



Availability and Utilization of Instructional Materials for Enhancing Teaching of Technical Drawing in Senior Secondary Schools in OBIO/AKPOR Local Government Area

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ABSTRACT

The study was carried out to determine roles of instructional materials in enhancing teaching Technical Drawing in senior secondary schools in Obio/Akpor Local Government Area in Rivers State. A survey research design was implemented. The population for the study consisted of all the teachers teaching Technical Drawing and a sample size of twenty (20) teachers from four senior secondary schools was used for this study. The instruments used for data collection was a structured questionnaire. Four research questions were formulated. The frequency table and mean were used to analyze the data for answering research questions. The study discovered that Technical drawing instruments and materials were available but limited and the few available ones were well organized and utilized for enhancing teaching of Technical Drawing in senior secondary schools in Obio/Akpor Local Government Area in Rivers State. Based on these findings, it was recommended that teachers of technical drawing in senior secondary schools in Obio/Akpor should be supplied with the right quantity of the Technical Drawing instruments and encouraged to keep on organizing instructional materials for enhancing teaching of Technical Drawing.

Keywords: Instructional Materials, teaching, Technical Drawing.

Introduction

Education is the most significant instrument of change and therefore, senior secondary education is an essential tool towards the realization of any changes that shape one's life permanently. Senior Secondary Education is the continuous level of education which from there a student proceeds to the tertiary and university. Success or failure at the senior secondary level, most likely leads to the success or failure at subsequent levels. Therefore, education is both the act of teaching knowledge to others and the act of receiving knowledge from someone else. According to the United Nation, education is a human right. Therefore, the UN believes that providing quality education for all is fundamental to creating a peaceful and prosperous world by giving people the knowledge and skills they need to stay healthy, get jobs and foster tolerance.

To achieve any changes, there should be effective teaching and learning right from its basics. Jekayinfa (2012) also identified the importance of improvisation of instructional materials as making learning concrete and real, substitute one thing for another, allows the students to participate in the production of materials, economical and more teacher-student resource oriented. Abdu-Raheem (2014) submitted that improvisation of locally made teaching aids could assist to improve quality of graduates turn out from schools and standard of education generally. Abdu-Raheem and Oluwagbohunmi (2015) also corroborated the idea that resourceful and skillful teachers should improvise necessary instructional materials to promote academic standard in Nigerian schools which include: flashcards, posters, charts, textbooks, real objects, models, chalkboard/ white boards, and so on.

Instructional materials are brought into play along the line to enhance educational achievement whenever they are properly used. Nevertheless, it has been realized that there is a need for a coordinated source of information for senior secondary teachers on the preparation and utilization of instructional materials. Ngozi, Samuel and Ameh, 2012 unanimously agreed that audio-visual materials are very important and useful in education because, the normal learner so far as the functions of his preceptor mechanisms are concerned, gains understanding in terms of multiple impression recorded through the eye, ear, touch and other series. This is to say that audio-visual materials are the equipment through which that function can occur, that is does not occur in isolation, rather through a balance pattern from any preceptor mechanism that are stimulated by external occurrences. This will help to reduce most of the problems in the teaching and learning process. In spite of this, the problem associated with these instructional materials is the procurement of the instructional materials.

A modern technical drawing studio should comprise of the basic constituents of technical drawing tools are listed: Computer, Printer, Projector, Electronic board, Photocopy machine, Lap top, Modem, Webcam, Pen drive, Smartphone, I-pod, I-pad, Microphone, Web board, AutoCAD software, Corel draw, CAD/Micro station, Internet Service, Revit (software), and Team board. However, these are essential peripherals that aid effective design and drawing which all students should have. Other constituent in the modern computer studio are classified by Bamiro, (2005) into three categories. Namely:

Material: Materials are the things used for drawing. They are consumable items such as pencil, paper, eraser, masking tape etc.

Instrument: Instruments are tools or devices used for precision work in Technical Drawing, such as measuring devices (Rule, Protractor, Set-Square, T- square, Scale Rule etc.), and marking out devices (pair of compass, Divider, French curve etc.)

Equipment: Equipment are the bulky tools (items) used for drawing. Examples include Drawing Board, Drawing Table, Stool etc.

