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ENHANCING PSYCHOSOCIAL ENVIRONMENT ON ACADEMIC ACHIEVEMENT IN BASIC ELECTRICITY IN GOVERNMENT TECHNICAL COLLEGES IN NIGER STATE

BY

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ABSTRACT

The purpose of the study was to investigate the enhancement of psychosocial environment on student's academic achievements in Basic Electricity in Government Technical Colleges. Three research questions guided the study while three null hypotheses were formulated and tested at 0.05 level of significance. Population of the study comprised all the teachers and students of Basic Electricity in Government Technical Colleges in Niger State. The sample of the study consisted of 295 made up of 29 teachers and 266 students. The researcher selected the respondents through simple random sampling technique. The study adopted ex-post facto research design. The instrument used for data collection was structured questionnaire. Three experts validated the instrument. Internal consistency of the instrument was determined using Cronbach alpha reliability method and reliability coefficient values of 0.98 was obtained. Pearson's Correlation were used to analyze the data for answering research questions while correlation Analysis was used to test the hypotheses of no significance difference at 0.05 level of significance. The study found that, there is direct positive teacher - students' relationship, high positive students'-students', direct negative teacher- students' involvement, high positive Teacher- student Basic Electricity Task orientation, direct negative students'- students' competition, direct negative Teacher- students classroom management as it enhance academic achievement in Basic Electricity**.** It was recommended that more task orienting exercises should be organized for Basic Electricity students to keep them more socially related as well as up competing. This could be achieved through organizing quizzes, group work, individual and group presentations.

Keywords: Psychosocial, environment, academic achievement, basic electricity, technical colleges

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INTRODUCTION

A very serious issue bedeviling governments of developing nations of Africa is how to create jobs for their citizens for enhanced living standards. Hunger, disease and unemployment have been the bane of these nations. A key answer to this problem lies in properly and adequately addressing education in general and technical education in particular. Perhaps, it is in this regards that scholars have been advocating for technical education as a panacea for unemployment and useful tool that can guarantee skills acquisition towards self-reliance. Teaching and learning of technical education is usually done in specialized schools referred to as technical colleges. Technical colleges are therefore educational institutions that prepare students for career in a specific fields. In support of this assertion Akade (2010) described technical college as institution where students are trained to acquire

relevant knowledge and skills in different occupations for employment in the world of work. Technical colleges are institutions that provide students through training, relevant and adequate knowledge, skills and attitude for employment (National Board for Technical Education (NBTE, 2013). In contemporary Nigeria, greater emphasis is placed on industrial and technological development. As such, one subject that cuts across the entire engineering and related technical subjects is Basic electricity.

Basic Electricity in technical colleges is a subject that prepares students with entry level knowledge which enable them to do better for all subjects offers in the field of electricity/electronics. According to Donnelly and Grob (2010) Basic Electricity is a physical science course which deals with the study of charged elementary particles and the energy associated with them. Omosewe (2011) ascertained that in science and technical education programmes, students need to be encouraged to learn not only through their ears, but should be able to use their eyes and hands to manipulate equipment, devices to acquire skillful knowledge through the use of laboratory and classroom.

Classroom is an important place in the operation of a school. It holds students together and offers them the opportunities of achieving the purpose of education. Talton and Simpson (2014) described classroom environment as a miniature community in which member's interest influences the behavior of others. The authors further stated that classroom environment is a type of environment created as a result of subsequent interactions that occur in the classroom during the teaching and learning process. Willen (2011) asserted that a greater part of education activities of any school occurs in the classroom. This shows that in a classroom psychosocial environment is very important.

Psychosocial environment is used to emphasize the close connectivity between psychological aspect of human experience and the wider social experience (Ryan, 2009). According to Haertel and Walbeg (2010) psychosocial environment is a type of environment that has to do with interaction in the classroom. These interaction involves teacher and student interaction, student and student interaction, teacher student and instructional material interaction. Abe (2015) noted that it is possible to perceive the totality of human as being guided by psychosocial environment. Apart from supporting human functioning, the psychosocial environment must also accommodate the equipment, tools and materials for effectiveness of teaching and learning in technical colleges. Therefore, teacher student-relationship contributes to both academic and socio-emotional development.

