TEACHERS’ TRAIT AS AN IMPEDIMENT TO PHYSICS STUDENTS ACADEMIC ACHIEVEMENT AMONG SECONDARY SCHOOLS IN IKWERRE LOCAL GOVERNMENT AREA OF RIVERS STATE

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Abstract

The relationship between Teachers Trait on Physics Students’ Academic Achievement among secondary schools in Ikwerre Local Government Area of Rivers State was examined. Five research questions were formulated to guide the study. An ex-post facto design was adopted for the study and a sample size of 120 secondary schools, 11 students and 254 secondary schools teachers were randomly selected for the study. The researcher made two set of instruments namely; Physics Achievement Test (PAT) and Teachers Trait Questionnaire (TTQ) which were used for data collection and the generated data were statistically treated using Pearson Product Moment correlation in analyzing the results from the questions that were posed. The questionnaires were validated and reliability index of .79% and 0.75 respectively were obtained using Cronbach alpha reliability package in SPSS. The findings from the data analyzed showed that there is a significant relationship between teachers’ qualification, experience, attitude, knowledge of the subject matter, interpersonal relationship and Physics students’ academic achievement, among secondary schools in Ikwerre Local Government Area, Rivers State. Based on the findings, some recommendations was made; Government and stakeholders in education should motivate teachers by regular payment of their allowances, also to send them on in-service training, Conferences, seminars and Workshop to up-date their knowledge. Infrastructures and laboratory equipments should also be updated

Keywords: Physics, Academic Achievement, hullabaloo, diminishing standard, Sciencing, lethargy, stumpy, Ikwerre, perceptible, fussy, allusion.

A. Background to the study

The hullabaloo over the diminishing standard of education in Nigeria has been on the front burner of national tête-à-tête years after years and it is perceptible that the debates will continue for more years to come. Poor academic concert has been associated to several factors which include but not limited to high teacher-student ratio, shortage of good teaching staff, poor quality of leadership, political instability and politicization of educational programmes, age of the learners, and inadequate essential physical facilities and equipments etc (Ewetan, 2010; Akinwunmi and Odunsi, 2008). The place of physics among the sciences cannot be undermined considering its importance in the fields of medicine, electrical, electronics, mechanical and other fields of engineering and technology, therefore any nation ready to meet the world growing pace in science and technology must ensure to address the issues resulting to students apathy and poor academic achievements in science subjects like math, biology, chemistry and more especially physics.

In the words of Emily Sanford Brown in 2006, she noted that from the time a child is born until he reaches the age of formal schooling, the way he sees things around him, and learns about his world is through discovery, otherwise known as sciencing. If discovering a child’s environment provides him with such a cosmic amount of knowledge prior to going to school, then the need of encouraging sciences in our schools system to solve the daily quest of man is of high magnitude. Children are naturally snooping and prying, as well loves to explore their natural environment. It is normal to want to know how things work and why the world is the way it is at its most basic level, as all the elements of science is been attributed basically. The most important question in education should be: what tools and scientific instructions are children given to understand the world as science?

In the times of Socrates (known for his Socratic method of inquiry in the building of knowledge and understanding) and Aristotle (who set the theater for what we now describes as the scientific method), students were encouraged to ask questions, experience and discover in
order to learn and gain deeper meaning. It was only in more recent times, with the institution of an institutionalized schooling system that a different, more developed form of educational pedagogy was anchored. This pedagogy called the transmission theory viewed students as spotless and blank slates as well empty vessels which the teachers would simply fill with prescribed knowledge.

The most ineffectual predicament facing schools today is the lassitude or lack of enthusiasm in students. At some point in a student’s education the fire that is burning their natural inquisitiveness is doused by a curriculum or mode of teaching, styles of teaching, teacher/student relationship, knowledge of subject matter and other teachers’ trait not capable of keeping their interest. John Dewey wrote extensively about the connection between interest and teachers’ effort in education back in the early 1800’s and what he said still rings true today. He said that things taught at school should not be ‘made interesting’, but rather they should already be ‘of interest’ to the students, thereby keeping apathy at bay and he noted that there is a clear connection between interest, activity and satisfaction in learning and the mode of instruction.

