

CHALLENGES IN EDUCATIONAL TECHNOLOGY IN NIGERIA EDUCATION SYSTEM

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Abstract

Educational technology is not a panacea to all educational problems, it is agreed that it has numerous benefits but many challenges are preventing these benefits from being realized. The challenges before practitioners, proprietors, governments and so on are to identify these problems and solve them in a creative and systematic manner. However, this paper tries to explore together the meaning of the term educational technology and raise a definition. The challenges of educational technology in Nigeria and recommendations such as organizing regular workshops, seminars and conferences were highlighted in the paper for the benefit of all.

Introduction

The concept of educational technology has been difficult to define. According to Adewoyin (1991), various reasons account for this. Firstly, the terms education and technology from which the term educational technology is derived are subject to many interpretations. Whereas education is seen by some people as teaching and learning; it covers a much wider area. There is hardly agreement as to the aims of education and how the aims are to be achieved. The term technology means different things to different people. For some, it means equipment, gadgets, tools, instruments and products. For others it is a process; it is the application of scientifically gathered knowledge to practical problems.

Secondly, the problem of definition comes from lack of consensus on the scope of the subject. At one end, educational technology is seen as being concerned with virtually all aspects of education; from a lesson or unit to the national educational system within which it operates. At the other extreme, some restrict it to instructional materials or audio-visual aid (Rowntree, 1994).

Thirdly, educational technology is often wrongly used interchangeably by some with the terms; instructional technology, technology of education, technology in education programmed learning, operant conditioning, computers, information and communication technology, educational media, etc. (Onuebunwa, 1999; Imogie, 2002).

Fourthly, educational technology spans diverse fields such as education, psychology, telecommunication, information systems, management science and engineering. Writers with backgrounds in these fields tend to see the subject from their own perspective (Imogie, 2002).

The Concept of Educational Technology

Various attempts have been made to define the term educational technology. The definitions have differed from one scholar to another. Davies (1978) cited by Agun and Imogie (1998) identifies three concepts of educational technology, which represent three different approaches to educational technology. These are educational technology as hardware, as software and as system approach.

i. Educational Technology as Hardware

This approach to educational technology characterised the early formative years of the field. It sees educational technology as the devices, equipment, machines, gadgets, tools and

instruments used to promote teaching and learning (Agun and Imogie, 1998). This is also known as the tools technology approach. The hardware or product approach was greatly influenced by the physical sciences. It involved a direct application of the physical sciences to the problems of education. It entails the instrumentation, mechanisation or automation of education. The goal is to make teaching more efficient by mechanising or industrialising it.

ii. **Educational Technology as Software**

The software approach to educational technology emphasises careful design of the teaching-learning process using principles of behavioural sciences. It is closely associated with programmed learning and the behavioural objectives movement. It is the behavioural science concept of educational technology. Emphasis is on applying learning principles to the direct and deliberate shaping or modifying of behaviour. It is characterised by detailed task analysis, writing to precise objectives, selection of learning strategies, reinforcement of correct responses and constant evaluation.

iii. **Educational Technology as Systems Approach**

The systems approach is also known as the step-by-step plan, systems analysis, systematic approach and systems technology. The systems approach is an attempt to remedy the inherent weakness of the approaches above. It sees educational technology as the systematic application of ideas, resources, people, materials and equipment to the solution of educational problem (Agun and Imogie, 1998). It entails a holistic approach to problem solving. The educational problem at hand or the entire educational system is analysed within the context in which it is located, operated or with which it interacts. It entails systematic thinking; having a holistic view of the educational system or educational problem at hand. It is concerned with the systematisation of the educational process. It implies operating at different levels of complexity and dimensions.