Teacher-Student relationship is a form of relationship that occur between the teacher and student which can be expressed as friendship, affection, co-operation and open communication. According to Hughes and Chen (2011) Teacher-student relationship forms the basis of the social context in which learning take place. In the same vein, Liberante (2012) stated that Teacher-student relationship is not only efficacious but it forms the basis of social context in which learning occur. Literature is replete with evidence that strong and supportive relationship between teachers and students are fundamental to the healthy development of all students in school (Hamre & Pianta, 2012). Hence, the teachers-student relationships help maintain students interest's in academic and social pursuits, which in turn lead to better grades and more positive student involvement.

Student involvement in the basic electricity is the act of sharing in activities of lessons in the classroom. The more teachers involve students in a lesson the higher the expectation of learning outcome (Teoh & Mille, 2013) Students involvement in basic electricity is a key component of educationally relevant activities for the attainment of learning outcomes. In line with this assertion, Oyehalu (2011) stressed the importance of student involvement for good practice in technical education. Teachers who involve their students are more likely to have higher levels of career success, occupational competency; task oriented and better educational outcomes.

Student achievement has become a hot topic in educational circle, especially with increased accountability for classroom teachers. Hornby (2010) stated that achievement is the ability of somebody to gain or reach a set goal through effort, skill or courage. Schnitzer (2015) defined achievement test as test designed to assess current performance in academic area. In other words achievement test is designed to measure a person's level of skill, accomplishment or knowledge in a specific area. Therefore, student achievement in basic electricity is systematic and purposeful qualification of students' cognitive learning outcomes. This systematic qualification of acquired knowledge and skills is based on taught curriculum content either for the end of each term, each year or for the end of the three-year programme. At the end of the three- year programme, a systematic and purposeful skill and cognitive knowledge is acquired or achieved, that is, final achievement test or examination is always conducted by the National Business and Technical examination Board (NABTEB).The examination for basic electricity and other electrical trade subjects is specifically called National Technical Certificate (NTC) Examination by NABTEB.

Basic electricity ensures solid foundation of students' understanding not only in Basic Electricity as a subject but also for all the subjects offered in the field of electricity and electronics (E/E) technology/engineering. The fact is that teachers play a role in influencing student motivation. The importance of building teacher-student relationship is to make the student learn easily and freely without fear or anxiety. In addition, teachers need to reduce negative emotions among the students such as anger, sadness, dissatisfaction, boredom, fear, and always encouraging, positive emotions such as confidence, joy, appreciation and safety. This disposition will lead to increased student confidence, student enrolment and higher student academic achievement.

Unfortunately several researches such as Adamu, (2018); Nathanial, (2016) and Chado, (2010) reveals that students' academic achievement in the certificate examination in Niger State Technical Colleges has been consistently poor since the year 2005, in Basic Electricity and other electrical/electronic subjects. Various stakeholders have advanced reason for this negative development in education in the state, among which are improper classroom interaction between teachers and students, teacher aggressiveness, and basic electricity task orientation have been found out to be major factors responsible for persistent failure in Basic Electricity

This unsatisfactory situation could lead to breakdown in the economic, industrial, technological and educational growth of a nation since the main goal of technical education is geared towards skill acquisition that leads to self sufficiency and employment. It is sad to note that technical education graduates no longer possess the required knowledge and skills expected of them. This makes it difficult for the graduates to secure employment on completion in industries or set up a workshop. There by contributing to an increased unemployment rate of the society.

Effective teaching using psychosocial environmental patterns is a disposition whereby the teacher consciously and skillfully plans and executes every one of his lesson so that interaction patterns are plausibly and effectively applied in each lesson delivery. By this disposition, the teacher ensures that only the advantages of each classroom interaction pattern is fully tapped skillfully skipping their disadvantages. The question is; can psychosocial classroom environment enhance student academic achievement in basic electricity?

There is need to investigate the influence of classroom psychosocial environment in basic electricity. The question that arose as problem of this study therefore is how psychosocial environment enhanced cognitive student academic achievement in basic electricity.

