

A Relational Study of Students' Academic Achievement of Television Technology in Technical Colleges in Delta State of Nigeria

Kennedy E. Umunadi, Ph.D.
Delta State University

Abstract

This study examined the relationship between the male and female students' academic achievement in the subject of television in urban and rural technical colleges in Delta State. There are two research questions and one null hypothesis formulated to guide the study. The population for the study consists of 731 students of the six technical colleges in the Delta State offering Television Technology as a subject. No sampling was conducted due to the small number of students involved in the study. The two research questions were answered using percentages while the null hypothesis was tested using ANOVA at 0.05 level of significance. The findings revealed that males performed better than their female counterparts. It was also revealed that urban students performed better than their rural counterparts in NABTEB examinations in 2005 and 2006 respectively. There is no significant difference in the mean scores of male and female students in television subjects in technical colleges. There is a significant difference in the mean scores of students in television in urban and rural technical colleges. Based on these findings, it was recommended that teachers should teach the practical and theoretical aspect of the television subject to improve the academic achievement of students.

Kennedy E. Umunadi, Ph.D., is in the Technical and Business Education Department at Delta State University, Abraka, Nigeria. He can be reached at kedinad@yahoo.com, or kennedyumunadi2@gmail.com.

Introduction

One definite thing expected of the educational institution to provide training to meet the demand for the human resource needs of the nation. The training of youth in the technical college aims at equipping them with useful skills and improving their knowledge in their desired areas of study. One such educational program that provides the youth opportunity to acquire skills and knowledge for effective nation building is the technical education program conducted in technical colleges.

Electronics training provides the youth with the practical skills in works pertaining to radio, television, telecommunication, electronic devices and circuit services. However, it has been discovered that the persistently poor performance of students emanates mainly from the inappropriate teaching methods adopted by technical education teachers in the instruction of television.

The realization of the objectives of technical college television programs and to improve students' performance depends to a large extent on a number of factors. These factors include the availability and adequate supply of qualified teachers, provisions of television equipment and facilities, proper implementation and usage of technical education textbooks on television. Blundan and Reddish (2003) explained a television set as electronic equipment that requires a supply of electrical energy from the mains to be converted among other things, into light from the screen and sound from the loudspeaker. But this can only form a meaningful picture and message if there is a further supply of electrical energy to the aerial socket at the back of the television set. They further explained that this can either be, as originally intended, from an aerial picking up energy from electromagnetic radio waves sent out by a television transmitter, or it can be from a video

recorder producing a similar energy pattern from programs stored on magnetic tape. In both cases, this second energy supply is called a signal because the amount of energy involved is tiny compared with that supplied from the mains, but it fluctuates in a patterned (coded) way; this ensures that a particular transmitter (or video channel) can be separated out from the others. Therefore, the conversion of main energy into light and sound can be controlled so that the required pictures and speech or music are reconstructed. Thus, a television set is another energy conversion device, to set alongside the machines and heat engines which have contributed so much to the industrial and social fabric of the developing and developed world over the last three centuries.

Technical college students are familiar with radios, televisions, computers, pressing irons, refrigerators and other electronic devices. In this study, knowledge and repair skills of television sets are the basis of modern electronics maintenance and servicing trade and have found wide application in technical colleges (Yalam & Fatuku, 2007). They further pointed out that it is important to familiarize students with the knowledge of television technology because the knowledge of the device is relevant and useful in learning technical subjects. It has been observed that despite the usefulness of television technology the subject in the technical colleges has been on the decline (National Business and Technical Examination Board, NABTEB 2004). One of the reasons for this decline in achievement is due to lack of electricity and funds for teaching of the subjects. The teacher's mode of instruction and the use of television sets powered by batteries, standby generators, and solar energy to cater for the electricity problems in line with each topic, objective, content activity and specific task in the National Business and Technical Examination Board (NABTEB) syllabus that are applicable for teaching television subject could improve the situation.

