 to 112.00. The extent of students' attitudes towards Basic Science is presented in Table 1.

Table 1: Extent of students' attitude towards Basic Science

Extent of students' attitude towards Basic Science	**No of Respondents**	**Percentage**
Negative (28.00 – 84.08)	74	46.25
Positive (84.09 – 112.00)	86	53.75
Total	**160**	**100**

Table 1 revealed the extent of students' attitude towards Basic Science. The result showed that out of 160 respondents, 74 respondents representing 46.25 percent had negative attitude towards Basic Science while 86 respondents representing 53.75 percent had positive attitude towards Basic Science. This showed that extent of students' attitude towards Basic Science is positive. Figure i further revealed the extent of students' attitude towards Basic Science.

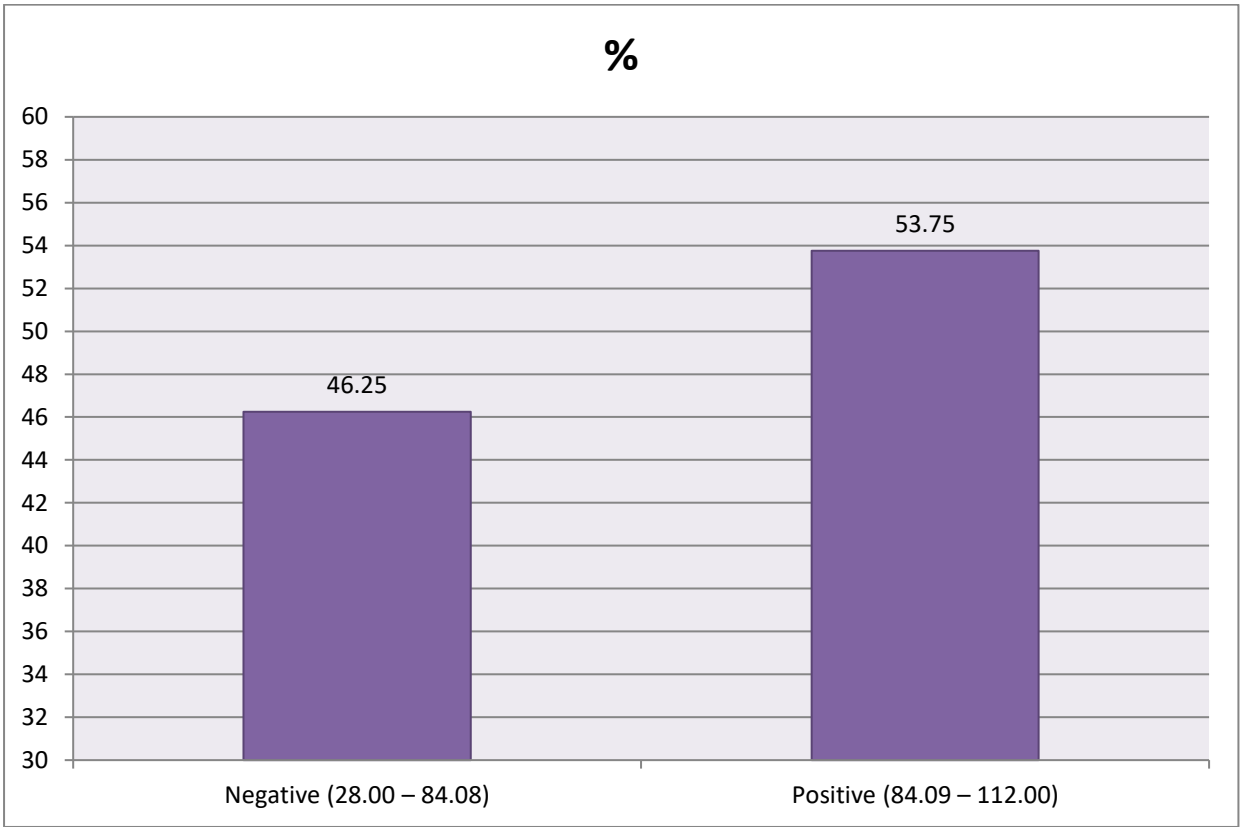

Figure i: Bar chart showing the extent of students' attitude towards Basic Science

Hypotheses Testing

Hypothesis 1: Teachers' gender has no significant influence on students' attitude towards Basic Science.