Purpose of the Study

The purpose of this study was to investigate the enhancement of psychosocial environment on students academic achievement in Basic Electricity. Specifically, the study suggest to determine:

1. Teacher – Student involvement on student academic achievement
2. Basic electricity Task orientation on student academic achievement
3. Student – Student competition on student academic achievement

Research Questions

The following research questions were formulated to guide the study:

1. What is the teacher- student involvement on student academic achievement?
2. What is the Basic Electricity Task orientation on student academic achievement?
3. What is the Student –student competition on student academic achievement?

Hypotheses

The following null hypotheses were formulated to guide the study and were tested at .05 level of significance.

Ho_1: There is no significant relationship between the opinion of teachers and student involvement in basic electricity on student academic achievement

Ho_2: There is no significant relationship between the opinion of teacher task orientations and student in basic electricity on student academic achievement

Ho_3: There is no significant relationship between the opinion of TCII students and TCIII student's competitions on student academic achievement

METHODOLOGY

The study adopted ex-post facto research design. According to Kerlinger (2011), an ex-post facto research design is systematic empirical inquiry in which the researcher does not have direct control of independent variables because their manifestation have already occurred, or because they are inherently not manipulated. The study was carried out in Niger State, Nigeria. The population for the study was 631comprising 302 TCII Students, 299TC III Studentsand29 electrical/electronics. The sample for the study was295 respondents made up of 266 students and 29 teachers. The instrument for data collection was a structured questionnaire. The questionnaire items were adapted using catholic school classroom

environment questionnaire (CSCEO) and what is happening in the class questionnaire (WIHIC) developed by Jeffrey P. Dorman (2009). To ensure the validity of the instrument, the structured questionnaire was subjected to face validation by three experts from Department of Industrial and Technology Education, Federal University of Technology, Minna. The instrument was pilot tested in Kogi State on representative sample of 40 TCII and TCIII Basic Electricity students randomly drawn from two Technical Colleges. Cronbach alpha was used to determine the internal consistency of the items from the piloted data obtained. Their responses were computed using statistical package for social science (SPSS) 16 versions. The reliability coefficient value obtained from the pilot testing was 0.98.

The instrument was administered through personal contact with respondents with the help of three research assistants who were briefed by the researchers on how to administer the instrument in order to enhance the return rate of the instruments. Data collected from the respondents were analyzed using correlation Co-efficient to answer the research questions. The null hypotheses were tested using Correlation Analysis at .05 level of significance.

RESULT

Research Question One: What is the teacher-student involvement of classroom psycho-social environment on students' academic achievement?

Table 1: **Pearson's Product Moment Correlation Analysis between teacher and students' involvement on students' academic achievement in basic electricity**

Variable	X	SD	N	R	R^2
Teacher (T)	4.00	0.60	29	-0.57	0.87
Students' Involvement in Basic Electricity (SIBE)	0.36	0.12	266		

The result in Table 1 shows that the correlation coefficient obtained was -0.57 This means that, there exist a direct negative relationship between teacher students' involvement on students' academic achievement. Table 1 also shows that, the coefficient of determination (R^2) associated with the correlation coefficient of -0.57 was 0.87. This coefficient of determination (R^2) indicates that, 87% of teachers in classroom psychosocial environment

accounted for decrease in students' academic achievement in basic electricity. This is an indication that 13% of the variation in students' academic achievement in basic electricity is attributed to other factors other than teacher students' relationship.

Hypothesis One

H_{01}: There is no significant relationship between the opinion of teachers and students' involvement on students' academic achievement in basic electricity

Table 2: Correlation Analysis of teachers and students' involvement on students' academic achievement

Model	Sum of Squares	Df	Mean Square	F	Sig.
Correlation	27.0064	1	27.064	0.224	0.01
Residual	31962.275	264	121.09		
Total	31989.338	265			

$\alpha = 0.05$

In order to test hypothesis 1, correlation analysis was used. The result in Table 2 shows that an F-ratio of 0.224 with associated exact probability value of 0.01 was obtained. This probability value of 0.01 was compared with 0.05 set as level of significance for testing the hypothesis and it was found to be significant because 0.01 is less than 0.05. Consequently, the null hypothesis which stated that; there is no significant relationship between teacher and students' involvement on students' academic achievement in basic electricity was rejected and inference drawn was that, teacher and students' involvement significantly determines students' academic achievement in basic electricity . In other words, there is significant relationship between teacher and students' involvement on students' academic achievement.