This lethargy can be attributed in part to a lack of connectedness to the real world of either today’s curriculum or in how that curriculum is addressed. If science in particular is presented as some long ago list of facts or something that does not affect the lives of students, then lethargy is sure to bring a wither over the classroom. Concerns for effective science instruction is not new, as some statements credited to John Dewey in Science notes that, “Science teaching has suffered because science has been frequently offered so much as already-made knowledge, subject-matter of fact and law, rather than as the effective method of inquiry into any subject-matter.”

The shortage of people trained in science and technology has reached its crisis level. The most important issues that the next generation will have to contend with will result from the application of science and technology therefore interest in these fields needs to be encouraged. Unfortunately, for many young people today, the way science is taught in school turns them off, and some have equally stopped taking science courses midway through the high schools. David Suzuki argues that, the way science is being taught in our schools is a major attributor to students opting out of the science classroom and ultimately out of industries, and research laboratories (Emily, 2006).

“Right now, science is being taught totally in unrealistic model and seen as an activity so perplexing that it really isn’t relevant to the daily lives of the learners.”

Science instruction often takes on this rote; transmission style in the classroom due to lack of trained, qualified, interested, motivated teachers, whose fear of or disinterest in science has made them quoting what needs to be learned in the science curriculum from outdated textbooks.

According to Adeogun (2001), the quality of the education system depends on the quality of the teaching staff and that a school without human resources may not be able to achieve the goal and objectives of the educational system. Ali (2009), reported that there was statistically significant relationship between teachers’ characteristics and student academic achievement. Gravestock and Gregor - Greenleaf (2008) observed that the explanation for good or poor students academic performance have been quite exhaustive yet controversy still exist among scholars as to what contribute singly or jointly to students poor academic performance.

The increasing collapse rate of education in Nigeria could be noticed in the yearly decline in students’ science performance in the Senior School Certificate (SSCE), Stakeholders blamed students for general unpreparedness to study as one of the major causes of students’ failures. Teachers were also blamed for lack of dedication to their jobs which has in-advertently affected the academic performance of students. Whoever to be blamed, the general view is that high quality teachers are education best resources and assets (Ayodele 2004).

It is against this milieu that this study critically examined teachers’ trait as an impediment to physics students’ academic achievement among secondary schools in Ikwerre local government area, of Rivers State.
B. Statement of the Problem

The stumpy academic attainment of Secondary School Science Students with fussy allusion to Physics in Ikwerre Local Government Area of Rivers State is startling and stakeholders are beginning to attribute numerous factors as the reasons for the collapse rate. In view of the significance of the role of the teacher in our educational system this study seeks to probe the teachers’ trait as an impediment to physics students’ academic achievement among secondary schools in Ikwerre local government area, of Rivers State. This study will consider teacher qualifications, experience, attitude, knowledge of subject content and interpersonal relationship as teachers’ trait.

Purpose of the Study

It is the purpose of the study to verify the relationship between teachers’ trait as an impediment to physics Students Academic Achievement among Secondary Schools in Ikwerre Local Government Area of Rivers State. The study will achieve the following specific objectives.

1. To examine the relationship between teachers qualification on Physics students academic achievement in Rivers State.
2. To ascertain the relationship between teachers attitude and Physics students academic achievement in River State.
3. To appraise the relationship between teachers experience and Physics students academic achievement in Rivers State.
4. To dissect the relationship between teachers knowledge of the subject content and Physics students’ academic achievement in Rivers State.
5. To assess the relationship between teachers interpersonal relationship and Physics students’ academic achievement in Rivers State.

