

**FACTORS AFFECTING THE PERFORMANCE OF
STUDENTS IN TECHNICAL DRAWING**

**(A CASE STUDY OF GOVERNMENT TECHNICAL COLLEGE ASSAKIO)
NASARAWA STATE**

BY

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APPROVAL PAGE

This project has been read and approved as meeting the requirement for award of Post Graduate Diploma in Industrial and Technology Education of the Department of Industrial and Technology Education, Federal University of Technology, Minna.

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I certify that, this project was carried out by Tigah Musa Salihu PGD/TTE/06/2000/2001. It has been read and approved as meeting the requirements of department of industrial and technology education, Federal University of Technology, Minna for the award of Postgraduate Diploma (PGD) industrial and technology education.

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DEDICATION

This project is dedicated to:

The Almighty Allah

My late Parents

My Family.

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This page won't be complete without expressing my sincere gratitude to Nasarawa State Government for releasing me to pursue this course. I wish you all ALLAH'S blessing. Finally, thanks to Allah once again for sparing my life till today.

ABSTRACT

The project was conducted to find out the factors affecting the low performance of students in technical drawing (a case study of Government Technical College Assakio, Nasarawa State). It has been noticed that only 20% passed technical drawing in 1997 and 27% passed in 1998. To elicit the pertinent information for the study, two set of questionnaires were drawn, one for the teachers and the other for the students to find out factors that contributed to this low percentage. Data collected were analyzed based on the average mean of responses and conclusions were drawn showing that the performance of students has been poor due to lack of teaching materials and facilities, lack of trained teachers and those even trained are not keen in teaching because the facilities were not effective teaching of the students. Based on the findings the researcher recommended among others that Government should supply instructional materials to the technical college, the teachers should be given enough orientation in the area of production and utilization of materials. And professional trained technical teacher should be employed to teach technical drawing subject, for proper application of skills in technical drawing.

CHAPTER I

INTRODUCTION

BACKGROUND OF THE STUDY

The idea of communication in those early days were carried out either orally or through pictures. When they wish to record an idea, they made pictures upon skins, stones walls of caves or on whatever materials available.

From the start of time, there was no knowledge of technical drawing to express ideas because in ancient times nearly everybody was illiterate. People learned by listening to their superiors and by looking at sculptures, pictures and drawings. Even so at the time when the colonial masters introduced the formal, system of education, a lot was still desired because they did not take into consideration the needs and aspirations of the Africans. They ignored completely the aspect of technical education. "It might be deliberate or not". It is government's wish as stated in the new policy on education (1977) that any existing contradictions, ambiguities and lack of uniformity in educational practices in the different parts of the federation should be removed to ensure an even and orderly development in the country. Government has also stated that for the benefit of all citizens in the country's educational goals in terms of its relevance to the needs of the individual as well as in terms on the kind of society desired in relation of the environment and the realities of the modern world and rapid social changes, educational objective are clearly set out.

Before the introduction of the new national policy on education (1977) there were in existence crafts schools, trade centers and technical schools offering vocational subjects. The technical subjects identified are woodwork, metal work, Auto-mechanics, electronics, electrical installations and technical drawing which forms the basis of all these subjects.

The main objectives of vocational and technical education as contained in the national policy on education (1977) is to give trained and impart the necessary knowledge and skills leading to the production of craftsmen, technicians and other skilled personnel's who will be interpreting and self-reliant. However, the knowledge will be narrowed if technical drawing which forms the basis of all technical subjects is not properly taken care of by finding solutions to its problems.

Government technical college Assaikyo was established in (1982), as a literary institution but was converted to a technical institute in 1993. The performance of students in technical drawing in National Technical Certificate (NTC) examination has been a disturbing issue to both the authority and parents. The results of 1997 and 1998 showed that only 20% of the students who sat for technical drawing passed in 1997, while only 27% passed in 1998.

PURPOSE OF THE STUDY.

The purpose of the study is to do the following.

1. To provide possible solutions to the problem affecting the performance of students in technical drawing.
2. To find out whether the teachers' qualification has any effect on the performance of students in technical drawing in the school.
3. To find out whether students' background has anything to do with their performance in technical drawing.
4. To find out what role the government is playing to improve the performance of students in technical drawing.

