

Full Length Research Paper

Effects of Instructional Materials on Students' Academic Performance in Technical Education: A Case Study of Kabba Bunu Local Government Area

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Received 2 February 2020; Accepted 15 March, 2020

The study examined the effects of instructional materials on students' academic performance in technical education in Kabba/Bunu Local Government Area of Kogi state. Using the descriptive survey design, data were collected from 75 respondents using a questionnaire. The study revealed that the use of instructional materials was significant for teaching and learning, instructional materials facilitated effective learning of technical education and knowledge is more appreciated in the use of instructional materials in

technical education. Therefore, it recommended that teachers should use instructional materials to complement their teaching. The government and other stakeholders in the education sector should provide adequate instructional materials to schools.

Keywords: Academic performance, instructional materials, technical education, secondary school

INTRODUCTION

Instructional materials refer to all physical instruments/materials that teachers' use to make teaching and learning interesting (Bellow, 2009). Afolabi, (2010) indicated that instructional materials are books, audio-visual, software and hardware of educational technology. He explained that the availability, adequacy and relevance of instructional materials in the classroom can positively influence the quality teaching which has a positive impact on technical education students. The term instructional materials are described by Awoniyi, (2008) to refer to all available human and material resources which appeal to the learners sense of seeing, learning, smelling, tasting, touching or feelings. Mcnaught, (2007) revealed that instructional materials are a teacher's strategic factor in organising and providing Education. This is because instructional materials help to elaborate a concept that the teacher cannot without them.

Instructional materials are known as teaching/learning

materials (TLM), and any collection of materials including animate and inanimate objects, and human and non-human resources that a teacher may use in teaching and learning situations to help achieve desired learning objectives (Oni, 2012). Brown, (2017) refers to instructional materials as devices with instructional content or function that is used for teaching purpose including books, supplementary reaching materials, audio visual and other sensory materials, script for audio and television instruction and manipulation. Bellow, (2009) identifies instructional materials as objects or devices which help the teacher to make learning meaningful to the students or learners.

Natoli, (2011) grouped these materials into two (2) types namely; the temporary materials that are pictures which do not have direct learning values, and also divided the various materials into projected and non-projected materials. The non-projected materials are

materials that do not require electric power and have infinite variety of shapes, sizes and colours easily procured and makeable enough to be patterned to suit the requirements of the subject. Finally he identified projected materials which are those materials that need a source of light for their projections. These materials include tape records, overhead projectors, televisions, films and the likes. The non-projected materials include chalkboard, flamed graphs, magnetic boards, models, specimens and mock-tips, photographs, pictorials, pamphlets and textbooks, plays, drama, posters, charts and real objects could be used as instructional materials. However, Abdelraheem and Al-Rabane, (2005) and Abdu-Raheem, (2014) indicated that instructional materials can be classified into three groups namely audio, visual and audio-visual.

Audio materials

Audio materials include radio, record player and tape recorders. These are electrically operated. Batteries can equally be used to operate them. They are very useful in individualized instruction in study of technical education. They are equally used to teach large population of students.

Visual materials

Visual materials include real objects (regalia), specimen, models, chalkboards, flannel or felt boards, still pictures, textbooks and workbooks. Supplementary readers, magazines and newspaper articles, graphics such as globes and graphs are equally good instructional materials. In this group are real objects which provide first hand experiences to the students. Where these real objects are non-available, their models play similar roles.

Audio-visual materials

These media are basically sound motion pictures i.e. film projector, video tape, and television. These media combine the effects of both seeing and hearing in teaching and learning. These are media, which have the capability of recreating the past as well as bringing the distant places and events to the classroom. The influence of instructional materials on academic performance of technical education cannot over-emphasized. The term instructional or audio visual is not a universal language but it refers to relevant materials which when used effectively with sight in either formal or informal classroom situation are generally and easily well understood. This is because there are closely related to the way people do things in their everyday life. It is generally assumed students will understand the

things they see very easily than listen to abstract ideas presented in words. The above statement therefore justifies a discussion of influence of instructional materials on both the learner and the educator during teaching and learning in any given situation (Cermak, 2002). Instructional materials arouse interest: it is said that one does not learn so much except he pays attention and shows interest in a subject. This cannot be effectively achieved except something vital that can captivate the expected interest is presented to the learners as teaching aids or instructional material. Examples of audio – visual are instructional or educational televisions, educational. Farombi, (2008) in this work indicated that audio visual materials bring about good mastery of the content and they give children the first hand information hence help children learn the concepts and provide experience that is not easily secured when using other instructional material. Oni, (2000) postulated that watching of television contribute a lot to the brain development of a child. It helps children remember and compare what they have seen and heard at the same time, this can help in teaching technical education. On the other hand, he commented that video can also be used as teaching patterns and diagrams. Therefore when learners are use audio visual materials in class they stimulate their interest and also enhance a friendly learning environment and also make mastery of concept easy. Eshiet, (2016) postulated that this category includes various systems like the television and C.D players. Instructional materials according to Bello are varieties of equipment and materials that have instructional values that are simultaneously used with the teacher's voice to facilitate learning.

