STUDENTS' ACADEMIC PERFORMANCE IN BASIC TECHNOLOGY AS A CORRELATE OF TEACHERS YEARS OF TEACHING EXPERIENCE IN EDO STATE, NIGERIA.

[1]Isemede, O. A. P., [2]Iyahen, M. S. & [3]Omoregie, B C.
[1]Department of Estate Management and Valuation, Edo State Polytechnic, Usen
Patose75@gmail.com 09013045201 or 07039870524
[2]Department of Surveying and Geoinformatics, Edo State Polytechnic, Usen
Shomatgeospatial@gmail.com 08061461922, 08022492884
&
[3]Department of Urban and Regional Planning, Edo Polytechnic, Usen

Abstract

The study examined Students academic Performance in Basic Technology as it correlates teachers' years of teaching experience in Edo State. The population of the study consisted of 43,893 and 886 teachers drawn from junior secondary school in Edo State. The sample size of 1, 680 students and 33 teachers were selected through simple random sampling. The objective of the study was achieved by raising a research question to guide the study. The Basic Technology Teacher Factors Questionnaire (BTTFQ) was demographic in nature to collect data from teachers like, teachers years of experience, teachers name, teachers sex etc. The teachers were required to tick the appropriate responses applicable to them and answer questions like: Years of experience of the teacher, location of school, highest qualification and so was not tested for reliability.. The findings of the study showed that teacher's years of experience does not significantly influence academic performance of students in Basic technology in Edo state. it was recommended that government should ensure that only professional and qualified teachers are employed to teach Basic Technology.

Keywords: Teachers' years of experience, Correlate, Students' Academic Performance, Basic Technology, Nigeria.

Introduction

Education is the process by which the society assists individuals to learn and understand the heritage of the past, participate productively, positively, and contribute meaningfully to the development of the society. Education is the wise, hopeful, and respectful cultivation of learning undertaken in the belief that all students have the chance to share in life it involves cultivating hopeful environments and relationships for learning. Educators need to focus on creating environments and relationship for learning rather than trying to drill knowledge into people. Education is all about the belief that all share

in life and a picture of what might allow people to be happy and flourish which is a concern to act respectfully, knowledgeably, and wisely, joining with others to build relationships and environment for learning, at the various levels of education (Smith 2015). Technical, Vocational Education and Training is a type of education which provides the learner with knowledge, competencies and power to be self-employed (UNSECO 2018).

Pre-vocational education is a component of Technical, Vocational Education and Training that is at the junior secondary school level in Nigeria. It is an aspect of TVET that introduces children and youths to the world of work through exploratory activities with tools and machinery, materials and processes of modern technology as part of general education for effective living in an environment which has become technologically built (Uwameiye, 2010). The exposure of students to pre-vocational education also helps them explore their interests and aptitude. Through prevocational education, students may also develop desirable traits and aptitudes such as pride in productive work and respect for authority (Uwameiye, 2017). At the Junior Secondary School level of education in Nigeria, Basic Technology is a component of pre-vocational education and is one of the compulsory subjects. The main purpose of Basic Technology at this level is to make the young learners create change in their learning environment. Basic Technology is taught in the junior secondary school level providing broad field of knowledge for a linkage for basic electronics, automobile, airflow, water flow, physics, chemistry, food preservation, ceramics, plastics and building. The objectives of Basic Technology are:

- provide pre-vocational orientation for further training in technology.
- provide basic technological literacy for everyday living.
- stimulate creativity and innovation (FMST, 2007)

Whereas these objectives of Basic Technology are laudable, but there are environmental impediments -such as school buildings, workshops, classroom, laboratories, equipment, furniture, library schoolteachers and so on that may not allow for easy realization of the objectives. Teachers' years of experience can also help to determine the output and subsequently impact on the performance of the students. Yusuf and Dada (2016) Stated that students taught by experienced teachers usually display better understanding of a subject. To facilitate the process of transmission, teachers should apply appropriate teaching experience acquired over the years that best suit specific objectives of the subject. experienced teachers performed better in colleges. Sometimes, the productivity of the teacher lies on the teaching experience of the teacher, Idialu(2813) The undergraduate students are engaged in a compulsory teaching practice where they will be exposed to the teaching profession. Teachers' years of experience play may a major role in the learning process, the experienced teacher is often better equipped in student's assessment, classroom management, teaching strategies, lesson planning, test construction and others. A Basic Technology teacher is expected to have the relevant experience to mentor the students.