THE SCOPE OF THE STUDY.

The researcher is limited to Government Technical College, Assaikyo (Nasarawa State), which is the only technical school in the state as at the time of carrying out this research work. This is hoped that by the time this study is successfully carried out, it will be of benefit to the school, parents, state and likely the entire nation.

SIGNIFICANCE OF THE STUDY

It has been identified that the performance of students in technical drawing has not been encouraging. The researcher discovered that there has never been a study carried out on the topic. The study will also go a long way to highlight the school authority on its roles in ensuring that the performance is

improved. The government in general will also be advised on what it should do to improve the situation in our schools.

RESEARCH QUESTIONS

The study is intended to answer the following research questions

1. What are the causes of students low performance in technical drawing subject?
2. To what extent has the background and interest of students affected their performance in technical drawing subject?.
3. Are there enough facilities and equipment for proper teaching of technical drawing to enhance students performance?
4. What are the roles that Government should play to boost the morale of students in technical drawing subject?

HYPOTHESES

The following null hypotheses were formulated to guide the study:

- Ho₁ There will be no significant difference between the mean responses of teachers and students with respect to teaching materials and qualification of teachers on the effective teaching of technical drawing.
- Ho₂ There will be no significant difference between the mean responses of teachers and students with respect to student's background and interest on their performance in technical drawing.

LIMITATIONS

- ❖ The study was limited to Government Technical College Assaikio, being the only technical institution in the state. The target population is made of students and staff of the above-mentioned school.
- ❖ The questionnaire method, which was used, for data collection was limited to some specific answers which can hardly described the real life situation. This situation was further worsened by the fact that students have inadequate comprehension of the English Language and cannot express themselves clearly in writing.

The conclusion drawn in the light of the data collected and analyses were based on the statistical aggregates of the resources received.

- ❖ Any research work involves a lot of time and finance; these were some of the limitations the researcher of this project encountered.

CHAPTER II

REVIEW OF RELATED LITERATURE

In this chapter, relevant literature, related to this study were discussed. It is however, in this chapter that gave the researcher the insight concerning the chosen topic. It also gave the researcher a clue on how work has been done in regard to this study. Thus this chapter was discussed under the following sub-headings.

1. The need for the teaching of technical drawing in schools.
2. Problems of teaching technical drawing in schools.
3. Provision of equipment for the teaching of technical drawing
4. Training of personnel for the teaching of technical drawing.

THE NEED FOR THE TEACHING OF TECHNICAL DRAWING IN SCHOOLS.

The teaching and learning of technical drawing has been an aged long practice geared towards training students for the skill of drawing. It is believed that with sufficient knowledge of the subject the students will develop into competent engineers, draughtsman, architectures and technicians occupying very important organizations.

The drawing according to Awojobi (1976) is a short hand language which is described by means of drawing as precisely as possible, what ever has been manufactured.

Technical drawing is a graphical representation of a real thing on idea or a propose designed for construction later. Parkison (1968) also defined technical drawing as “a means of communication by draughtsman, designers, engineers e.t.c. To convey their ideas to the production personnel”.

Technical drawing being a living language is primarily concerned with accurate technical descriptions and instructions. Technical drawing is a language connecting all kinds of technical production and it has to be mastered by both the technicians and manufacturers.

Douglas (1976) on the importance of technical drawing stated that highly skilled men would have improved both their efficiency and prospects of promotion if they were able to read fluently and interpret technical drawing. All practical men find it advantageous to study the grammar of the graphic language and, as every, experienced teacher of technical drawing knows the best way to learn to read a drawing. Awojobi (1976) tracing the need for everyone to have knowledge of technical drawing stated that a basic knowledge of technical drawing is desirable for every student who has passed through, a secondary school. Whether he aspires to be a lawyer, doctor, economist, politician policeman or a man of another profession, he will need to develop the ability to express himself through simple drawings.