Doramola and Emmanuel (2000) stated that most Television Technology technical college graduates experience prolonged trial and error, and consequently perform poorly at the National Technical Certificate Examination (NTCE) and labour trade test examination. Daramola and Emmanuel further pointed out that this unsatisfactory situation could lead to breakdown in the economic, industrial, technological and educational growth of Delta State, since the main goal of technical education is to achieve self reliance. The insistence by these researchers, Doramola and Emmanuel (2000), and Yalam and Fatuku, (2007) suggested the need for this study because of the challenges of increased unemployment (Faruk, 2005).

There is need to investigate the effect of students' academic achievement in television in technical colleges in Delta State. Hence, a study of academic achievements of students in this area appears desirable.

Statement of the Problem

It is apparent that there is an astronomical decline in students' academic achievement in television in technical colleges in Nigeria. Lack of success can lead to inappropriate behavior and frustration on the part of students (Igbo, 2007). In technical colleges, teachers are faced with the task of placing the students in an educational setting tailored to the students' learning. The setting in which services are provided has a strong influence on the academic achievement of the students.

A number of reasons or factors have been found to have contributed to students' poor achievement. Some of these factors include students' study habits and teaching methods used by the teacher in the teaching-learning process (Yalam and Fatiku, 2007: 88). However, some researchers have

attributed the poor performance of students to gender, as it is believed that technical trades and related tasks belong to male students. This is reflected in the ratio of male to female student enrollments in technical colleges. They further stated that the environment (urban and rural setting) also influences the academic achievement of technical college students as facilities are not available in rural locations. It appears to the researcher that students' academic achievement in television has been dwindling in recent times and the situation calls for immediate attention in order to arrest this deplorable situation. It is expected of the technical colleges to provide trained manpower in applied technology, particularly crafts and advanced crafts and to provide individuals with knowledge and vocational skills necessary for agricultural, commercial and economic development. It is also meant to provide training and impart the necessary skills on individuals who shall be self-reliant economically (FRN, 2004).

It appears that individuals expected to acquire the knowledge and skills stipulated by the national policy education document are graduating from the technical colleges with unsatisfactory performance. As recorded in NABTEB (2002) from the chief examiner's report, basic electricity students who sat for the examination performed very poorly. Additionally, NABTEB certificate research conducted in Radio, Television and Electronics, May/June, 2004 recorded a 30% failure rate in radio communication, a 60% failure rate in television, and a 27% failure in electronics devices and circuits (NABTEB, 2004). The National Business and Technical Education Board Report (NABTEB, 2004), Grade Distribution from 2000-2003 May/June results revealed failure of 46% of the students who sat for the examination in basic electricity. This raises more questions as to whether or not adapting and understanding their teachers' instructions, there are such factors as issues of males and females, and the enrollment of

students in urban and rural areas which also influence this ugly trend. Thus, a correlation study of male and female student's academic achievement in television in urban and rural technical colleges is desirable.

Purpose of the Study

The major purpose of this study is to compare male and female students' academic achievements in television in urban and rural technical colleges in Delta State.

Specifically, the study was meant to:

- Determine any difference in academic achievement of male and female students examined in the television subject in technical colleges in Delta State.
- Determine any difference in academic achievement of students examined in the television subject in urban and rural setting.

Research Questions

The following research questions guides this study.

1. What is the academic achievement of male and female students examined in television subject in technical colleges in Delta State?
2. What is the academic achievement of students examined in television subject in urban and rural technical colleges in Delta State?

Hypothesis

There is no significant difference in the mean academic achievements of male and female students in the television subject in urban and rural technical colleges in Delta State.

Method

Research Design

This study was a survey work which was designed to enquire into and provide information about the achievement of male and female students examined in television subject in urban and rural technical colleges in Delta State.

Area of the Study

The area of study was Delta State. The state has 25 local government areas with six technical colleges.

Population of the Study

The population of the study consisted of students in six technical colleges offering television technology as a subject in the 2005 and 2006 examination year.

- Agbor Technical College, Agbor had **139** students,
- Government Technical College, Issele-Uku had **122**,
- Sapele Technical College, Sapele had **134**,
- Ofagbe Technical College, Ofagbe, Sapele had **102**,
- Ogor Technical College, Otorog had **100** and
- Utagba-Ogbe Technical College, Utagba-Ogbe had **134** students.

