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CHAPTER 14

THE ROLE OF EDUCATIONAL TECHNOLOGY IN THE ADMINISTRATION AND SUPERVISION OF VOCATIONAL EDUCATION IN NIGERIA

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Abstract

Educational technology is the application of modern skills and techniques to the requirements of education. It includes the facilitation of learning by the manipulation of media and methods and by the control of environment where this reflects on the learning process. Vocational education, a workshop-based education, employs educational technology as a means of achieving its training objectives. It is designed to equip individuals with employable skills in all of its eight service areas using educational technology. Vocational education supervision is a set of activities executed by the supervisor for the purpose of facilitating teaching and learning for the learner. Educational technology is of core concern to vocational education administrators and supervisors whose intent is to facilitate achievement of quality learning. There is a listing of some education technology items of instructional importance to vocational education. Use of tools materials and equipment, manipulative abilities needed in item production and workshop-based nature are among the commonalities shared by vocational education and educational technology. Vocational education differs from educational technology because it is more cost intensive, more career-oriented, more industry-related and has greater involvement in national development. However, both educational technology and vocational education play complementary roles in the business of administration and supervision required for manpower production.

Introduction

Nigeria requires improvements and innovations in her educational technology and vocational education setting (Ekpo, 1991). These forms of education in Nigeria are required to liberate and launch her into the technological age. Educational technology,

sometimes referred to as educational engineering or media education (Craig, Mehrens and Clarizio, 1995) is central to all instruction from the standpoint of theory and practice of a given discipline. It constitutes the limbs with which method is moved to accomplish the pre-stated objectives in education. Educational technology has been in use since the ancient era as demonstrated on the walls of caves of primitive man and is even in more demand in this age of sophistication in pedagogy.

Educational technology is the application of modern skills and techniques to the requirements of education including the facilitation of learning by the manipulation of media and methods, and by the control of environment where this reflects on the learning process (Adeyanju, 2000). The foregoing is the acceptable definition in the context of this paper.

The processes of designing, producing, selecting, utilizing and evaluating instructional materials/media for effective teaching and learning have become the basic tenet of educational technology. Indeed for educational technology, instructional materials/media enhance teaching and learning (Ekpo, 1994). It has become a reliable ally and a source of inspiration to vocational education. Vocational education, a workshop-based education can accomplish but little in cognitive, affective, perceptual and psychomotor skills development, without educational technology. Vocational education facilitates the adjustment of the skills and knowledge of man to the changing demands of the society occasioned by the emerging technologies. It is the form of education deliberately designed to help individuals acquire or develop their skills for careers in the world of work. It emphasises skills acquisition in the cognitive, affective and perceptual domains of training (Kazanas and Wolff, 1973; Miller and Usoro, 1981; Erickson and Wentling, 1986;). Skills acquisition in vocational education is highly dependent,

among other things, on effective administration and supervision by qualified and experienced personnel (Fafunwa, 1982). Educational technology is of core concern to vocational education administrators and supervisors who aim at facilitating achievement of quality learning. However, there are several commonalities and differences between educational technology and vocational education in their roles of educating individuals for productive living.

Vocational Education Service Areas and Demands of Educational Technology

Vocational education has about eight service areas namely agriculture, business, home economics, trade and industrial education, technical education, distributive, health occupations (Thompson, 1975 and Elias, 1980) and computer education a new member in the family of vocational technical education. Instruction in the foregoing areas requires effective management of materials, processes, human competence, efficiency and supervisory effectiveness. In all of the efforts towards the accomplishment of the above ends, educational technology has an unavoidable role to play. At this point a tabular analysis of vocational education areas and the required aspects of educational technology is in order as illustrated in table 1.

Table 1: Analysis of vocational education service areas and the needed forms of educational technology for instructional purposes

S/N	Vocational Education Service Areas	Topical options	Types/Modes of Educational Technology
1	Agricultural Education	Plant and animal husbandry, Horticulture, Fishery, Bee - keeping etc.	Photographs, Artistic Illustrations, realia cutaways, charts, video presentation microteaching technique, with samples of Aquatic Storage, pictures, illustrations, etc.
2.	Business Education	Accounting, office Education, Computer, Business, Mathematics etc.	Micro-teaching, cardboard illustrations, model business laboratory, tape recorder etc..
3	Technical Education	Wood technology, metal work technology, building technology, technical drawing, electricity/electronics, plastics technology, automechanics, industrial/crafts.	Illustrations of industrial processes, machines, tools and materials. Short circuit television videos, slides, micro-teaching lab real objectives (realia) overhead projectors models, cutaways and computer, etc
4	Home Economics	Child Development Home Furniture, Maintenance, textile, food preservation and preparation, catering etc.	Charts, slide and projector, illustrated procedures micro teaching technique, computer, films etc
5	Distributive education	Market survey, items disTribution and servicing advertising promotion of sales, etc.	Technique postcards, cardboards, illustrations, Radio and television, fliers, printed materials etc.
6	Health Occupation	Dietetics Dentistry Nursing, First Aid Applications etc.	Models and micro - teaching technique slides and tape cardboard illustrations, charts, models, cut - aways and real objects, CAI, etc.
7	Trade & Industrial Education (cuts across all vocational education options).	Welding, Fire Extinguishers for all options, technical illustrations of practical presentations on skills acquisition.	Simulation and micro-teaching techniques cardboard illustrations and cutaways
8	Computer Education	Micro softwares, hardwares, canvas illustrations, showing computer parts, uses and operations, video tape, ICT's	Cardboard illustrations, rea alia, printed materials, transparencies, drawings, pictures, Computer Assisted Instruction (CAI) etc.