Table 2: Two-way Analysis of Variance (ANOVA) for the influence of teachers' gender on students' attitudes towards Basic Science

Source	Sum of Squares	df	Mean Square	F	Sig.
Corrected Model	2841.109[a]	3	947.036	254.508*	.000
Intercept	1106321.180	1	1106321.180	297314.001*	.000
Teachers' Gender	.458	1	.458	.123	.726
Students' Attitude	2802.684	1	2802.684	753.196*	.000
Teachers' Gender * Students' Attitude	3.490	1	3.490	.938	.334
Error	580.484	156	3.721		
Total	**1134903.000**	**160**			
Corrected Total	**3421.594**	**159**			

a. R Squared = .830 (Adjusted R Squared = .827) * P < 0.05

From Table 2, the p-value (0.334) is greater than the 0.05 level of significance i.e. P (0.334) >0.05. This led to the non–rejection of the hypothesis. This means that teachers' gender

has no significant influence on students' attitudes towards Basic Science. Students' attitude towards learning Basic Science is not biased based on teachers' gender.

Hypothesis 2: There is no significant gender difference in students' attitude towards Basic Science.

Table 3: t-test analysis for gender difference in students' attitude towards Basic Science

Variations	N	Mean	SD	df	t_{cal}	P
Male	80	87.51	2.58	158	13.80	0.00*
Female	80	80.68	3.60			

*P<0.05

Table 3 shows that the t-cal value of 13.80 is significant because the P value (0.00) <0.05. This implies that null hypothesis is rejected. Hence, there is significant gender difference in students' attitude towards Basic Science. The mean score showed a significant difference of 6.83 in favour of male students who show more positive attitude towards learning of Basic Science.

Hypothesis 3: School location has no significant influence on students' attitude towards Basic Science.

Table 4: Two-way Analysis of Variance (ANOVA) for influence of school location on students' attitude towards Basic Science

Source	Sum of Squares	df	Mean Square	F	Sig.
Corrected Model	2883.344[a]	3	961.115	278.558*	.000
Intercept	1045964.829	1	1045964.829	303150.012*	.000
School Location	35.320	1	35.320	10.237*	.002
Students' Attitude	2805.363	1	2805.363	813.073*	.000
School Location * Students' Attitude	7.595	1	7.595	2.201	.140
Error	538.250	156	3.450		
Total	**1134903.000**	**160**			
Corrected Total	**3421.594**	**159**			

a. R Squared = .843 (Adjusted R Squared = .840) * P < 0.05

From Table 4, the p-value (0.140) is greater than the 0.05 level of significance i.e. P (0.140) >0.05. This led to the non–rejection of the hypothesis. This means that school location has no significant influence on students' attitudes towards Basic Science. Students' attitude towards learning of Basic Science is not location biased.

Discussion

The result showed that student's attitude towards learning Basic Science was positive. This is in line with the study of Adam and Ababneh (2014) who asserted that teachers' attitude towards the teaching profession is a significant indicator of students' attitude. It was also revealed that student's attitude towards learning of Basic Science was not biased based on teachers' gender. The study of Al-jawarneh and Ababneh (2014) also supported that the gender of teachers should not be biased toward students towards learning in the classroom that is,

students should have the same attitude in relation to their needs in the classroom. The study revealed that male students showed a positive attitude towards learning Basic Science. The study also revealed that school location has no significant influence on students' attitude towards learning Basic Science. This also showed that students' attitude towards learning of Basic Science was not location biased.

Conclusion

It is concluded from the findings that male students developed a positive attitude towards learning Basic Science more than their female counterparts. It was also concluded that the teacher's gender and school location has no negative influence on students' attitude towards learning Basic Science. The study on the influence of teachers' gender and school location on students' attitudes towards learning seeks to unravel the complex dynamics that shape students' perceptions of the learning process. By shedding light on these factors, this research contributes to the broader dialogue on education and helps foster a more inclusive and effective learning environment for students across different backgrounds and locations.