Research Question

The following research questions will be asked to guide the study:

1. What relationship exists between teacher’s qualification and Physics student’s academic achievement among secondary school in Ikwerre Local Government Area of Rivers State?
2. What relationship exists between teachers’ attitude and Physics student academic achievement among Secondary School in Ikwerre Local Government Area of Rivers State?
4. Does teacher’s knowledge of the subject matter in the classroom have influence on Physics student academic achievement in Secondary Schools in Ikwerre Local Government Area of Rivers State?
5. Does teachers’ interpersonal relationship influence Physics students’ academic achievement in secondary school in Ikwerre Local Government Area?

Significance of the Study

The study would be of colossal gain to teachers and students because it would extensively be of assistance to advance comprehension in the teaching of Physics and other science subjects. The study when fully completed would also unveil the challenges leading to students’ apathy in the study of science subjects.

Review of Related Literature

Theoretical Frame work

David Ausubel’s Theory of Assimilation (1963)

Ausbel in Craig (2007) opined that learning involves connection between what was learnt and new knowledge if “meaningful learning” must occur.

According to Ausubel, learners make new meaning by integrating concepts, symbols and prepositions into their assimilation of new concepts and propositions into existing
cognitive structure”. This is known as Ausubel’s Theory of Assimilation of Theory of meaningful learning. According to Ausubel: Ausubel, Novak and Hanesian in Ford and Canas (1992), assimilation theory of cognitive learning that has been widely applied in education, and this theory is based on constructivist model of human cognitive processes and it specifically describes how concepts are gotten and arranged with a learners’ cognitive domain.

Ausubel in 1963 investigated how external organization tools could be used to identify cognitive structures and to facilitate meaningful learning and retention. Ausubel described meaningful learning as a process controlled by the student in which learner receives information, organizes, stores and finds relationship between information, linking new knowledge to old one. Meaningful, learning has three parts namely; learner's relevant previous knowledge, relevant materials and learner’s choice to apply meaningful learning.

Conceptual Framework for the Study
Teachers Experience, Teaching styles, Knowledge of subject content, Interest and Motivation and Student Academic Achievement

Teachers trait such as years of teaching experience, teaching styles, knowledge of subject matter, interest and motivation have been investigated to determine their effect on student outcome (Sanders and Rivers, 1996) Greenwald, Hedges, and Laine (1996) found in their mete-analytical study that teaching experience, teaching styles, knowledge of subject matter, interest and motivation had a positive and significant effect on students achievement.

That the aforementioned teachers’ trait has a significance effect on pupils’ performance in primary schools and at upper Secondary level. Experienced teachers have a richer background of experience to draw from and can contribute insight and ideas to the course of teaching and learning, are open to correction and are less dictatorial in classroom. Teachers’ experience and students academic achievement is much related as students taught by more experienced teachers are more of achievers at a higher level, because their teachers have mastered the subject matters and acquired classroom management skills to deal with different types of classroom problems (Gibbons et. al. 1997).

C. Research Method
Research Design

An Ex-post facto design was adopted for the study. In this kind of study the researcher does not have direct control on the independent variables hence their manifestations have already occurred. The investigator was interested in exploring the phenomena under examination and data were collected after the phenomena had taken place.

Area of the Study

The researcher carried out the study in Ikwerre Local Government Area of Rivers State. Ikwerre Local Government Area is among the 23 Local Government Areas of Rivers State. It is bounded on the east by Owerri-Imo State, North by Ogba Egbema Ndoni Local Government Area, West by Emuhuo Local Government Area and South by Obio/Akpor Local Government Area. The people are principally made of farmers and little of fishermen. They speak the Ikwerre dialect, though with comprehensible dialectical disparity. There are eight public secondary schools situated in the said Ikwerre Local Government Area.

Population of the Study

The population for the study comprised of 1,735 SS (3) students and 475 teachers in all the 8 public secondary school in Ikwerre Local Government Area of Rivers State. The choice of SS3 student as the population is to get their honest opinions on teachers’ trait as it relate to their academic achievement.