However, the role of educational technology in the administration and supervision of vocational education leaves much to be desired. Educational technology serves as a brain child, sacred avenue, insight, as well as innovative mechanism to vocational education in an attempt to integrate instructional media with instruction. Etim (2000), confirmed that educational technology and vocational education are like two sides of the same coin. To a certain extent, they complement each other in the production and utilization phases. They are, therefore, inseparable as far as effective teaching and learning are concerned. This is so because both educational technology and vocational education are instructional materials-oriented and technologically driven oriented.

Commonalities Shared by Educational Technology and Vocational Education

There are certain commonalities which permit the two areas to play complementary roles to a considerable extent. Both educational technology and vocational education use instructional items or materials as a mechanism through which effective teaching and learning can be enhanced and attained. Furthermore, educational technology and vocational education are to some extent workshop-based. That is the production of educational technology items involves use of tools, materials and manipulative abilities. In fact, there is educational technology in vocational education and vice versa except that the latter is more vocational-oriented than the former. Many tools and machines used in vocational education are applicable to the production of educational technology items required in teaching agriculture, technical education and other vocational-technical courses. The internal movement of machines and equipment are best illustrated or taught through the use of appropriate audio-visual aids in order to facilitate students' understanding and retention of the functioning those machines and equipment. Both areas are also very responsive to changes in technology.

Educational technology and vocational education are inseparable because they involve safety rules and precautions in their processes of production. Observation of safety rules and precaution is involved in the use of tools and machines to design, produce and

apply finishes to the completed instructional models, charts and fabricated items. The processes of vocational education and instructional technology also call for creative abilities of both the teacher and the taught. ology also call for creative abilities of both the teacher and the taught.

Differences Between Education Technology and Vocational Education are Explained as Follows

Educational technology is relatively inexpensive in terms materials acquisition, accessibility, availability and affordability of the essentials for the production of the instructional items. This is so because there are many improvised instructional materials/media which are readily available in the Nigerian environment for use in efficient teaching and learning in the classroom. Educational technology is an area of specialization which requires a shorter period of teacher training and preparation as compared to vocational education. Generally, educational technology uses light tools and few heavy equipment in preparing instructional items. Infact a well-equipped Introductory technology is very adequate for educational practicals. In educational technology, much emphasis is laid on planning, designing, producing, selecting, utilizing, integrating, and evaluating of instructional media for effective teaching and learning. Much emphasis is also laid on micro-teaching as a panacea for effective learning. Unfortunately, there are very few micro-teaching laboratories in the Nigerian tertiary institutions involved in teachers training. Educational technology only exists in the tertiary institutions as one major or general course in the tertiary curriculum for teacher preparation. Microteaching, a crucial strategy for skills training is yet to receive attention through establishment of effective laboratory for it in the teacher training programmes in Nigeria. Vocational education is workshop-based and therefore strongly career-oriented. It includes general education involving prevocational and pretechnical training as well as skills acquisition at the tertiary levels of education (FRN, 2004).

Educational technology involves a relatively short period of teacher preparation and dwells more or cognitive rather than psychomotor skills development. Vocational education on the other

hand requires longer period of teacher preparation and emphasizes vocational skills acquisitions for paid employment or entrepreneurial exploits. It is also more technological and creativity-driven than educational technology. Vocational education requires heavily equipped shops (unit shops) similar to those in the industry but on a miniature scale. In brief, the intent of vocational education is to bring industry into the classroom. Vocational education creates the theatre for the display of educational technology ingenuity in the pedagogic scene. An effective administration and supervision of vocational education is judged by the quality of processes and products of its manpower training. An essential element in the production of quality manpower is the effective supervision of administration and pedagogic efforts backed by application of appropriate educational technology items and other instructional gadgets.

Summary

Educational technology is the application of modern skills and techniques to the requirements of education. It includes the facilitation of learning by the manipulation of media and methods and by the control of environment where this reflects on the learning process. Technology is the science of the application of knowledge for practical purposes hence educational technology would seem to comprise the process of applying available knowledge in a systematic way to solve problems in education and training (Onwuka, 1985). Vocational education as a workshop-based education employs educational technology as a technique of achieving its training objectives. It is designed to equip individuals with employable skills: cognitive, affective, psychomotor and perceptual skills for balanced work behaviour needed in today's world of work (Erickson and Wentling, 1986) Vocational education administration is the bringing together the personnel and materials for effective and functional teaching and learning. Vocational education supervision is a set of activities which are carried out with a purpose of facilitating the teaching and learning for the learners. It also deals with a set of activities which are carried out by the

supervisor with the purpose of sensitizing, mobilizing and motivating personnel in the school towards the achievement of the stated aims and objectives of the vocational education (Usoro & Usoro, 2010). Skills acquisition in vocational education is highly dependent, among other variables, on effective administration and supervision by qualified and experienced personnel. Educational technology is of core concern to vocational education administrators and supervisors whose intent is to facilitate achievement of quality learning. In all efforts towards accomplishing training objectives in the service areas of vocational education, vocational technology has an avoidable role to play. Educational technology items of instructional importance to vocational education include: photographs, artistic and technical illustrations, cut-aways, charts, video equipment, model business laboratories, short circuit T.V's, tape recorders, radio and television, computer assisted instruction (CAI), fliers, printed materials and micro-teaching technique. The commonalities shared by educational technology and vocational education are use of instructional materials, workshop-based nature, manipulative abilities needed in item production, use of tools and machines, safety precautions in the use of tools, materials and equipment, creative abilities and responsiveness to emerging technologies. Both play complementary roles in the teaching and learning process. Vocational education differs from education technology because it is relatively more cost intensive requires a longer period of teacher; preparation requires a more heavily equipped laboratory; more career-oriented; produces technical manpower; more industry-related in nature and has greater involvement in national development. Educational technology has a permanent link with vocational education in its administrative and supervisory dimensions.

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