The information on the student population in each technical college was provided by National Business and Technical Examination Board (NABTEB).

Sampling and Sampling Techniques

No sampling was done. All the students in the six technical colleges were used in the study.

Table I
 Institution, Population and Location of Urban and Rural
 Technical Colleges

S/N	Institution	2005 Population	2006 Population	Location
1	Agbor Technical College, (ATC)	80	59	Urban
2	Government Technical College, Issele-Uku (GTC)	68	54	Rural
3	Sapele Technical College, Sapele (STC)	67	67	Urban
4	Ofagbe Technical College, Ofagbe (OFTC)	46	56	Rural
5	Ogor Technical College, Otogor (OTC)	55	45	Rural
6	Utagba-Ogbe Technical College, Utagba-Ogbe (UTC)	69	65	Urban
	Sub-Total	385	346	
	Grand Total	731		

Table I shows the institutions, population of each technical college and their different locations. It was shown in Table 1 that technical colleges close to urban areas are 1st, 3rd and 6th, while the rural technical colleges are 2nd, 4th, and 5th.

Instrument for Data Collection

The documented examination results of National Business and Technical Examination Board (NABTEB) in the 2005 and 2006 examination of six technical colleges in urban and rural settings was the major instrument used at bringing out answers to the research questions raised and the hypothesis formulated in the study.

Validity of the Instrument

National Business and Technical Examination Board (NABTEB) subjected the scores of the students to face and content validation by the experts and professionals in the field of television and electronics.

Reliability of the Instrument

The instrument of the study was established using Kuder-Richardson Formula 20. It was used to establish the internal consistency reliability of the instrument. The 2002 NABTEB examination scores were obtained and used to compute the internal consistency reliability estimates of television subject. The reliability estimate gave the value of 0.79.

Method of Data Collection

The documented examination results of NABTEB of 2005 and 2006 May/June were collected by the researcher from the Asaba office of the Board from the statistics on students'

academic achievement in the subject of television in the six technical colleges in Delta State. The report was contained in NABTEB, NTC, NBC May/June 2005 and 2006.

Method of Data Analysis

The stated research questions one and two were answered using percentages. The hypothesis one was tested using the Analysis of Covariate ANOVA because institute and agenda provided the grouping variables and test scores provides on interval.

Decision was established based on rejection of null hypothesis, if the calculated value exceeds the critical value; otherwise the alternative hypothesis should be upheld.

Results

Research Question 1

What is the academic achievement of male and female students examined in television subject in technical colleges in Delta State?

Table II
 Mean and Standard Deviation of Male and Female Students
 Academic Achievement Examined in 2005 and 2006 NABTEB
 Examination in Television Subject

Gender	Mean	N	Std. Deviation
2005 Male	48.1439	278	13.29888
2005 Female	48.5000	110	13.62725
2006 Male	48.6195	297	11.49971
2006 Female	53.3261	46	14.42383
Total	48.7168	731	12.75772

Table II reflected data of computed scores in 2005; the male students had a mean of 48.1439 with standard deviation of 13.29888, while females had a mean of 48.5000 with standard deviation of 13.62725. In 2006, male students had a mean of 48.6195 with standard deviation of 11.49971 while females had a mean of 53.3261 with standard deviation of 12.75772. In all, Table II reflected a mean of 48.7168 with a standard deviation of 12.75772.

Research Question 2

What is the academic achievement of students examined in television in urban and rural technical colleges in Delta State?

Table III
 Mean and Standard Deviation of Students' Academic Achievement in Television Subject Examination in Urban and Rural Technical Colleges

Location of students	Mean	N	Std. Deviation
Students in urban technical colleges	50.2500	404	14.28857
Students in rural technical colleges	46.8226	327	10.27441
Total	48.7168	731	12.75772

In Table III students in urban technical colleges had mean scores of 50.2500 with a standard deviation of 14.28857, while students in rural technical colleges had the mean score of 46.8226 with a standard deviation of 10.27441. In urban and rural locations, the students had a mean of 48.7168 with standard deviation of 12.75772.