Sample and Sampling Technique

The participants in the study was 120 secondary schools (SS3) students and 254 secondary schools teachers selected by stratified simple random sampling techniques from four secondary schools in Ikwerre Local Government Area of Rivers State, Nigeria. Out of the 254 teachers selected 125 were male and 129 females respectively.
Instrumentation

Two researcher made questionnaires were generated for the study, namely Physics Achievement Test (PAT) and Teachers Trait Questionnaire (TTQ) and were used for the collection of data for the study. The first instrument PAT was used to gather respondent’s academic achievement score in Physics. PAT comprises of 15 items objectives test items based on what the students have already been taught previously in their various classes. PAT is meant for Senior Secondary School (SS 3) where selection of teachers was made. PAT has a Cronbach Alpha reliability of 0.79.

The second instrument TTQ was also used for the collection of data for the study. The items were sub-divided into two parts teachers’ attitude subscale, and teachers’ knowledge of the subject content, each of the part contained ten items of likert scale with response range from strongly agreed to strongly disagree. The reliability coefficient of this subscale was found to be r-0.75 cronbach alpha.

Validation of the Instruments

Drafts of both instruments PAT and TTQ were submitted to four experts independently. Opinions of the respondents in the secondary schools were equally sought concerning the test items and they confirmed that the tests have content validity and face validity.

Reliability of the Instruments

Test-retest methods was used to establish the reliability of PAT and TTQ the validated instruments were trial tested on a comparable sample of 40 students in the study area who were not part of the main study. PAT has a Cronbach Alpha reliability of 0.79% and the reliability coefficient of the part two sub-sets was found to be r-0.75 Cronbach alpha respectively.

Method of Data Analysis

Pearson’s product moment correlation statistical procedure and multiple regressions Analysis were used.

Research Question One: What is the relationship between teachers’ qualification and Physics students’ academic achievement among secondary schools in Ikwerre L.G.A?

Table 1: Correlation Analysis between Teachers’ Qualification and Physics Students Academic Achievement among secondary schools in Ikwerre L.G.A

<table>
<thead>
<tr>
<th>Variables</th>
<th>N</th>
<th>EX</th>
<th>EX²</th>
<th>EY</th>
<th>EY²</th>
<th>EXY</th>
<th>rcal</th>
<th>r²</th>
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<td>3635</td>
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<td></td>
<td></td>
<td>87763</td>
<td>.427</td>
<td>.182</td>
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<td>Students’ Academic Achievement</td>
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<td>152818</td>
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In Table 1, the correlation coefficient (r) between teachers’ qualification and Physics Students’ Academic Achievement is .427. This indicates a positive high correlation between teachers’ qualification and Physics students’ academic achievement. It implies that as teachers improve in their qualification, Physics students’ academic achievement will highly improve.

The table also indicates that r² is .182. This implies that 18.2% of the variation in the academic achievement of students can be attributed to influence of teachers’ qualification.

Research Question Two: What is the relationship between teachers’ attitude and Physics students’ academic achievement among secondary schools in Ikwerre L.G.A?

Table 2: Correlation Analysis between Teachers’ Attitude and Physics Students Academic Achievement among secondary schools in Ikwerre L.G.A
In Table 2, the correlation coefficient (r) between teachers’ attitude and Physics Science Students' Academic Achievement is .310. This indicates a positive high correlation between teachers’ attitude and Physics students’ academic achievement. It implies that as teachers’ attitude improves, Physics science students’ academic achievement will highly improve. The table also indicates that $r^2$ is .096. This implies that 9.6% of the variation in the academic achievement of students can be attributed to influence of teachers’ attitude.

**Research Question Three:** What is the relationship between teachers’ experience and Physics students’ academic achievement among secondary schools in Ikwerre L.G.A?