Research Question 2; what is the Teacher-Student Basic electricity task orientation of classroom psycho-social environment on students' academic achievement?

Table 3: **Pearson's Product Moment Correlation Analysis between Teacher task orientation and Students' Basic electricity on students' academic achievement in basic electricity**

Variable	X	SD	N	r	R^2
Teachers' Task orientation	4.00	0.44	29	-0.21	0.45
Students' Basic Electricity (SABE)	0.36	0.12	266		

The result in Table 3 shows that the correlation coefficient obtained was -0.21 This means that, there exist a high positive relationship Teacher Task orientation and student in Basic Electricity on students' academic achievement. Table 3 also shows that, the coefficient of determination (R^2) associated with the correlation coefficient of -0.21 was 0.45. This coefficient of determination (R^2) indicates that, 45% of Teacher task orientation of classroom psychosocial environment accounted for students' in basic electricity on academic achievement. This is an indication that 55% of the variation in students' academic achievement in basic electricity is attributed to other factors other than Teacher task orientation.

Hypothesis 2

H_{02}: There is no significant relationship between the opinion of teacher and students' basic electricity task orientation on students' academic achievement in basic electricity

Table 4: Correlation Analysis of Basic Electricity Task Orientation and students' academic achievement

Model	Sum of Squares	Df	Mean Square	F	Sig.
correlation	217.628	1	217.628	1.808	0.02
Residual	31771.711	264	120.347		
Total	31989.338	265			

In order to test hypothesis 2, correlation analysis was used. The result in Table 4 shows that an F-ratio of 1.808 with associated exact probability value of 0.02 was obtained. This probability value of 0.02 was compared with 0.05 set as level of significance for testing the

hypothesis and it was found to be significant because 0.02 is less than 0.05. The null hypothesis which stated that; there is no significant relationship between the opinion of teachers and students' basic electricity task orientation on students' academic achievement in basic electricity was rejected and inference drawn was that, Teachers and Students 'basic electricity task orientation significantly influence students' academic achievement in basic electricity . In other words, there is a significant relationship between the opinion of teachers and students' basic electricity task orientation on students' academic achievement.

Research Question 3; what is the student-student competition of classroom psycho-social environment on students' academic achievement?

Table 5: **Pearson's Product Moment Correlation Analysis for the relationship of classroom competition between TCII student and TCIII students' on students' academic achievement in basic electricity**

Variable	**X**	**SD**	**N**	**R**	**R^2**
TC II Students	52.17	13.79	151	-0.08	0.23
TC III Students' Basic Electricity (TCSBE)	39.18	10.99	115		

To answer this research question, the scores from the responses of classroom competition of TC11student's were correlated with TC III students' on academic achievement in basic electricity. The result in Table 5 shows that the correlation coefficient obtained was -0.08. This means that, there exist a direct negative relationships between competition of TCII students' and TCIII students' on students' academic achievement. Table 5 also shows that, the coefficient of determination (R^2) associated with the correlation coefficient of -0.08 was 0.23, this coefficient of determination (R^2) indicates that, 23% of TC11students' and TC111students' competition of classroom psychosocial environment accounted for students' academic achievement in basic electricity. This is an indication that 77% of the variation on students' academic achievement in basic electricity is attributed to other factors other than students' students' competition.

Hypothesis Three

H_{03}: There is no significant relationship between the opinion of TCII students' and TCIII students' competition on students' academic achievement in basic electricity

Table 6: Correlation Analysis of students' students' competition on students' academic achievement

Model	Sum of Squares	Df	Mean Square	F	Sig.
correlation	204.002	1	204.002	1.694	0.19
Residual	31785.336	264	120.399		
Total	31989.338	265			

In order to test hypothesis 3, correlation analysis was used. The result in Table 6 shows that an F-ratio of 1.694 with associated exact probability value of 0.19 was obtained. This probability value of 0.19 was compared with 0.05 set as level of significance for testing the hypothesis and it was found to be no significant because 0.19 is higher than 0.05. The null hypothesis which stated that; there is no significant relationship between TCII students' and TCIII students' competition on students' academic achievement in basic electricity was accepted and inference drawn was that, students' students' competition does not significantly influence students' academic achievement in basic electricity . In other words, there is no significant relationship between the opinion of TCII students' and TCIII students' competition on students' academic achievement.