The manufactured item may not function if the design was not perfectly drawn Giessoke (1980) suggested that. " The engineer or designer must be able to create stresses, analyze motion, specify materials and protection methods make design layout and supervise the preparation of drawings and specifications that will control the numerous details of production, assembly and maintenance of the products". This shows that the knowledge of the technical drawing is needed not only to architect, draughtman e.t.c. but to every aspect of life. Since technical drawing is means of communication used to convey ideas to whoever is concern in any organization. Despite the fact that is seen, and its important, the schools are faced with numerous problems in the teaching of the subject as the literature review below shall show.

PROBLEMS OF TEACHING TECHNICAL DRAWING IN OUR SCHOOLS

Most of our schools and colleges are not only experiencing qualified technical and science teachers but also lacking basic facilities such as books, libraries, drawing rooms. This has most likely resulted to poor teaching. Literature by educationalist such as Fafunwa, (1984) who stated that the major problem in Nigeria educational system has been low priority accorded technical/vocational education which include inadequate teaching materials, lack of in service training for teachers, lack of library facilities and lack of

students interest teachers that are not trained cannot motivate students' and will not know the basic needs for the programmes.

Ostrowsky, (1979) emphasized that "technical drawing is an important subject that should be strongly emphasized in our educational system. Since education is the means whereby the society can be molded through experiences. Fufunwa, (1984) noted on re-organization of experiences to direct the courses of subsequent experiences. The aim of education should be determined by socio-economic need of an individual. The essence of education is to develop on individual to the fullest and equip him with such abilities and skills that would enable him develop all aspect of his society. The techniques and methods used to teach student determine the performance of students. This techniques depend on the teacher, his individual artistry and on the compensation of the class. "

Blair, (1984) on the teacher role in teaching said that teachers of high achieving students are good classroom managers. He also noted that student fail to master their skills if they do not spend a large percentage of productive time working with the teacher and materials.

Schronel, (1981) noted that any programme of instruction that does not arose device in the children to read and comprehend by themselves must surely be failure. He went further to say that the children are not benefit if they are not motivated to arose their interest.

PROVISION OF EQUIPMENT FOR THE TEACHING OF TECHNICAL DRAWING.

Educationists have come to realize that the traditional methods of teaching by lectures usually resulted in students memorizing mean-less words and symbols. The application of instructional material which make teaching and learning more dynamic and realistic will obviously foster better on effective education.

Douglas, (1976) writing on equipment planning facilities in school shop stated that "equipment must be selected on the basis of its contribution to and compatibility with instructional programme". For equipment to be functionally valid, it must be selected according to its potential for the educational development of the students as well as production.

Solansky, (1981) suggested a solution by saying that "the government need to increase funding and secondly it should go into partnership with industries to create the environment for the production of capable work force.

Instruments are vital assets to a designer. Farzer, (1976) suggested that student should be advised to purchase the best available instruments that they

Usually required for technical drawing subject.

TRAINING OF PERSONNEL FOR THE TEACHING OF TECHNICAL DRAWING.

Technical teachers shortage has direct implications on the success or otherwise of the goals and objectives of technical and vocational education. The success of technical education depends on a very large extent on the supply of adequately trained technical teachers in terms of quality and quantity.

Despite the high number of technical training institutions presently functioning, our schools are still facing the acute shortage of teachers.

Fafunwa, (1974) observed, “ technical education has had a slow start and developed less quickly than other forms of education in Nigeria. The production of a nation workforce capable of transforming the nations technological development cannot be done in the absence of adequate and qualified teachers.”

Ivowi (1987) suggested that the training of teachers should be directed towards the six vital areas; subject matter, pedagogy, still processes, resourceful, behaviour motivation and evaluation. From the journal of technical teacher education (1992) he stated, “ Technical as well as business skills are in short supply”.

Ivowi (1987) also noted that there is the need for supplementing formal education with relevant technical and industrial training programme in order to develop the country technologically.

Ivowi (1987) also noted that there is the need for supplementing formal education with relevant technical and industrial training programme in order to develop the country technologically.

It is therefore duty of training colleges and universities that specializes in the training of technical teachers, to provide necessary materials and encouragement to meet the colleges.