Audio-visual materials are those materials that stimulate both the visual (sight) and audio (hearing) senses. Effective use of instructional materials and its relevance with the topic would enable the learners to effectively learn and retain what they have learnt and thereby advancing their performance in the topic been taught. Learning is a process through which knowledge, skills, habits, facts, ideas and principles are acquired, retained and utilized; and the only means of achieving this is through the use of instructional materials in teaching process. Furthermore, Eze (2013) also stated that the human being learns more easily and faster by audio-visual processes than by verbal explanations alone. His ability to arrive at abstract concept through perceptual experience is however a phenomenon not clearly explained and perhaps not explicable. In the light of this, this study examines the availability and utilization of instructional materials for enhancing teaching of Technical Drawing in the senior secondary school level in Obio/Akpor Local Government Area in Rivers State.

Statement of the Problem

The deteriorating state of the educational system is quite worrisome. The problem teachers and senior secondary school students' encounter in our educational system include inadequate teaching and learning materials. This, despite the fact that some schools may have the best of facilities, and yet, fail to produce strong students due to the negligent of teachers toward the use of instructional materials effectively during the teaching and learning process. Other problems that hinder the effective use of instructional materials in schools include lack of electricity supply to make use of instructional materials by the technical drawing teachers in senior secondary schools. Emphasis is made on the use of instructional materials by teachers for a break-through in educational attainments.

Ngozi, et al (2012) agreed that audio-visual materials are very important and useful in education for a typical learner. This is to say that audio-visual materials are the equipment through which that function can occur, that is does not occur in isolation, rather through a balance pattern from any preceptor mechanism that are stimulated by external occurrences. This will help to reduce most of the problems in the teaching and learning process. In spite of this, the problem associated with the instructional materials is the procurement of the instructional materials. Therefore, these have brought to recognition the essentiality of instructional materials in teaching of Technical Drawing. Hence, this research work is designed to examine the availability and utilization of instructional materials in the teaching of Technical Drawing in senior secondary schools in Obio/Akpor Local Government Area of Rivers State.

Purpose of the Study

The major purpose of the study is to investigate the availability and utilization of instructional materials for enhancing the teaching of Technical Drawing in senior secondary schools in Obio/Akpor Local Government Area in Rivers State. Specifically, the study sought to:

1. Find out the extent of availability of instructional materials for enhancing teaching of Technical Drawing in senior secondary schools in Obio/Akpor Local Government Area in Rivers State.
2. Find out the extent to which instructional materials are organized to enhanced teaching Technical Drawing in senior secondary schools in Obio/Akpor Local Government Area in Rivers State.
3. Determine how instructional materials can effectively be utilized to enhance teaching Technical Drawing by teachers in senior secondary schools in Obio/Akpor Local Government Area in Rivers State.

Research Questions

The following research questions were formulated by the researcher to guide this study:

1. To what extent are instructional materials available for enhancing teaching Technical Drawing in senior secondary schools in Obio/Akpor Local Government Area in Rivers State?
2. To what extent are the available instructional materials organized to enhance teaching of Technical Drawing by teachers in senior secondary schools in Obio/Akpor Local Government Area in Rivers State?
3. How can instructional materials be effectively utilized to enhance teaching Technical Drawing by teachers in senior secondary schools in Obio/Akpor Local Government Area in Rivers State?

Research Methodology

The research design used in this study was descriptive survey research design. The area of the study is Obio/Akpor Local Government Area in Rivers State. Obio/Akpor is a Local Government Area in the metropolis of Port Harcourt, one of the major centers of economic activities in Nigeria and one of the major cities of the Niger Delta, located in Rivers State. Obio/Akpor Local Government Area covers an area of 260 km² and at the 2006 Census held a population of 464,789. Different institution of learning such as primary schools, secondary schools, Technical College, Polytechnic and Universities are located in the state which made it a choice area for the study. The population of the study was made up of twenty (20) teachers who were selected from four (4) secondary schools in Obio/Akpor Local Government Area which includes Oginigba Comprehensive Secondary School, Oginigba, Government Secondary School, Eneka, Model Girls Secondary School, Rumueme and Government Girls Secondary School, Rumuokwuta. The questionnaire was developed to collect the data and the data collected were analyzed using frequency table and mean.

Presentation of Results

Research Question 1: To what extent are instructional materials available for teaching Technical Drawing in senior secondary schools in Obio/Akpor Local Government Area in Rivers State?