Academic performance of student is the learning outcomes of the students which includes knowledge, application, skills, and ideals acquired and retained through their course of studies within and outside the classroom situation (Himan,2018). The variables that are capable of influencing the academic performance of students includes teachers and environmental factors (Udoh, 2013).The student's academic performance is measured in definition and objective of the subject, the graduation time rates of the students, the total time taken to complete the task and the educational system, this is measured using grade point average (GPA). Abdullah (2016) Stated that academic performance is the knowledge gained by the students through marks awarded by the teacher to be able to achieve educational goals over a specified time. Differences exists in the learning outcomes of different group of students, for example, male and female. Students' academic performance is usually the result to show the extent to which a student has achieved as to specific goals in any academic environment such as schools, Colleges and University. If any educational institution must succeed the academic performance of students must have high rate when measured. Apart from the educational institution, parents also have high expectations from their children in regard to their academic performance because they have the understanding that better academic results may on the long run lead to better career option and future security.

Statement of the Problem

The world today is driven by technology, and the objective of Basic technology as a pre-vocational subject is to expose the learner to the world of work through exploration. But the performance of students across Edo State at present in the subject is poor. It has also become a source of worry to stakeholders in the education sector. In 2017, 1811 students sat for Basic technology 7.45% passed with C, 235 representing 12.97% passed P while 1374 had F representing 75.86%. (EME 2018) If this situation persists, the future of development technologically in Edo State and the country at large will be in jeopardy. This is because there is no nation that can advance in development without technology. This rate of failure is worrisome, and literature have it that factors like teachers' years of experience factors accounts for poor performance in Basic technology.

A high academic performance of students is an indication of quality teaching. The teacher cannot be dissociated from the subject and the performance, years' experience of the teacher is a source of worry due to the poor performance in Basic technology. This is in line with Dial (2018) who stated that teachers' years of experience had effect on students' performance. Therefore, this study was designed to investigate teachers' years of experience on academic performance in Basic technology in Edo State

Objective of the Study

The main purpose of the study was to find out the influence of teachers Years of experience on academic performance of students in Basic Technology in Edo State. Specifically, the purpose of the study was to find out the:

1. Influence of teachers' years of teaching experience on students' academic performance in Basic Technology in Edo State.

Research Questions

The following research questions was raised to guide this study:

1. What is the influence of teachers' years of experience on students' academic performance in Basic technology in Edo?

Hypotheses

The hypothesis that was tested at .05 level of significance in this study was:
Teachers' years of experience do not significantly relate to secondary school students' academic performance in Basic Technology in Edo State.

Review of Related Literature

Teachers Years of Experience and Academic Performance

Teachers' years of experience is an important aspect of teacher factor when discussing students' academic performance. Teachers are role model and their role have effects on student's self-perception and performance. The teacher improves and gain more experience as the years goes by. Most teachers in schools who are newly employed lack the required experiences to impact their students with the worthwhile content. Basic Technology teacher must understand the ideal learning conditions and create them when they do not exist. Students tend to benefit more from teachers who are creative and show mastery of the subjects.

Omotayo (2014) carried out a study on teachers' characteristics influence on students' performance level in senior school Financial Accounting in Ondo State. The researcher used correlational research design. All senior secondary schools in Ondo State were used for the study. Purposive method of sampling was used to select 200 students for the study. Two research questions were raised and answered. The instruments for the study was a questionnaire, the data collected were analyzed using inferential statistics. The results showed that there is positive relationship between teachers experience on performance level of students.

Ogweno (2016) investigated the influence of teachers' characteristics on students' academic performance in agriculture. The population of the study was 38 teachers. 30 agriculture teachers were selected for the study. A questionnaire which was pilot tested for reliability was used for data collection. Frequencies, percentages, mean and standard deviation, and Spearman's Rho were used for data analysis The results showed teachers' experience and students' academic performance have positive relationship.