CHAPTER THREE III

METHODOLOGY

This chapter states clearly the design of the study. It describes all the procedures adopted. The information presented covered the following:

- (a) Research design.
- (b) Area of study.
- (c) Population of the study.
- (d) Sampling techniques.
- (e) Instrument for data collection.
- (f) Validation of the instrument.
- (g) Administration of the instrument
- (h) Data Analysis.

RESEARCH DESIGN

This research is a descriptive type of research where survey is made to ascertain the present factors affecting the performance of students in technical drawing subject in Government technical college Assakio, Nasarawa State.

AREA OF STUDY

This study will cover the five (5) departments in Government Technical College Assakio. These consisted the following departments. Building, furniture craft, Fabrication and welding, Automobile mechanic, Agricultural equipment and maintenance. All these departments offer Technical drawing as a subject

POPULATION OF THE STUDY

The population for the study comprised of fifteen (15) technical drawing teachers and Eighty (80) students from the five departments in Government Technical College Assakio, Nasarawa State. This is because Assakio is the only technical college in the State at the time of this research.

SAMPLING TECHNIQUES.

The selection was done randomly. Out of twenty five (25) technical drawing teachers in the school, only fifteen (15) of them were used for the study. And for the students only eighty (80) out of one hundred and fifty students were used for the study.

INSTRUMENT FOR DATA COLLECTION

The questionnaire was used for the data collection the choice of this instrument is considered appropriate for this study because it

covers all the related research questions and is simple to answer by the respondent. A total of thirty (30) questions were administered to teachers and students of Government Technical College Assakio. A modified four-point likert-scale with a four response categories of strongly agree (S.A) Agree (A), Disagree (D), and strongly disagree (S.D.) was used in the study to obtain responses from the respondents

VALIDATION OF THE INSTRUMENT.

The instrument for *data* analysis in this research work was validated by the researcher's supervisor. The work has also been scrutinized and structured by experience lecturers and all correction effected.

ADMINISTRATION OF THE INSTRUMENT.

The researcher who visited the school personally administered the research questionnaire so designed. The researcher was assisted by the head of departments as clearly defined by the drafted introduction letter attached to the questionnaire. A total of ninety-five copies of the questionnaire were distributed personally to the respondents in all the five departments.

This method of personal administration of the questionnaire offered the opportunity to explain the purpose and significance of the study to the respondents where necessary which served as motivation

TABLE 1:

DISTRIBUTION AND RETURN OF QUESTIONNAIRE.

S/No	DEPT	TEACHER		STUDENT	
		No distributed	No return	No distributed	No return
1.	Building	3	3	15	15
2.	Furniture	3	3	15	15
3.	Fabrication and welding	3	3	15	15
4.	Automobile Mechanic	3	3	20	20
5.	Agricultural Equipment and maintenance	3	3	15	15
	TOTAL	15	15	80	80

As seen from the above table the researcher made use of fifteen technical drawing teachers and eighty students. A total number of ninety five (95) questionnaires were distributed and all were returned

DATA ANALYSIS

In analyzing the data collected the researcher made use of frequency count to determine the score in table 2 and made use of mean of the likert-scale items for table 3 ,4,5 and 6

The mean was computed with the formula

$$\text{Mean } \bar{X} = \frac{\sum fx}{N}$$

Where = \sum = sum
 X = Nominal value of option (score)

\bar{X} = Mean

N = number of item

F = Frequency

The mean value, therefore = $\frac{4 + 3 + 2 + 1}{4}$

$$= \frac{10}{4} = 2.5$$

Therefore the mean response of each items were computed by multiplying frequency of each response mode with appropriate nominal value and dividing. By the numbers of respondents each item.

$$\frac{\sum F x}{n} = \frac{(F x 4 + (F x 3) + (F x 2) + (F x 1))}{N}$$

DECISION RULE.

To determine the acceptance a mean score of 2.5 was selected as the deciding points between agree and disagreed, that is to say any response of 2.5 and above is considered acceptable. While responses below 2.5 is considered unacceptable This was based on real limit of number 2 and 3 as will be seen below.

TECHNIQUES FOR DATA ANALYSIS

This questionnaire was structured with four (4) point likert-type scales.