Hypothesis 1

There is no significant difference in the mean academic achievements of male and female students in television subjects in urban and rural technical colleges in Delta State.

Table IV

Summary of Analysis of Covariate (ANOVA) of Male and Female Students Scores in Six Technical Colleges in Television Subject in 2005 and 2006 NABTEB Examination

Student scores on television subject * Gender

	Between Groups (Combined)	Within Groups	Total
Sum of Squares	1076.523	117737.860	118814.383
df	3	727	730
Mean Square	358.841	161.950	
F	2.216		
Sig.	.085		

$P < 0.05$

Measures of Association

	Eta	Eta Squared
Students scores on television subject * Gender	.095	.009

The analysis of variance of students' scores on television subjects by gender shown in Table IV did not reveal any significant difference. The Table reflected the $P=0.085$ as value computed and F-calculated as 2.216 with 0.05 as a set significant value in the study. Therefore, the students' scores are not associated with their gender. This is supported by the weak measure of association (Eta=0.095 and Eta squared value of 0.009).

Hypothesis 1

There is no significant difference in the mean academic achievement of male and female students in television subject in urban and rural technical colleges in Delta State.

Table V

Summary of Analysis of Covariate (ANOVA) of Urban and Rural Students' Scores in Six Technical Colleges in Television Subject in 2005 and 2006 NABTEB Examination

ANOVA Table

Students scores on television subject * Location of students

	Between Groups (Combined)	Within Groups	Total
Sum of Squares	2122.920	116691.463	118814.383
df	1	729	730
Mean Square	2122.920	160.071	
F	13.262		
Sig.	.000		

$P < 0.05$

Measures of Association

	Eta	Eta Squared
Students scores on television subject * Location of students	.134	.018

The analysis of variance of student scores on television subject by location (urban and rural) shown in Table V

revealed a significant difference of ($P=0.000$) between the urban and rural students in terms of location. This is reflected in the strong measure of associated ($\text{Eta} = 0.134$) and Eta squared value of 0.018, indicating that students' academic achievements are strongly associated with their urban and rural technical colleges.

Discussion

The findings of research Question One revealed that students performed below expectation in the subject of television. In other words, there was a consistently high failure rate in the television subject in 2005 and 2006 NABTEB examination under consideration. Anakwe (2008) revealed in his study that students' academic achievement below average and linked with the student's loss of control and poor school adjustment found in his study habits. Anakwe supported the earlier findings of the study that found performance of students in different technical colleges below expectation.

Research Question Two revealed that there is a difference between the urban and rural students. Anakwe further stated that adjustment of students to school environment (urban or rural) is an important requirement of the life, and efforts should be directed in schools towards making school environments more child-friendly and motivating students to participate in both curricula and extra curricula activities. This may go a long way in improving students' academic achievement and attitude towards work within the technical colleges and the external examination. The mean and the standard deviation analysis of students' academic achievement in television subject indicated that the general proportion of the students had a high failure rate in the examination. A majority of the students were found to be 50 percent below average

performance. Umunadi (2009) proffered reasons why there are discrepancies in academic achievement when he said that the discrepancy in performance is that the urban students are exposed to extra-moral lessons, extra-practical orientation during and after school periods and this might enhance their academic achievement in technical college. The hypothesis revealed the analysis of variance of students' scores on television subjects by gender did not reveal any significant difference. The hypothesis revealed that there is a significant difference between the urban and rural technical college students, from the results of 2005 and 2006 tested in the study. It can be inferred that the difference in academic achievement can be a result of students' background and the location of the technical colleges.

Recommendations

Based on the findings of the study, the following recommendations were made for sustainable development in television subjects.

1. Intensive extra-moral class should be organized for television subject students to assist them improve their academic achievement in the external examination.
2. Institutions should strive towards effective instruction theory and practice to enhance academic achievement of students in television subject for sustainable development.
3. Textbook, CD ROM, and internet facilities should be provided for the television subject in technical colleges to enable students to update their knowledge in this area to prepare and pass the subject during the NABTEB examination.