Discussion of Findings

The responses of teachers on classroom psychosocial environment were correlated with student's involvement in basic electricity on students' academic achievement. The result in Table 1 shows that the correlation coefficient obtained was -0.57 this means that, there exist a direct negative relationship between teacher students' involvement and students' academic achievement. Table 1 also shows that, the coefficient of determination (R^2) associated with the correlation coefficient of -0.57 was 0.87. This coefficient of determination (R^2) indicates that, 87% of teachers in classroom psychosocial environment accounted for decrease in

students' academic achievement in basic electricity. This is an indication that 13% of the variation in students' academic achievement in basic electricity is attributed to other factors other than teacher students' relationship. These findings are in line with Coates (2013) who argued that students and teacher interaction is an important indicator of students' academic involvement at technical level. The findings also agree with Churchil (2011) who stated that positive teachers – students' involvement in teaching and learning makes learning enjoyable experiences thus creating balanced teaching and learning atmosphere.

The responses of Teacher task orientation of classroom psychosocial environment were correlated with Student in basic electricity on students' academic achievement. The result in Table 3 shows that the correlation coefficient obtained was -0.21 This means that, there exist a direct positive relationship Teacher Task orientation and student in Basic Electricity on students' academic achievement. Table 3 also shows that, the coefficient of determination (R^2) associated with the correlation coefficient of -0.21 was 0.45. This coefficient of determination (R^2) indicates that, 45% of Teacher task orientation of classroom psychosocial environment accounted for students' in basic electricity on academic achievement. This is an indication that 55% of the variation in students' academic achievement in basic electricity is attributed to other factors other than Teacher task orientation. These findings are in agreement with Tao *et al*. (2013) who stated that task orientation involves goals and activities designed to enhance students' comprehension of identified concepts, skills or values; and should capture the attention of students, keep students attention as well as heighten their interest in the task.

The responses of classroom competition of TCII student's were correlated with TCIII students' on academic achievement in basic electricity. The result in Table 5 shows that the correlation coefficient obtained was -0.08. This means that, there exist a direct negative

relationship between competition of TCII students' and TCIII students' on students' academic achievement. Table 5 also shows that, the coefficient of determination (R^2) associated with the correlation coefficient of -0.08 was 0.23. This coefficient of determination (R^2) indicates that, 23% of TC II students' and TCIII students' competition of classroom psychosocial environment accounted for students' academic achievement in basic electricity. This is an indication that 77% of the variation on students' academic achievement in basic electricity is attributed to other factors other than students' students' competition. . These findings are in line with Abernathy and Vineyard (2011) who reported that students competition tap into natural curiosity of students and provide an arena for them to learn new things. Similarly, the findings are in line with Ozturk and Debelak (2008) who stated that students' competition may provide the motivation required to get students started to discover the joy of learning.

Conclusions

From the foregoing discussions based on the results of the study, the following conclusions were made**;**

- There exist a high positive relationship between teacher and students' relationship on students' academic achievement in basic electricity.
- There exists a high positive relationship between TC II student and TC III students' on students' academic achievement in basic electricity.
- There exist a high positive relationship Teacher Task orientation and student in Basic Electricity on students' academic achievement.
- There is a no significant relationship between the opinion of TC II students 'and TC III students' relation on students' academic achievement.

Recommendations

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

a. Workshops, seminars, conferences, and short time courses should be organized by College Administrators for Basic Electricity Teachers to equip them on modern strategies to maintain and sustain teacher – students' relationship, as well as measures of conducive classroom management.

b. More task orienting exercises should equally be organized for Basic Electricity students to keep them more socially related as well as up competing. This could be achieved through organizing quizzes, group work, individual and group presentations.

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