- | | | | | | |
|----|---------------------|---|----|---|----------|
| 1. | Strongly agreed | - | SA | - | 4points |
| 2. | Agreed | - | A | - | 3 points |
| 3. | Disagreed | - | D | - | 2 points |
| 4. | Strongly Disagreed- | | SD | - | 1 point |

The mean score was used for valid conclusions, in analyzing responses of respondents; the mean refers to the mean score obtained from the responses among the respondents to the particular questionnaire item(s)

CHAPTER FOUR.

PRESENTATION AND DATA ANALYSIS

This chapter deals with the presentation of data analyzed through the research question. The presentation involves two categories of respondent that is, the technical teachers and the students

TABLE 2

EDUCATIONAL QUALIFICATIONS OF TECHNICAL TEACHERS

ITEM	QUALIFICATION	FREQUENCY
A.	ND	1
B	NCE	7
C	HND	2
D	BED/BSC (TECH)	3
E	MAD/MSC(TECH)	2
F	OTHERS (SPECIFY)	Nil
	TOTAL	15

TABLE 2, above shows the total number of technical teachers and their educational qualification

Out of the fifteen (15) teachers questionnaire returned it could be seen that one (10) had the National Diploma Mech (ND) , Seven (7) had the Nigerian Certificate of education (NCE). TECH), only two (2) had Higher National Diploma (HND) three (3) teachers had either B.ED and B.SC (Tech), while two (2) had M.ED and M.S.C. (Tech

As could be seen in table 2 half of the teachers are Nigeria certificate of education (NCE) holders, which is not a requirement by National Board for technical Education (NBTE) to teach in Technical Colleges. Three (3) are either National Diploma (ND) or Higher National Diploma (HND) a, non-teaching qualification.

This situation leaves only five (5) teachers, that are qualified to teach in technical college. In that case, therefore the school is grossly under staffed hence a low performance in technical drawing subject

RESEARCH QUESTION 1

What are the causes of students low performance in technical drawing subject?

TABLE 3 Mean responses of both teachers and students on the causes of low performance of students in technical drawing subject.

N1 = 15

N2 = 80

S/n	Items	\bar{x}_1	\bar{x}_2	\bar{x}_t	Remark
1.	Technical drawing teachers are in adequate.	2.9	3.5	3.29	Agree
2.	Teachers teach the subject they specialized on.	1.67	1.80	1.74	Disagree
3.	Teachers do not enjoy teaching Technical drawing subject	3.1.	2.82	2.96	Agree
4.	Students do not practice technical drawing daily.	2.83	2.81	2.82	Agree
5.	Time allocated to technical drawing lesson is inadequate.	3.3.	2.8	3.05	Agree
6.	Teachers are always punctual in attendance to their lessons	2.42	1.95	2.19	Disagree
7.	Instruments and equipment needed for drawing are expensive	3.2.	3.1	3.15	Agree
8.	Assignment and homework are not constantly given and marked to ascertain students credibility.	2.81	2.83	2.82	Agree

KEY: \bar{X}_1 = Mean response of teachers.

\bar{X}^2 = Mean response of students.

\bar{X}_t = Average Mean response of teachers and students

N1 = number of teaches

N2 = number of students

Table 3: revealed that both groups of respondents agreed with items 1, 3, 4, 5, 7 & 8 and also disagreed with items 2 and 6. Therefore, from the analysis of both respondents of each item on the research question 1: shows that there was shortage of technical drawing teachers which has resulted in some teaches forced to teach drawing other than the one they specialized on. This situation has made the lesson un-interested and made the teaching unenjoyable profession. The time allocated to teaching of technical drawing subject was not enough to allow teachers carry our all necessary class work assignments, yet most teachers come to the class late which added to the students poor performance. Even though, drawing equipment and instruments are expensive, a few number of student were able to purchase them, yet assignments and homework were not constantly given to students to ascertain their performance. Practice they say makes perfect.

RESEARCH QUESTION 2

To what extent has the background and interest of students affected their performance in technical drawing subject?