Table 1: Mean Responses on instructional materials used for teaching Technical Drawing N = 20

S/no	Items	HA	MA	RA	NA	$\sum fx$	Mean \bar{x}	Remark
1.	Drawing instruments for teacher like the pair of compasses, dividers etc	8	6	24	4	42	2.10	Rejected
2.	Drawing board for teaching.	0	6	0	24	30	1.50	Rejected
3.	White board drawing sets.	12	3	24	8	31	1.55	Rejected
4.	T-square for teaching.	3	24	9	8	44	2.20	Rejected
5.	Re-usable materials like marker, drawing papers, cleaners etc	8	12	24	3	47	2.35	Rejected

Source: Researcher's Field Survey (2022)

Table 1 show that the respondents rejected all to items in various degrees. The overall mean scores of the respondents show that the respondents disagree of the extent of availability of the instructional materials for enhancing teaching of Technical Drawing in senior secondary schools in

Obio/Akpor Local Government Area in Rivers State. The mean score in between 1.5 to 2.35.

Research Question 2: To what extent are the instructional materials available organized to enhance teaching of Technical Drawing by teachers in senior secondary schools in Obio/Akpor Local Government Area in Rivers State?

Table 2: Mean Responses of the Respondents the extent are instructional materials organized to enhance teaching

N = 20

S/no	Items	VHE	HE	ME	R	$\sum fx$	Mean □	Remark
1.	Available drawing instruments for teachers are well organized during instructional delivery.	32	9	8	5	54	2.70	Accepted
2.	The drawing board is always clean and well partitioned for teaching.	24	36	2	1	63	3.15	Accepted
3.	The teacher should ensure that white board drawing sets are properly organized to meet the lesson presentation steps.	24	36	4	0	63	3.15	Accepted
4.	Presentation is usually from known to unknown.	32	9	8	5	54	2.70	Accepted
5.	The teacher always keeps re-usable materials in organized places.	76	0	2	0	78	3.90	Accepted

Source: Researcher's Field Survey (2022)

Table 2 above revealed that all five items of the extent to which the available instructional materials are organized to enhance teaching of Technical Drawing in senior secondary schools in Obio/Akpor Local government Area of Rivers State have their mean values range from 2.70 to 3.90 which is above the cut-off point of 2.50, indicating teachers used to organize instructional materials for enhancing teaching Technical Drawing in Senior Secondary Schools in Obio/Akpor Local Government Area in Rivers State.

Research Question 3: How can instructional materials be effectively utilized to enhance teaching Technical Drawing by teachers in senior secondary schools in Obio/Akpor Local Government Area in Rivers State?

Table 3: Mean Responses of the Respondents on how instructional materials can be effectively utilized to enhance teaching Technical Drawing

N = 20

S/no	Items	SA	A	D	SD	$\sum fx$	Mean □	Remark
1.	By encouraging students' participation while demonstrating.	36	24	9	0	69	3.45	Accepted
2.	By ensuring that Technical Drawing instruments are well arranged before lesson begins.	32	9	8	5	54	2.70	Accepted
3.	By considering varied learning styles of students while teaching the subject.	36	0	12	5	53	2.65	Accepted
4.	Students can be called upon to demonstrate using blackboard instruments.	24	36	2	1	63	3.15	Accepted
5.	By ensuring that students come to the class with their complete drawing instruments and sets.	32	9	10	4	55	2.75	Accepted
6.	By appropriately improvising the Technical drawing instruments and sets where not available.	40	0	10	5	55	2.75	Accepted

Source: Researcher's Field Survey (2022)

Table 3 above showed that all 6 items were accepted. The mean score values range from 2.65 to 3.45 which are above the cut-off point of 2.50.

This showed how instructional materials can be effectively utilized to enhance teaching of Technical Drawing in senior secondary schools in Obio/Akpor Local Government Area of Rivers State.

Conclusion

Based on the findings of the study, the following conclusions were deduced from the study Technical Drawing materials were available but limited; that the few available Technical Drawing materials were well organized and very well utilized for enhancing teaching of the subject.

Recommendations

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

1. Instructional materials for enhancing the teaching of Technical Drawing must be supplied in the right quantity.
2. Teachers should be encouraged to keep on organizing the available instructional materials in order to enhance teaching of the subject.
3. Teachers should be encouraged to ensure students' participation while teaching; make students to draw/demonstrate what is taught in the class and appropriately improvise instructional materials not so available in the right quantity.

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