**Table 3: Correlation Analysis between Teachers’ Experience and Physics Students Academic Achievement among secondary schools in Ikwerre L.G.A**

<table>
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<th>Variables</th>
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<th>r_cal</th>
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<tr>
<td>Students' Academic Achievement</td>
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<td>5970</td>
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</tr>
</tbody>
</table>

In Table 3, the correlation coefficient (r) between teachers’ experience and Physics Students’ Academic Achievement is .349. This indicates a positive high correlation between teachers’ experience and Physics students’ academic achievement. It implies that as teachers’ experience improves, Physics science students’ academic achievement will highly improve. The table also indicates that $r^2$ is .122. This implies that 12.2% of the variation in the academic achievement of students can be attributed to influence of teachers’ experience.

**Research Question Four:** What is the relationship between teachers’ knowledge of subject matter in the classroom and Physics students’ academic achievement among secondary schools in Ikwerre L.G.A?

**Table 4: Correlation Analysis between Teachers’ Knowledge of Subject Content and Physics Students Academic Achievement among secondary schools in Ikwerre L.G.A**

<table>
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<tr>
<th>Variables</th>
<th>N</th>
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<th>EXY</th>
<th>r_cal</th>
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<td>79244</td>
<td>.376</td>
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<tr>
<td>Students' Academic Achievement</td>
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<td>5970</td>
<td>152818</td>
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</table>

In Table 4, the correlation coefficient (r) between teachers’ knowledge of subject matter in the classroom and Physics Students’ Academic Achievement is .376. This indicates a positive high correlation between teachers’ knowledge of subject matter in the classroom and Physics students’ academic achievement. It implies that as teachers’ knowledge of subject
matter in the classroom improves, Physics science students’ academic achievement will highly improve. The table also indicates that $r^2$ is .142. This implies that 14.2% of the variation in the academic achievement of students can be attributed to influence of teachers’ knowledge of subject matter in the classroom.

**Research Question Five:** What is the relationship between teachers’ interpersonal relationship and Physics students’ academic achievement among secondary schools in Rivers State?

**Table 5: Correlation Analysis between Teachers’ Interpersonal Relationship and Physics Students Academic Achievement among secondary schools in Ikwerre L.G.A**

<table>
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<th>Variables</th>
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<th>EX²</th>
<th>EXY</th>
<th>rcal</th>
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<td>Students’ Academic</td>
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<td>.387</td>
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<td>Achievement</td>
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</tbody>
</table>

In Table 5, the correlation coefficient ($r$) between teachers’ interpersonal relationship and Physics Students’ Academic Achievement is .387. This indicates a positive high correlation between teachers’ interpersonal relationship and Physics students’ academic achievement. It implies that as teachers’ interpersonal relationship improves, Physics students’ academic achievement will highly improve. The table also indicates that $r^2$ is .150. This implies that 15% of the variation in the academic achievement of students can be attributed to influence of teachers’ interpersonal relationship.

**D. Conclusions**

Conclusively, based on the results of the study, it is hereby concluded that Physics students’ academic achievement among secondary schools students is dependent on teachers’ qualification, attitude, experience, and knowledge of the subject matter and teacher interpersonal relationship. Hence, poor academic performance experienced in our schools system is impeded and linked to unqualified, poor attitude, in-experienced, teachers’ lack of the subject matter and poor teachers’ interpersonal relationship with the science students. However, some of the teachers’ failures are attributed to in-adequate re-training, attendance of seminars, conferences and workshop as to update their knowledge on new pedagogy which could have greatly impacted in their teaching performance in contrast students are affected negatively.

**Recommendations**

Based on the findings of the study, the following recommendations are made:

1. **There is need for the government to recruit professional teachers in order to enhance productivity and students’ academic performances.**
2. **There is need to motivate teachers by giving them their incentives as at when due, so that the teachers will see their job as interesting and will show positive attitude to their primary assignments.**
3. **Teachers should be encouraged through sending them on in-service training, seminars, conferences and workshops for further acquiring of experiences from older and other colleagues.**

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