Table 4: Mean response of both teachers and student on the effect of their background and interest in technical drawing

Both groups of respondents in table 4 of agree with items 1,2,3,4,5 and 7 and disagreed with only item 6. These analysis revealed that lack of initial background, interest in technical drawing and student un-participation and contribution during lesson has contributed a lot to their failure in the subject. Absence of field trips and excursion to arouse students interest also contributed seriously in their poor performance. The need for a guidance and counseling master in the school cannot be over emphasized, yet students find it difficult to visit the guidance counselor for proper guiding and advices. For conducive learning, their should be cordial relationship between the principal, teachers and students.

RESEARCH QUESTION 3

Are there enough facilities and equipment for proper teaching of technical drawing to enhance students performance?

Table 5: mean response of both teachers and students on instruments and equipment available for effective teaching of technical drawing

S/n	Items	\bar{x}_1	\bar{x}_2	\bar{x}_t	Remark
1.	There is a drawing room in the school	3.5	3.4		Agree
2.	Facilities such as drawing board, T-square etc are available in the drawing room.	1.50	1.59	1.55	Disagree
3.	Drawing papers and pencils are provided during technical drawing lesson	2.00	1.75	1.86	Disagree
4.	Enough teaching aids are available for effective teaching of technical drawing	2.08	2.09	2.09	Disagree
5.	Technical drawing teachers are sponsored to workshops and seminars that are related to their field of studies	1.75	1.84	1.80	Disagree
6.	Sufficient textbooks on technical drawing are provided in the school library	2.00	1.74	1.87	Disagree
7.	Teachers are promoted to their next grade level regularly as when due	2.42	2.15	2.33	Disagree
8.	The school is adequately funded by the ministry	2.4	2.2	2.30	Disagree

KEY: \bar{X}_1 = Mean response of teachers.

\bar{X}_2 = Mean response of students.

\bar{X}_t = Average Mean response of teachers and students

N_1 = number of teaches

N2= number of students

From table 5, above, the respondents agreed with only item I and totally disagreed with all the other seven (7) items in the table. This analysis revealed that a lot has to be done to improve the teaching and learning of technical drawing. That the provision of enough facilities like the drawing instruments, drawing papers, teaching aids and relevant technical drawing textbooks. Sending teachers to workshops and seminars to improve their skills in teaching profession, above all is boosting the moral of teachers by promoting them regularly as when due, essentive like technical/science allowance be given etc, it is not establishing an institution that maters but funding it.

RESEARCH QUESTION 4

What roles should Government play to boost the morale and interest of teachers and students in technical drawing subject?

Table 6: Mean response of both teachers and students on the role of government in boosting the morale of teachers and students in technical drawing

N1 = 15 N2=80

S/n	Items	\bar{x}_1	\bar{x}_2	\bar{x}_t	Remark
1.	Provision of funds for the purchase of technical drawing equipment and facilities	3.2.	3.4.	3.3.	Agree
2.	Building of standard drawing room.	2.8.	3.1	2.95	Agree
3.	Sending technical teachers to related workshops and seminars	3.3.	3.0	3.15	Agree
4.	Employ adequate and qualified technical drawing teachers	3.4.	3.3.	3.35	Agree
5.	Provision of relevant and sufficient technical drawing textbooks in the school library	2.8	2.6	2.7	Agree
6.	promotion of teachers to their next grade level when due	2.9	2.8	2.85	Agree
7.	Recommend technical drawing teachers for in-service training in their related field	3.0	2.9	2.95	Agree

KEY: \bar{X}_1 = Mean response of teachers.

\bar{X}_2 = Mean response of students.

\bar{X}_t = Average Mean response of teachers and students

N1 = number of teachers

N2 = number of students.

As seen in the analysis in table 6 of the research question 4, the respondents agreed with all the items listed in the table, which means a lot is needed on the side of the government for proper teaching and learning of technical drawing.

In a nut shell, the funding of Government institutions like that of Government Technical College Assakio depends solely on the Ministry, since establishment, employment, purchase of technical equipments etc is directly done by the Government

CHAPTER FIVE

SUMMARY, DISCUSSION, CONCLUSION AND RECOMMENDATION

This chapter presents summary, conclusion and recommendations. This research is made up of the summary of the findings of the analyzed data; the second section offers recommendation and suggestions to both the government, teachers and students.