Edward, (2014) stresses that instructional materials stimulate teachers' interest help both the teachers and students. Therefore, to overcome teaching and learning limitations in the technical education process, instructional materials are much needed. The use of instructional materials particularly as concrete objects makes learning more readily and lively to children. A child who is looking at Hibiscus flower when it is being discussed will easily remember the parts better than a child who will try to recall the parts from her memory (cite source). Omojuwa, (2000) observed that teaching aids are important for practical demonstration in class situations by student and teachers. Obinaju, (2016) acknowledge that instructional materials are used by teachers to aid explanation and make learning of technical education understandable to student during teaching. Abdu-Raheem, (2014) ascertain that instructional materials improve students' knowledge, abilities and skills and monitor their assimilation of information and to contribute to their overall development and upbringing.

The use of instructional materials in teaching and learning of technical education in secondary schools is not new. What is new is the technological equipment that

has been introduced recently into the teaching and learning process. With the evolving technology and the new communication media, efforts are on the increase in the application of instructional aides to learning; a development that has proven to be beneficial to learners (cite source). Nonetheless, many teachers are not knowledgeable or find it difficult to use instructional materials when teaching because of lack of training on their application for effective use and dissemination of knowledge. Some teachers do not see the instructional materials for use. Hence, teachers are faced with the problem of using instructional materials. It is important that teachers keep in mind the purpose for which instructional materials are used, the characteristics and special need for pupils to be taught by them and the basis for selecting the materials. For example, teachers must know when to use a film to clarify important concepts rather than explaining it in a text book. When to use discussion alone, when to embark on a field trip with the showing and discussion of a related film strip, when to assign outside viewing of television programme of self-study of a programmed filmstrip or when to have the class produce diagrams or flannel boards illustrations as part of summarizing oral report on one aspect of class work.

Instructional materials are brought into education to enhance educational achievement. Nevertheless, there is need for a coordinated source of information for pre-service teachers on the preparation and utilization of instructional materials. This will help to overcome most problems in academic performance. In spite of this, the problem associated with this instructional material is the procurement of instructional materials. Other problems that hinder the effective use of instructional materials in schools include lack of electricity supply to operate some visual aids, and lack of qualified educational technologists to operate them. Hence, instructional materials can introduce demonstration in the classroom which is synonymous to taking the learners to parts of the world they could not otherwise experience having in the class room situation, a teacher with special expertise and the like (Ekpo, 2004). Therefore, if instructional materials are capable of creating a remarkable effect on the learners when used in a lesson in teaching in technical education, it is suffice to believe that the use of those instructional materials can enhance teaching and learning of technical education in selected school in Kabba/Bunu Local Government Area of Kogi State. The main objective of this study was to determine the effect of the instructional materials on the performance of technical education students in secondary schools in Kabba / Bunu Local Government Area. Specifically, the study sought to:

(a) Determine whether the use of instructional materials has any influence in the teaching of technical education in secondary schools Kabba / Bunu Local Government Area.

(b) Determine whether instructional materials are more effective in the teaching of technical education in secondary school in Kabba / Bunu Local Government Area.

(c) The level of awareness and important of instructional materials for teachers teaching technical education, the effectiveness of instructional materials on technical education, the adequacy of instructional materials on technical education as well as the purpose of instructional materials on technical education

Research questions

The study is guided by the following research questions.

(1) What effect does an instructional material exert on student academic performance in technical education in secondary schools in Kabba/Bunu?

(2) To what extent does the use of instructional materials facilitate and enhance effective teaching and learning of technical education in secondary schools in Kabba/Bunu?

(3) Does the use of instructional materials increase knowledge and appreciation of the technical education content in Kabba/Bunu?

METHODOLOGY

The area of study was Kabba / Bunu Local Government Area in Kogi State one of the 21 Local Governments of areas that make up the present Kogi State. Kabba/ Bunu is located in the Western senatorial district of Kogi State. The study used the descriptive survey design because according to Afolabi and Adeleke, (2010) the design involves a planned collection of data over a large area for the purpose of making description. The descriptive survey design was preferred for this study as it was found to be the most ideal for gathering original data for the purpose of describing certain perceptions, opinions, attitudes, relationships and orientations that were held by a population too large to be observed directly.