4. Teachers should be given in-service training to update their knowledge in television subject, instructional methods in the classroom and workshops to assist them in teaching the students effectively to improve their academic achievement in the NABTEB examination.
5. Past questions of NABTEB examinations should be used to teach the students during revision and normal class sections to expose the students to the methods of approach and answering the NABTEB questions.

Conclusion

Conclusively, the study attempted to find the relationship between the male and female students' academic achievement in television technology in urban and rural technical colleges. An attempt was also made by the researcher to examine the academic achievement of students in the six technical colleges in Delta State. A survey design was adopted to collect data from 385 and 346 students in 2005 and 2006 examination year respectively. Two research questions and one null hypothesis guided the study.

The study revealed the following findings: that there are high failures rates of the male and female students in the urban and rural technical colleges. There is no significant difference in academic achievements of male and female students in television subject in technical colleges. It was also revealed in the findings that there is a significant difference in the academic achievement of students in urban and rural technical colleges. Based on the findings, it was recommended that intensive teaching, coaching, using past questions of NABTEB examination in the classroom, and extra-moral classes to

improve the students' academic achievement in external examination, among others, be implemented.

References

- Anakwe, A.I. (2008). The Resilient Effects of Locus of Control and School Adjustment on Academic Performance of Senior Secondary-Student in Plateau State. *Nigerian Journal of Teacher Education and Teaching*. 5 (2)
- Blunden, J. and Reddish, A. (2003). *Energy Resources and Environment*. London Hodder and Stoughton. Pp. 3-5.
- Daramola, I.S. (2000). Knowledge and Skills Possessed by Technical College Graduate of Building Trade in Taraba State. *Journal of League of Researches in Nigeria*. 4(1).
- Emmanuel, D.G. (2000). Lecture Note on Television Trouble Shooting Principles for Technical College Students. Buruku, Plateau State.
- Faruk, I. (2005) Education for Self-Reliance Being the 2005 Annual Lecture organized by National Association of Political Science Students (NAPSS). University of Chapter Plateau State. Daily Trust, March 3, 2005.
- Federal Ministry of Education (2000). *The National Master Plan for Technical and Vocational Education (TVE) Development in Nigeria in the 21st Century*. Abuja, FME Publication.
- Federal Republic of Nigeria (2004). *National Policy on Education (4th Ed)*. Lagos: Nigerian Educational Research and Development Council (NERDC).

- Igbo, J.N. (2007). Strategies for Enhancing Teaching and Learning in Tertiary Institutions: A Study of the University of Nigeria, in Nworgu, B.G. (Ed) *Optimization of Service Delivery in the Education Sector: Issues and Strategies*.
- National Board for Technical education (NBTE, 2004) Revised National Technical Certificate (NTC) program radio, television and electronic servicing work curriculum and course specification.
- National Business and Technical Examination Board (2002). *May/June 2002/2003 NTC/NBC Examination Report*. Benin City: Festa Printing Press.
- National Business and Technical Examination Board (1999-2003). *Grade Distribution Sheets*. Benin City. NABTEB Office.
- National Business and Technical Examination Board (NABTEB, 2003-2006). *Statistics on the Number of Students that enrolled Basic Electricity in the (NABTEB) Examination from 2003-2006 in Delta State*, Benin City: NABTEB Office.
- Odogwu, H.N. (1995). The Effects of Laboratory Approach on the Performance and Retention of Different Ability Groups in “2” and “3” Dimensional Geometry. *Journal of Study in Curriculum*. 59 (1, 2).
- Umunadi, E.K. (2007). Effect of Teacher-constructed Circuits on students’ achievement in basic electricity in technical colleges in Nigeria international journal of scientific research in education (IJSRE) manuscript #:03-2009-06-RV.
- Yalams, S.M. and Fatokun, J.O. (2007). Effect of builder discovery approach on students’ performance in RTV fault diagnosis and repair skill at the technical college level in Nworgu, B. G. (Ed) *Optimization of Service Delivery in Education Sector: Issues and Strategies*.