Kosgei (2013) examined teachers' years of experience on students' academic achievement in selected secondary schools in Nandi South District of Kenya. The study adopted ex-post facto research design, all government secondary schools in Nandi South District were used for the study. A sample of 26 secondary schools was utilized for the

study. The data were collected with the use of a questionnaire and the collected data was analyzed using inferential statistical technique. The results showed that teacher experience had significant academic achievement. Based on this, the recommendation was that teacher doing in service training should be encouraged.

Alily (2016) examined the factors influencing secondary school students' academic performance in Edo State with special interest to determine if teachers' experience have any influence on students' performance. The population of the study was the entire Edo State Public Secondary schools' principals and teachers. A sample of 12 schools were selected for the study. The instrument for data collection was a questionnaire. Pearson Product Moment and regression statistical analysis were used. The findings revealed that teachers' years of experience had a positive significant influence on the students' academic performance in secondary school certificate examination. Anne, Tara and Linda (2018) examined years of teaching experience of the teachers and its effects on student's academic performance. Eighty teachers were selected for the study observation method was used. The researcher found out that teachers' years of experience have positive relationship with students' academic performance.

Emwehim (2016) examined teachers' factors and academic performance in Social Studies in Nigeria. All senior secondary schools in Aniocha North Local, Delta State made up the population. Four hundred SS I students were selected for the study, 40 students from each of the 10 schools were used in the study area. The data was analyzed using Kendall Tau's correlation co-efficient. The results showed that teachers' experience has relationship with students' academic performance

Oluwakemi and Olabanji (2012) investigated teachers' years of experience on academic performance in Mathematics and English in secondary schools in Ogun State, Nigeria. The research design was descriptive. A population of 31 secondary schools were selected for the study randomly, 20 schools made up the population. Fourteen schools from Ado-Odo/Ota and six schools from Ifo district. Four hundred questionnaires; 20 per school was administered. t-test and regression were used to analyze the data setting significant level at .05. level. The findings revealed that teachers' teaching experience has positive influenced on students' academic performance in Mathematics and English language as measured by their performance in Senior Secondary School Certificate examinations. This research work is related to the current study, but they differ in scope.

Dial (2018) examined the effects of years of teaching experience on overall achievement of students on the communication arts and mathematics section of the Missouri Assessment program. Eighteen elementary schools, one Vocational school, one alternative school were used for the study. The sample for the study was examinations results from 2005 – 2006 schools' years to determine whether teachers' years of experience had effect on students' performance for 995 students. The instrument was a spreadsheet. The researcher used descriptive statistics and factorial ANOVA to analyze the data. The findings revealed that teachers' years of experience had effect students' performance.

Population of the Study

The population of the study consists of all JSS II (43,893) students of all the Junior Secondary Schools and all the teachers (886) teaching Basic Technology drawn from both the urban and rural schools in each of the three senatorial districts of Edo State (ESUBEC 2018\2019).

Population of (JSS11) Students and Teachers List by Local Government Area in Edo State.

Local Government Area	**No of Students**	**No of Teachers**
Akoko Edo	2341	35
Egor	3208	95
Esan Central	1100	48
Esan North East	1331	49
Esan South East	1062	45
Esan West	2966	63
Etsako Central	1005	48
Etsako East	1384	39
Etsako West	1991	34
Igueben	921	31
IkpobaOkha	7245	68
Oredo	7020	70
Orhon	1998	50
Ovia North East	2965	35
Ovia South West	1907	40
Owan East	1873	38
Owan West	1298	45
Uhunmwonde	2316	53
Total	**43,893**	**886**

Source: Post Primary Education Board.

Sample and Sampling Technique

The sample size for this study was 1,680 students and 33 teachers of Basic Technology.

They were selected from Edo North, Edo Central and Edo South. Simple random sampling technique was used to select a Local Government Area from each senatorial District, Owan East from Edo North, Esan Central from Edo Central, Egor from Edo South. The schools were selected from each L, G. A. through balloting without replacement sampling technique from urban and rural secondary school. all the 33 teachers teaching Basic Technology from the various schools selected for the study were used.