However, Agun and Imogie (1998) have argued that the three approaches to the definition of educational technology may represent three different stages in the development of the field. These stages are illustrated below:

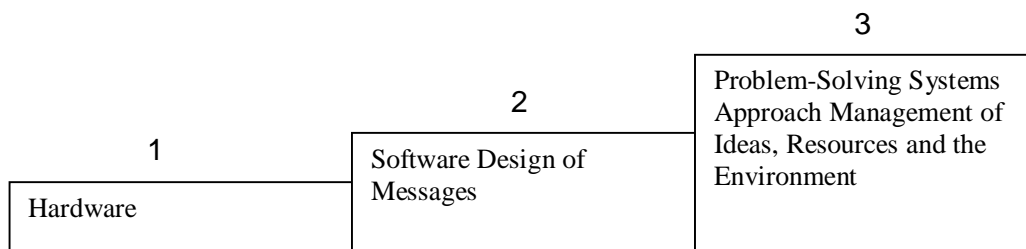


Fig. 1: Different Stages in the Development of Educational Technology (Agun and Imogie, 1998).

The systems approach may be illustrated with the learning system. The learning system according to Agun and Imogie (1998) is “an organised combination of people, materials, facilities, equipment and procedures, which interact to achieve a goal.” This is illustrated with the diagram below:

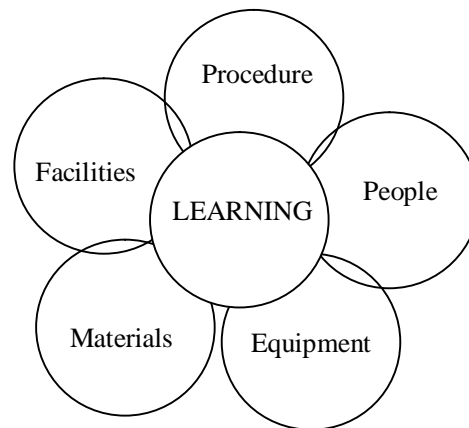


Fig. 2: Learning System. (Source: Agun and Imogie, 1998).

Definitions of Educational Technology

This paper examines various attempts made by scholars to define the term educational technology. These are:

- a. Educational Technology refers to hardware and software, including television, radio, electronic classroom, instructional devices, still and motion picture projectors, computer-assisted or managed instructional equipment and materials, communications equipment for educational application and other equipment and materials necessary to assist the process of learning (Grayson, 1982 cited in Rowntree, 1994).

This definition restricts the meaning of educational technology to instructional media, with emphasis on the gadgets used in learning. The concept of technology in education is seen in terms of physical products.

- b. Educational Technology is a systematic way of designing, carrying out and evaluating the total process of learning and teaching in terms of specific objectives, based on research in human learning and communication and employing a combination of human and non-human resources to bring about more effective instruction (Agun and Imogie, 1998).

This definition defines education technology in terms of the product and process of technology as a way of organising materials and men.

- c. Educational Technology is the development of a set of systematic techniques and accompanying practical knowledge for designing, testing and operating schools as educational systems. It draws upon many disciplines, including those which design working space, like architecture, equipment like the physical sciences; social environments like

sociology and anthropology; administrative procedures like the science of organisations and conditions for effective learning like psychology (Gagne, Briggs and Wager, 1992).

This definition draws attention of the various fields that contribute to educational technology.

- d. Educational Technology is concerned with designing the system as a whole; identifying aims and objectives, planning the learning environment, exploring and structuring the subject matter, selecting appropriate teaching strategies and learning media, evaluating the effectiveness of the learning system and using the insights gained from evaluation to improve that effectiveness for the future (Umar, 1991; Rowntree, 1994).

This definition outlines the various operations that are carried out in the field of educational technology. The need for standard definitions and terms in the field of educational technology has been the concern of many scholars and associations for educational technology. Based on this background and various points derived from each definition, the most acceptable and professional definition of Educational Technology could be seen as a complex, integrated process involving people, procedures, ideas, devices and organisation for analysing problems and devising, implementing, evaluating and managing solutions to those problems involved in all aspects of learning. In educational technology, the solutions to problems take the form of all the “Learning Resources” that are designed and/or selected as Messages, People, Materials, Devices, Techniques and Settings. The process for analysing problems and devising, implementing and evaluating solutions and identified by the “Educational Development Functions” of Research – Theory, Design, Production, Evaluation, Selection, Logistics and Utilisation. The processes of directing or coordinating one or more of these functions are identified by the “Educational Management Functions” of organisation, management and personnel management.