SUMMARY

The entire study was on the factor affecting the performance of students in technical drawing. Literature reviewed on areas that needed to be noted for the improvement of the learning of technical drawing such as provision of well-equipped drawing room and qualified teachers in that subject.

Two questionnaire were drawn, one for the teachers and the other for the students. Their samples were used to collect information's, which was used to ascertain the reality. Data collected were analyzed showing responses of teachers and students on issues pertaining the teaching and learning of technical drawing. The information gathered led to the discussion on this chapter.

DISCUSSION OF THE FINDINGS

This research was designed to find out problems affecting the performance of students in technical drawing.

A case study of Government technical College Assakio. It was accepted that lack of enough technical teachers, especially those to teach technical drawing are one of the causes of over burden of few technical teachers who are overloaded at certain level are not always very efficient. The problems of teaching technical drawing in Nigeria is obtaining teacher who are occupationally competent. Adequate teaching and learning can hardly take place without proper manpower on the teaching field (qualified teachers) with the zeal to work.

In addition, facilities in the drawing room were considered inadequate. The truth was revealed in table 5, on research question 3, where a mean respondent of 1.86% disagreed of non-availability of teaching aids.

Frazer (1976) in literature review suggested that drawing instruments are very essential and therefore students should be advised to purchase the best they can afford, in literature review, Solanskey, (1981) noted the high cost of

equipment and advised that the government should make provision to stressed the need to motivate students in teaching so as to

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According to Solanskey (1981), he noted that any programme of instruction that does not arose advice in the children to read and comprehend by themselves must be a failure from literature review. The need for vocational guidance in our schools to direct the young in taking realistic decisions so that they can become useful citizens in future cannot be overemphasized.

It was observed that teachers are not always punctual in attending lessons revealed in table 3. They would have less time to accomplish what was planned.

Teacher's condition of service plays a significant role in the teaching and learning process. Ministry of education and the school authority should put into consideration, ways of encouraging technical drawing in particular, in order to meet the national objectives of the new national policy on education.

On the role of government, it was discovered in the findings that it was not actually funding the school as can be seen on table 5, The report still proved that there were no adequate teaching materials. This has led one to conclude that the problem lies with the school authority and the Government.

FINDINGS FROM THE STUDY

The following are some of the major findings discovered.

1. There were no materials for the teaching of the subject effectively in the school.
2. Teachers were not sent to seminars and workshops to update their knowledge.
3. The school is not provided with qualified and counseling services.
4. Teachers teach without usage of teaching aids.
5. Teachers teach subjects they have not specialized on.
6. The role of parents in choosing subjects for their children.

CONCLUSION

In conclusion, it was revealed that there were shortages of teaching materials in the school, lack of a good drawing room, lack of well-trained technical drawing teachers. Teachers' method of teaching should be in conformity to imparting knowledge. It should be noted that, if the teaching of technical drawing in schools is poor, definitely all other levels of acquiring that knowledge will be seriously affected and this may result to waste of money, time human and material resources in the long run without achieving the aims or objectives targeted.

RECOMMENDATIONS

The following suggestions are offered as a step towards improving the learning of technical Drawing\

1. It is recommended that special attention should be given to those who do not have the subject background before coming to the school by the teachers. Besides this, such students should meet the teacher individually after the normal lessons for more clarification.
2. The school authority should liaise with the parents teachers Association (PTA) for funds to purchase some drawing instruments which they think students cannot afford to buy such instruments may include: drawing sets, drawing boards, scale rules and adjusted set squares.
3. It is recommended that teachers should create a kind of rapport between them and the students. The teachers should be jovial with the students to a predetermined level.
4. The student should be allowed to use drawing room at any time they wish.
5. There should be close supervision of the teachers to ensure that they adapt to correct methods of teaching and also guide against lateness to lessons.

6. The teachers should try as much as possible to give assignments and class work during and after each lesson. Teachers should also go round and give assistance to those finding difficulty for instance in the manipulation of the drawing instruments and interpretation of the drawing.