Instrument for Data Collection

The Data that was used for this study were collected with the following instruments:

1. Basic Technology Achievement Test (BTAT)
2. Basic Technology Teachers' Factors Questionnaire (BTTFQ)

Basic Technology Achievement (BTAT)

Basic Technology Achievement Test (BTAT) was made up of a section which consisted of 50 questions. Students were required to provide answer by ticking the correct options. The achievement test was designed by the researcher and two experts of Vocational and Technical Education, Faculty of Education. Ambrose Alli University, Ekpoma. The questions were drawn based on the various aspects of Basic technology namely: Transmission distribution of electricity, Materials and Processing, Drawing and Practice, Woodwork tools and machine, Periodic maintenance and safety, Engine Lubrication, Metal work tools and machine and Building.

Basic Technology Teacher Factors Questionnaire (BTTFQ)

The Basic Technology Teacher and Factors Questionnaire (BTTEFQ) was demographic in nature to collect data from teachers. The teachers were required to tick the appropriate responses applicable to them and answer questions like: Years of experience, sex of the teacher, location of school, highest qualification whether, NCE, B.Sc. (Ed), M. Ed, Ph.D. in Vocational and Technical Education. The instrument was designed by the researcher.

Method of Data Collection

The instruments were administered to the students and teachers sampled from the 30 secondary schools for the study. The co-operation of the principals in each of the schools was solicited.

The instruments were administered within two weeks due to the distance and locations of the schools; the instruments were retrieved on the spot to enhanced maximum return.

Validity of the Instrument

To validate the instruments for data collection, two experts in the Department of Vocational and Technical Education, Faculty of Education in Ambrose Alli University validated the instruments to ascertain if the items were adequate in achieving the purpose of the study. Their suggestions and corrections were used to construct the final draft of the instrument.

Reliability of the Instrument

To ensure the reliability of the instrument, the BTAT was tested for reliability; a group of 60 Junior Secondary (JSS11, class) students were selected randomly for this test. This class was selected because certificate class is not used for study and JSS1are just coming in and so cannot be used for study. This set of students were selected from Urora secondary school in Ikpoba Okha Local Government Area which was not part of the sample selected for this study. The test re-test method was used. The instrument was administered on the students and retrieved. Two weeks later the instrument was administered on the same students again and retrieved. The scores obtained from the first and second administrations were correlated using Pearson product correlation coefficient (r). BTTFQ was used for the collection of demographic data of Basic Technology teachers and so was not tested for reliability.

Method of Data Analysis

The data collected from the schools were analyzed using frequency/percentage to answer the research question while the hypothesis was tested using linear regression.

Research Question 1

What is the influence of teachers' years of experience on students' academic performance in Basic technology in Edo?

Table 5: Percentage Distribution on the years of experience of teachers

	Frequency	**Valid Percent**
Below 10 years	9	27.27
11-25 years	12	36.36
25 years and Above	12	36.36
Total	33^0	$100^0.0$

Table 1 indicated that nine teachers having teaching experience below 10 years responded representing 27.27%, teachers having teaching experience between 11- 25 years responded representing 36.36% while teachers having 25 years and above responded representing 36.36%.

Analysis

Hypothesis:

Teachers' years of experience do not significantly influence students' academic performance in Basic Technology in Edo State.

Table 1: linear Analysis of Teachers' Years of Experience and Academic Performance

Model	Sum of Squares	Df	Mean Square	F	Sig.	Decision
Regression	.583	1	.291	.533	.587[a]	Retained
Residual	816.4					
Total	902.5	1680	.545			

a. Predictors: (Constant), Teachers' Years of Experience

b. Dependent Variable: Academic Performance

Table 1 showed an F-value of .533 and a p- value of .587. Testing at an alpha level of .05. The P-value is greater than the alpha level, therefore, the null hypothesis which states that teachers' years of experience does not significantly influence secondary school student's academic performance in Basic Technology in Edo state is retained.

Discussion of Results

Influence of Teachers Years of Experience on Students' Academic Performance in Basic Technology

The results from the analysis revealed that teachers' years of experience does not have any influence secondary school students' academic performance in Basic Technology in Edo State which means teachers years of experience is not an important factor to predict the performance of students in Basic Technology in Edo State. This result is in line with the finding of Ayugi, Ordera and Muse (2013) reported that there is no relationship between teachers' years of experience and students' academic performance. Nevertheless, the findings of Adeyemi (2010), Oluwakemi and Olukayade (2012) and Kosgei (2013) contradicted the current finding, because the authors found that teachers' years' experience has significant influence on students' academic performance. The findings in Ogweno (2016) revealed a positive relationship between teachers experience and student's academic performance. Similarly, the studies investigated by Adeyemi (2019) and Oluwakemi and Olabanji(2012) corroborate with the findings of the

current study which revealed that teachers years of experience influence students' academic performance.