The population for the study consisted of all the secondary schools in Kabba / Bunu Local Government Area. There were 32 secondary schools in Kabba / Bunu Local Government Area from which 10 secondary schools were randomly selected for the study. The samples of 200 respondents were used for the study and were given equal opportunity of being selected. The "Lottery Method" approach of simple random sampling techniques was adopted. Piece of paper were written alphabetically to represent the five (5) schools to be used as sample for students and teachers. The sample size was considered appropriate as this could reduce sampling error and enable generation of results to cover the whole area.

The instrument used for data collection was a self-

constructed questionnaire titled "Effects of Instructional Materials on Technical Education" (EIMOTE) the questionnaire consists of part A on bio-data information and part B containing fifteen (15) question items on, the question items were scaled on four point Likert scale of Strongly Agree (SA=4) Agree (A= 3) Disagree (DS=2) and Strongly Disagree (SD=1).

The questionnaire was administered by the researcher to the subjects by hand with the instructions carefully read out and explained to the understanding of the students. The students were given enough time to respond to the various questions after which the questionnaires were collected from them. The instrument was subjected to face and content validity by three experts from Department of Educational Foundations and Measurement and Evaluation at Kogi State University, Anyigba. The corrections and adjustments made were effected which the researcher used to build up the quality of the instrument. The reliability of the instrument was established through pilot testing of the instruments on 5 students who did not participate in the study, while test-retest method was employed. A Cronbach's alpha was used and it yielded a value of 0.87 which indicated that the instrument was reliable for the study.

RESULTS

Research Question 1

Does an instructional material have effect on students' academic performances of students in technical education in Kabba/Bunu? Table 1 reveals that 60 representing 30% of the respondents strongly agree that instructional materials make technical education lessons more interesting while 90 representing 45% just agree and 27 representing 11.5% of the respondents strongly disagree. However, the levels of strongly agree and agreement were analysed cumulatively as agree while the levels of strongly disagree and disagreement are regarded as disagree. Hence, the (Table 1) reveals that 150 representing 75% of the respondents agreed that instructional materials made technical education lessons more interesting while 50 representing 25% disagree with the statement. In item 2, 120 representing 60% of the respondents agreed that instructional materials made technical education lesson more realistic while 80 representing 40% of the respondents disagree. While 140 representing 70% of the respondents agree that instructional materials create opportunity for students' participation during the lessons and 60 representing 30% disagree with the statement. However, 145 representing 72.5% of the respondents agreed that technical education teachers always used instructional materials to complement their lesson period and 55 representing 27.5% disagree that teachers always used instructional

materials during their lesson period. However, 170 representing 85% of the respondents agreed that instructional materials help the technical education teachers presented the facts concretely and realistically and 30 representing 20% of the respondents disagreed.

Research Question 2

Does the use of instructional materials facilitate and enhance effective teaching and learning of technical educations?

Table 2 reveals that 56 representing 28% of the respondents strongly agreed that the use of instructional materials save time during lesson delivery while 64 representing 32% of the respondents agreed but 34 representing 23% of the respondents strongly agreed. However, the level of agree and disagree in sum of both strongly agree and agree with strongly disagree and disagree revealed that 120 representing 60% of the respondents agreed that the use of instructional materials saved time while delivering lesson while 80 representing 40% disagree with the statement. The Table 2 revealed that 126 representing 63% of the respondents agree that instructional materials made technical education easy while 74 representing 37% disagreed with the statement. Equally, 135 representing 67.5% of the respondents agree that the lessons taught with instructional materials are more retained by the students than those without the use of instructional materials, but 65 representing 32.5% of the respondents disagreed with the statement. However, 132 representing 66% of the respondents agreed that instructional materials help to arouse students' interest in technical education while 68 representing 34% of them disagreed with the statement.

Research Question 3

Does the use of models and specimens increase knowledge and appreciation of technical education? Table 3 reveals that 140 representing 70% of the respondents agreed that the use of pictures and charts enabled technical education students to understand the subjects better while 60 representing 30% disagreed with the statement. Also, 136 representing 68% of the respondents agree that specimen and concrete objects provided for practical in their schools are adequate while 64 representing 32% of them disagreed with the statement, and 140 representing 70% of the respondents agreed that students understand their lessons better when pictures and charts are used in teaching them while 60 representing 30% of them disagreed with the statement. Table 3 further reveals that 120 representing 60% of the respondents agreed that teaching becomes effective if film clips, maps and other pictures were used while explaining a concept with them while 80 representing 40% of them disagreed. 130 representing

Table 1. Instructional materials and academic performance of students in technical education.

ITEMS	SA	A	D	SD	% of A	% of D
The instructional materials make technical education lessons more interesting.	60	90	27	23	75	25
The instructional materials make technical education more realistic.	55	65	37	43	60	40
Instructional materials create opportunity for students' participation during the lessons.	53	87	26	34	70	30
Technical education teachers always use instructional materials during their lesson period.	68	77	31	24	72.5	27.5
Instructional materials help the technical teachers present the facts concretely and realistically.	74	96	12	18	85	25

Table 2. Instructional materials and teaching and learning in technical education.