7. The services of the guidance and counseling are of paramount importance within the educational system

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APPENDIX A
FEDERAL. UNIVERSITY OF TECHNOLOGY, MINNA
DEPARTMENT OF INDUSTRIAL AND TECHNOLOGY EDUCATION

AUTO TECHNOLOGY
BUILDING TECHNOLOGY
ELECT/ELECT
TECHNOLOGY
METAL TECHNOLOGY
WOOD TECHNOLOGY
DATE.....

YOUR REF:.....

OUR REF:.....

LETTER OF INTRODUCTION FOR CANDIDATE CARRYING OUT RESEARCH WORK

.....is a post graduate student of the Department of Industrial and Technology Education of the federal university of technology, Minna. He is currently under taking a research work on.....

It would be highly appreciated if you could supply him with the information he may require from you. All information from you will be treated confidentially. Thank you so much for your cooperation.

DR K. A, SALAMI
Project coordinator

APPENDIX B

TEACHERS --- STUDENTS QUESTIONNAIRE

This research is aimed to INVESTIGATE on factors affecting the performance of student in technical drawing, a case study of government technical college Assakio. To accomplish this purpose the questionnaire was designed to obtain your pinion objectively so as to enable the researcher get correct result of the study. The information provided by you, shall be treated confidentially and used for the research purpose only.

INTRODUCTION: kindly complete all the items as appropriate by ticking the extend to which you agreed or disagreed to each question.

SECTION A: (PERSONAL DATA)

Teacher { }

Student { }

1. Name of School; Government technical College Assakio
2. Department _____
3. Qualification /Arm _____
4. Area of specialization/course _____
5. Years of experience /school/ _____
6. Sex Male { } Female { } _____
7. Key: please indicate by ticking () against the options that represents your opinion.

The response categories are;

- SA - Strongly agreed
- A - Agreed
- D - Disagreed
- SD - Strongly Disagreed.

SECTION B

Causes of students' poor performance in technical drawing subject

S/n	ITEMS	SA	A	D	SD
1	Technical drawing teachers are inadequate for effecting teaching				
2.	Teachers do not teach the subject they specialized on				
3.	Lack of enough facilities has made teachers not to enjoy the teaching of technical drawing				
4.	Students are allowed to practices technical drawing daily				
5.	Time allocated to technical drawing lesson is inadequate				
6.	Teachers attend to their lesson punctually				
7.	Assignments and home work are not constantly given and marked to give students feed back				
8.	Instruments and equipment needed for drawing are expensive				

	SECTION C				
	The background and interest of students has effect in their performance in technical drawing				
1.	Lack of initial background in the subject affected the student performance				
2.	Lack of interest in the subject contributed to their failure				
3.	Technical drawing is not an enjoyable subject				
4.	Subjects are often chosen by parents of the students				
5.	Lack of participation and contribution during drawing lessons contribute to their failure				
6.	There are no field trips and excision to arouse students interest in the subject				
7.	Students do not patronize the guidance & counseling master of the school				
8.	Principal approach to teachers and student problems is encouraging				

	<p>SECTION D.</p> <p>Facilities and equipment for proper teaching of technical drawing are in short fall</p>				
1.	The school has a drawing room				
2.	There are adequate facilities like drawing board, T. Square etc in the drawing room				
3.	Drawing papers and perils are not provided during provided during technical drawing lesson				
4.	There are no teaching aids for effective teaching of technical drawing				
5.	Technical drawing teachers are sponsored to workshops/seminars that are related to their fields of study				
6.	Teachers are promoted regularly to boost their morale				
7.	Relevant textbooks on technical drawing are provided in the school library				

8.	The school is promptly funded by the ministry				
	SECTION E. The role of Government to boost the morale and interest of teachers /students in technical drawing				
1.	Provision of fund for the purchase of technical drawing equipment and facilities				
2.	Promoting teachers when due to encourage and boost their immoral in teaching				
3.	Building and equipping a standard drawing room				
4.	Sending teachers to seminars and workshops related to technical drawing				
5.	Employ adequate and qualified technical drawing teachers				
6.	Purchase of relevant textbooks to the school library				
7.	Recommending technical teachers for in-service training in their related fields.				