From the above definitions, one can make the following deductions about educational technology:

- i. Educational technology employs an integrated, holistic, problem solving approach.
- ii. Emphasis is on a systematic process of analysing problems and devising, implementing, evaluating and managing solutions to the identified problems.
- iii. The kind of problems that concerns educational technology are those problems that pertain to all aspects of human learning.
- iv. It involves not only devices, equipment and media but also people, procedures, ideas and organisation.

Challenges of Educational Technology in Nigeria

Educational Technology is an educational innovation and is as old as education. Its practice is therefore faced with a number of challenges in Nigeria.

Firstly, there is the problem of ignorance and misconception of what educational technology is (Umoru, 1991; Imogie, 2002). Some see educational technology in terms of teaching aids and or the use of gadgets, tools and devices like projectors, films, radio, television, computer, etc. The tendency of such a narrow view is the focus on only the tools aspect of education. In Nigeria, so much money was spent in importing tools for Introductory Technology, with much of the gadgets lying idle for several years due to so many factors. A correct conception of educational technology would have suggested a more careful and holistic planning, implementation and evaluation of the project.

Another serious challenge of educational technology in Nigeria is what Imogie (2002) calls “lack of institutional readiness for Educational Technology.” These are factors related to the adoption and diffusion of Educational Technology as an educational innovation. These factors are:

- a. Lack of professionally or academically trained personnel in Educational Technology limits the practice of the field.
- b. Poor funding and allocation for Educational Technology at the various levels of the educational system leads to inadequate supply of facilities, equipment and materials. No wonder, most of our Nigerian schools are ill-equipped, if at all.
- c. Lack of space and instructional resources in Nigerian schools and colleges. Most classrooms, lecture halls and auditoria are not designed or adapted to accommodate audio-visual devices.
- d. Bureaucratic bottlenecks and rigid organisational structure that oppose innovation and insist on maintaining the status quo.

Furthermore, Educational Technology Centres are non-existent in most schools and colleges, higher institutions. Other challenges could be:

- Lack of power supply.
- Lack of relevant educational media in majority of subject areas
- Lack of professionalisation of educational technology in Nigeria is a major challenge.
- Maintenance problems exist. Also, there is lack of spare parts.
- Teaching load that leaves the teacher with little or no time to adopt and use educational technology tools and techniques.
- The Nigerian educational system places much emphasis on examinations and certification thereby limiting the extent to which educational technology tools and techniques can be used in the instructional process (FRN, 1981).

Conclusion

Although educational technology is not a panacea to all educational problems, it is agreed that it has numerous benefits. However, many challenges are preventing these benefits from being realised. The challenges before practitioners, proprietors, governments and other interested bodies is to identify these problems and solve them in a creative, systematic and comprehensive manner so that the dreams for educational technology in Nigeria can be fully realised.

Recommendations

Educational Technology has been shown to be a field that can bring about rapid improvement in the Nigerian educational system if well implemented. Having identified some of the challenges, it is necessary for this paper to suggest ways of overcoming these challenges. These are:

1. Workshops, seminars, conferences, etc. should be organised regularly to correct the misconceptions about the meaning and importance of educational technology to our educational system.
2. The workload of teachers should be at the optimal level that will give them time and room for creativity and effective practice of educational technology.
3. Staff with sufficient academic or technical training in educational technology should be engaged. Training institutions like Universities of Technology, Polytechnics and Colleges of Education, Technical will have to design and provide short and long term academic programmes for the training of educational technologists that will fill existing vacancies.

4. Teachers which practice educational technology should be rewarded or compensated properly.
5. A conducive environment for practising educational technology should be created by government and proprietors of the educational institutions. Regular power supply, provision of infrastructural facilities are necessary prerequisites for the development of educational technology in Nigeria.

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