ITEMS	SA	A	D	SD	% of A	% of D
The use of instructional materials save time while delivery lesson	56	64	34	46	60	40
Instructional materials make technical education easy.	66	60	40	34	63	37
The lessons taught with instructional materials are more retained by the students than those without the use of instructional materials.	62	63	45	20	67.5	32.5
Instructional materials help to arouse students' interest in technical education.	65	67	34	34	66	34

Table 3. Use models and specimens and increase of knowledge and appreciation of technical education.

ITEMS	SA	A	D	SD	% of A	% of D
The use of pictures and charts enable technical education students to understand the subjects better.	67	73	28	32	70	30
The specimens and other concrete materials provided for practical teaching are adequate.	63	73	34	30	68	60
Students understand their lessons better when pictures and charts are used in teaching them	65	75	38	22	70	30
Teaching becomes effective if film clips, maps and other pictures are used while explaining a concept with them	64	56	45	35	60	40
The uses of models make lessons more interesting.	50	80	36	34	65	35
Teachers always use instructional materials to deliver his/her lessons.	40	60	55	45	50	50

65% of the respondents agreed that the use of models made lesson more interesting while 70 representing 35% of them disagree. However, 100 representing 50% of the respondents agreed that their teachers always used instructional materials to deliver their lessons while 100 representing 50% disagreed with the statement.

DISCUSSION

The findings revealed that instructional materials have a significant effect on students' academic performance in technical education. This finding is consistent with the views of Farombi, (2008) who stated that the instructional materials have an effect on learning, with good understanding in less time as well as means of communication between teachers and learners. The finding is equally in support of Awoniyi, (2008) findings who attest that instructional materials enrich the students memories thereby improve retentive memories of the students, because what is learnt under such a situation remains more permanent in their memories which eventually increase their academic performance. This also in line with Akkinson, (2009) who indicated that instructional materials give rise to a more effective learning than lecturing because the students could see, touch and perceived what is been taught in the classroom situation.

The result of the findings indicate that the use of instructional materials facilitated and enhanced effective teaching and learning of technical education in secondary

schools which is in line with Bouska and Gollonary, (2011) who opined that it is generally assumed that students or learners will understand the things they see very easily than listen to abstract ideas presented in words and it makes the teaching more meaningful to the students. This finding is also in support of Bellow, (2009) who stressed that instructional materials adequately enhanced teaching and learning because the learners are not taught in abstract, they are exposed to specimen, film clips, models and the likes which make practical teaching adequate through the use of instructional materials.

The result of the findings showed that the use of models and specimens increased the students' knowledge and appreciation of the subject content in technical and vocational and other similar courses. This finding is supported by Eshiet, (2016) who found that the students are more appreciative of the knowledge acquired if they could see and participate in the building of their lessons. Through the practical the students were not just told what had happened but they saw, felt and perceived thing for their own. Therefore, the learning in such a situation is retained permanently in the memory. Awoniyi, (2008) in confirmation to this held that models and specimens are a kind of short cuts or substitutes for the study of real things and are sometimes even more effective than reality. However, Akkinson, (2009) describes models as being particularly useful for limited class room teaching and learning process, therefore, adequate care should be taken in the use of models, hence; it could not be used for all topics and at every

teaching learning situation

Conclusion

Based on the findings it was concluded that instructional materials have a significant effect on the academic performance of students in technical education in secondary schools. All the applied subjects like vocational subjects such as auto-repair, welding, fabrications, electronics and the likes need practical which demand adequate instructional materials. Also, instructional materials have direct contact with sense organs of the body which enable them to use the combination of sense like smelling, hearing, touching, tasting and sighting which stimulate effective learning process among the students. Therefore, instructional materials facilitate and enhance effective teaching and learning of technical education in secondary schools. Further, the use of instructional materials like models and specimens increase the students' knowledge and appreciation of technical education.

Recommendations

The teachers should be aware that instructional materials are to complement teaching/learning activities and should be judiciously used not to contravene the real teaching. Since the technical education schools are phased out completely, all schools should be well equipped to ensure that all needed materials and infrastructural development for technical based subjects are provided. The technical education teachers should be sponsored to attend seminars and workshops in order to broaden their skills in the use of instructional materials in schools. The Government, Non-Government agencies and stake holders in education should collaborate with the school authorities in providing the needed instructional materials for schools. In-service training, orientation and re-orientation of technical education teachers are much needed in all schools where technical based subjects are offered.

Authors' declaration

We declared that this study is an original research by our research team and we agree to publish it in the journal.

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