Conclusion

Influence of Teachers Years of Experience on Students' Academic Performance in Basic Technology is not very important in this case, which means there are other factors which might be responsible for the poor performance of students in the subject.

Recommendations

Based on the findings of this study, it is recommended that:

1. Teachers should be employed based not their years of experience irrespective of whether they are male or female.
2. Edo State Government should ensure that only professional and qualified teachers are employed to teach Basic Technology.

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APPENDIX 1

BASIC TECHNOLOGY ACHIEVEMENT TEST (BTAT)
CLASS: J.S.S.11
TIME: 50 Mins

Instruction: Answer the following questions by underlining the answer please

1. A current which periodically changes its direction of flow is called
   a. Alternating current
   b. Direct current
   c. Changing supply
   d. All of the above

2. Electricity produces magnetism just as magnetism produces electricity
   a. False
   b. True

3. The current from a battery that flows in one direction is known as
   a. Alternating current
   b. Direct current
   c. Leaking current
   d. Battery supply

4. The instrument used for measuring potential difference is
   a. Ohmmeter
   b. Barometer
   c. Ammeter
   d. Voltmeter

5. The instrument used for measuring current is
   a. Ammeter
   b. Ohmmeter
   c. Parallel resistor
   d. Walt

6. Electric generator converts ---------- energy to ---------- energy
   a. Chemical to mechanical
   b. Mechanical to electrical
   c. Electrical to mechanical
   d. Sound to light

7. Water when boiled produces---------- energy
   a. Chemical
   b. Heat
   c. Mechanical
   d. Light

8. Lubricants are used to
   a. Increase friction between two faces
   b. Reduce friction
   c. Increase heat between two rollers
   d. None of the above

9. The most widely used lubricant is----------
   a. Gas
   b. Oil
   c. Water
   d. Petrol

10. Which of the following is a temporary method of fastening metals together?
   a. Riveting
   b. Hard soldering
   c. Welding
   d. Bolt and nut

11. Lubricants must possess the following properties except one
   a. Viscosity
   b. Evaporate easily
   c. Stability against chemical change
   d. None of the above

12. Which of the following is not a metal fastener
   a. Bolts
   b. Screws
   c. Nuts
   d. None of the above

13. Where there is no pincher one of the following tools can be used to remove nails
   a. Ball pin hammer
   b. Spanner
   c. Claw hammer
   d. Cross pein hammer

14. Moisture content is referred to as----------
    a. Wet wood
    b. Dry wood
    c. The amount of water inside the wood
    d. Amount of water outside the wood

15. The squareness of a job wood work is checked with the
    a. Try square
    b. Marking gauge
    c. Metre square
    d. Rule

16. Which of the following is not a metal fasten
    a. Bolts
    b. Screws
    c. Nuts
    d. None of the above

17. One of the following is not a hand tool
    a. Matchet
    b. grader
    c. hoe
    d. spade

18. To clear and prepare a thick bush for building site, which of the following combination of tools will you choose?
    a. Matchet and hoe
    b. Spade and axe
    c. Chain saw and matchet
    d. Bulldozer and grader

19. A mechanical plant used for the final leveling of excavated area is
    a. Shovel
    b. Grader
    c. Pay loader
    d. Spade

20. When termites and ants are found on construction site, they should be
    a. Left alone
    b. Destroyed with chemical
    c. Shift the building site to other area

d. All of the above

21. When a construction site is sloppy---------- may be erected at different ground level
    a. Gutter
    b. Zersee
    c. Terrace
    d. Foundation block

22. The following tools are for setting out building except……
    a. Tapes
    b. Pegs
    c. Shovels
    d. Twin's ropes

23. In site preparation, excavation means.
    a. Filling the trench when the foundation footing has been cast.
    b. Removing debris from the site
    c. Digging up earth to the required depth width and length
    d. Destroying termites and ants on building site