Recommendations

Based on the findings above, it was recommended that adequate measures should be taken by the teachers (male or female) to see that female students develop more interest in learning Basic Science. Basic Science teachers (male or female) should try to take cognizance of their student's attitudes towards learning Basic Science in other to improve in their areas of weaknesses. Basic Science teachers (male or female) no matter the location of the school (rural or urban) should intensify efforts by using various teaching styles which could influence students' attitudes.

References

Adebule, S.O. & Aborisade, O.J. (2013). Influence study interest and school location on the attitude of secondary school students towards Mathematics in Ekiti State, Nigeria. *Greener Journal of Educational Research*, 3(6), 229-232

Adesoji, F.A. (2002). Modern strategies in the teaching of Integrated Science.In Ayodele, S.O. (Ed.) *Teaching strategies for Nigeria secondary schools*. Ibadan: Power house press Publishers. 205-212

Afolabi, F. (2009). Teachers' attitude and gender factor as determinant of Pupils' performance in primary Science. *African Research Review: An International Multi-Disciplinary Journal*, 3(1), 326-332.

Akporehe, D. A. (2011). The impact of Environment on productivity in secondary schools. Department of Educational Studies and Management, University of Benin. Nigeria.

Alghzo, M., Dodeen, H., Algaryouti, A.(2003).attitude of pre-service Teachers towards persons with Disabilities: Predictions for the Success of Inclusion. College Student J. 37(4), 515-523.

Al-Jawarneh,A, and Ababneh, S (2014), Jordanian EFL StudentsAttitudes and Perspectives towards the Gender of their English Teacher. *International Journal of Humanities and Social Science,4(10), 135-141.*

Bayode, O. (2004). The role of classroom teachers in the school administrative process of secondary schools in effective administration and practical strategies for teaching in Secondary Schools. Ado Ekiti.Akporehe, D.A. (2011). The impact of environment on productivity in secondary schools. *African Journal of Education and Technology*, 1(1), 116-122

Cakir, O. (2005). The attitudes of the students attending English language graduate program in Faculty of open Education in Anadolu University and the students attending English Language teaching and their perceptions of professional proficiency. *Inonu University.* 6 (9), 27-43.

Dan'inna, a. a. (2016). Gender Difference in secondary school students' attitude towards learning Mathematics and the resulting implications on their performance. *Journal of educational research.* 6 (1), 179-192.

Garcia,C .(2003). The effect of teacher attitude, experience, and background knowledge on the use of inquiry method teaching in the Elementary Classroom 1-37.

Hagger, H. &McIntyre, D. (2006). Learning teaching from teachers. Realising the potential of school- based teacher education. Maidenhead: Open University press.

Gonzuk, S., and Chargok, H.(2001). Gender differences in science: parallels in interest, experience and performance, *International journal of science education 9, 467-481.*

Nworgu, S. (2013). Some lecturers can't communicate well. The Punch Tuesday, July 23: 48.

Oke, O. A.(2003). Scientific attitude: a challenge for effective integrated science education in Nigeria. *Journal of science education and practice. 1* (1), 17-22.

Okoro, C.C. & Uwah, C.S. (2013).Teacher gender and attitude of primary school pupils to schooling in Uyo Metropolis, Akwa Ibom State, Nigeria. *Universal Journal of Psychology.*1(2), 53-58.

Olaleye, F.O. (2011) Teachers' characteristics as predictor of academic performance of students in secondary schools in Osun state, Nigeria. *European Journal of educational studies* 3(3), 505-511

Omotere, T. (2013). Influence of school environment on the academic performance of secondary school students in Lagos State. Retrieved from Ego Booster Books.www.omotere.tk. January 16, 2016.

Popoola, A.A. (2013). Teachers' pedagogical competence in teaching and learning in perception of teachers' knowledge, attitude and teaching skills as predictor of academic performance in Nigerian secondary schools. *Educational Research and Review*, 2(9), 165-171.

Van, L. T. K. (2010). The Impact of gender on language learning. Retrieved from: www.seameo.org/languagemdgconference.

Wenglisky, H. (2001). Teachers' classroom practices and students' performance: How schools can make a difference. Research report. Educational Testing Service.