24. The methods of producing plastic do not includes
    a. Isometric molding
    b. Compression molding
    c. Extrusion process
    d. Transfer molding

25. Alloy metal is……..
    a. Metals and Sand
    b. Copper and Zinc
    c. Copper and Sand
    d. Metal and Ferrous

26. Glass is made of ……..
    a. Sand and Potash
    b. Sand and Water
    c. Sand and Cement
    d. Sand and Clay

27. Clay is used for the manufacturing of ……..
    a. Potash
    b. Ceramic article
    c. Glass article
    d. Ferrous oxides

28. Kiln is used for timber
    a. Banking
    b. Coloring
    c. painting
    d. Felling

29. Knot in trees does include
    a. Margin Knot
    b. Cola Knot
    c. Splice Knot
    d. Edge Knot

30. Stainless steel contain
    a. Wood and Metal
    b. Metal and Oil
    c. Iron and Sand
    d. Chromium and Mickel

31. Natural rubber is gotten from
    a. Latex
    b. Thermoplastic
    c. Clay
    d. Potter' wheel

32. Synthetic rubber is also called
    a. Organic
    b. Latex
    c. Elastomer
    d. Compression

33. Bessemer converter is used to produce
    a. Clay
    b. Furnace
    c. Steel
    d. Oxygen

34. Which of the is not a characteristic of dimensioning
    a. Diameters
    b. Lengths
    c. Angles
    d. Right

35. Which is not a method of drawing solid objects.
    a. Pictorial
    b. Isometric
    c. Cylinder
    d. Oblique

36. Which is not an example of base of a pyramid.
    a. Rectangular
    b. Hexagonal
    c. Triangular
    d. Isometric

37. Which is not a geometrical solid object
    a. Prism
    b. Sphere
    c. Chain
    d. Pyramids

38. What differentiates a cone from a pyramid is
    a. Curved surface
    b. Circular surface
    c. Solid surface
    d. Slope surface

39. Circular saw is used to cut the following exact
    a. Riving
    b. Tenoning
    c. Grooving
    d. Rebating

40. When making an Isometric projection of an object the following are important exert
    a. length
    b. Breadth
    c. Height

d. Weight

41. . ……is sphere
    a. Ball
    b. Block
    c. Cylinder
    d. Table

42. ……is the main function of first aid
    a. Worse life
    b. Destroy life.
    c. Save life.
    d. Make life useless.

43. A first aider should do the following.
    a. Take steps to prevent further accidents
    b. He should not move an injured person unnecessary
    c. Retore breathing by mouth-to-mouth resuscitations

44. Which of the following is among the voluntary aid societies
    a. Bread
    b. The Nigeria Red Cross
    c. Driver Association
    d. Academic Staff Union

45. …….. is among the materials found in a first aid box
    a. White bandage
    b. Iodine solution
    c. Rolls of cotton wood
    d. All of the above

46. Which of the following is not necessary in a first aid box?
    a. Pair of scissors
    b. Adhesive
    c. Iodine solution
    d. stethoscope

47. When there is an accident in the workshop…. is bound to take place.
    a. An injury that could lead to death.
    b. The machine is protected.
    c. There is no problem.

d. The instructor smiles.

48. ---------- is not a workshop safety device
a. Hand gloves
b. Goggles
c. Long sleeved shirt
d. Overall

49. ---------- is one of the causes of accident in the workshop
a. Carelessness
b. Using the right tools
c. Proper dressing
d. Proper workshop layout

50. Quadrants interest at an angle of……
a. 90^0
b. 60^0
c. 30^0
d. 40^0

APPENDIX II

ASWERS TO THE BTAT

1	A	26	A
2	B	27	B
3	B	28	A
4	D	29	B
5	A	30	D
6	B	31	A
7	B	32	C
8	B	33	C
9	B	34	D
10	D	35	C
11	B	36	D
12	D	37	C
13	C	38	A
14	C	39	A
15	A	40	D
16	B	41	D
17	B	42	C
18	D	43	C
19	B	44	B
20	B	45	B
21	C	46	D
22	C	47	A
23	C	48	A
24	A	49	C
25	B	50	D