

Adult Educators' Adoption of Technological Innovations for Quality Delivery of Formal Adult Education Programmes: Benefits and Constraints in Nigeria

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ABSTRACT

The paper examined the benefits and constraints to adult educators' adoption of technological innovations for quality delivery of formal adult education programmes in Nigeria. Concepts such as innovation, technological innovations, quality delivery, adult education, formal adult education programmes and adult educators/facilitators were clarified. The paper identified computer and interactive whiteboard as technological innovations for enhancing quality delivery of adult education programmes. The paper concluded that the adoption of technological innovations in the area of computer and interactive whiteboard is the best thing that happened in education. In modern times, computer is used in aiding instruction and to manage learning while electronic interactive whiteboard offer great convenience to adult educators during lessons. In spite of these benefits, much of the desired changes in education are smaller than expected due to constraints such as limited access to Information & Communication Technology (ICT), adoption of technology, poor environment, dearth of skilled manpower, poor power supply among others. The paper suggested among others that government should ensure that technological tools such as computers and interactive whiteboards are adequately provided in adult education centres.

Keywords: Adult Educators, Technological Innovations, Quality Delivery, Formal Adult Education Programme, Benefits, Constraints.

INTRODUCTION

Whether formal, informal, or non-formal, education provides the bedrock through which development acquires its meaning in any society. It is the most fundamental and vital aspect of social inquiry and the harnessing of human resources (Ibekwe in Omordu, 2011). Education is the process by which a person develops abilities, skills, attitudes and other forms of behaviour of positive values in the society; it seeks to refine man by developing his potentials and equipping him to live a life that is meaningful, productive, and responsible in the society. Wami (2018) posited that education is the only means of eliminating illiteracy and ignorance in the society. It is a process geared towards emancipation of man; a man that will be fully equipped mentally, physically, psychologically, socially, morally and otherwise to be a useful being whose usefulness will automatically affect his immediate environment and the society at large (Omordu, 2011). Education is a powerful weapon that can be used in eradicating ignorance, poverty and diseases and to produce people who can function effectively in the society and instrument for freeing people from incapacitation and exclusion (Isife & Ogakwe, 2012; Onwuka, 2012 in Wami, 2018).

Based on the above assertions put forward, it becomes imperative to improve and maintain the quality of adult education in order to give its contents and programmes the desired and expected propagation; innovate the curriculum and give it a new look, make it more relevant to the needs of the society and meet the expectations of the nation. Adult education is an important element in the development of human resources;

it serves as a means of public enlightenment to the masses and plays a crucial role in the development of any society including the rural areas (Barikor in Wami, 2020). The United Nations Economic, Scientific and Cultural Organization (UNESCO) has over the years engineered substantial initiatives through reform policy designs and direct support efforts in ensuring that adult education programmes are placed in the right perspective. For adult education programmes to be of more relevance and to ensure compliance with societal needs, they must be planned for innovation, especially in the area of curriculum and programme delivery.

The goals of “Education for All” (EFA) serve as all-changing task for a developing country like Nigeria to initiate innovations in her educational system that will combat illiteracy, enhance equitable access and improve the quality of education (Abali & Ohia, 2017). Therefore, the adoption of technological innovations that will enhance quality delivery of adult education programmes will enhance the development of quality outputs of adult learners, which will in turn quicken the development of Nigeria as a nation. It is in the light of the above facts that this paper examines the benefits of and constraints to adult educators’ adoption of technological innovation for quality delivery of formal adult education programmes in Nigeria.

CONCEPTUAL CLARIFICATIONS

Innovation

The term “innovation” is derived from the Latin word “innovatus” meaning to alter or to make a change. Innovation is a tool for enhancing quality in education and has received the attention of educators, educationists and researchers across the globe (Abali, 2018). Fadipe and Adepoju (2009) asserted that innovation is a purposeful, organized, risk-taking change introduced for the purpose of ensuring efficiency and increased productivity. It means not only adopting to new conditions but creating new conditions. Nduanya in Bassey (2009) posited that innovation is any thought, behaviour or thing that is new because it is qualitatively different from existing forms. It is any idea, practice, or material artifact perceived to be new by the relevant unit of adoption (Zaltman & Lin in Bassey, 2009). Bassey (2009) averred that all innovations start as an idea, after which some of them reach the level of overt and tangible expression through the implementation process. Thus, innovation is a specific change or alteration in the education that is initiated to facilitate the achievement of a predetermined goal.

Hornby (2010) stated that innovation is a new idea, way of doing something that has been introduced or discovered. Mkpá and Izuagba in Anekwe and Abe (2015) maintained that innovation is the invention, which involves the creation of something new. It is a strategy for intervention in a national reform that modifies organizational structure (Anyago, 2015). Agabi in Abali (2018) affirmed that innovation is a positive planned and specific changes that are initiated to facilitate the achievement of some defined goals. Innovation reaches and touches every area of the Nigerian educational system such areas according to Abali (2018) include methods of teaching, educational content, organization and management of education, and pupils/students.

Technological Innovations

Technology is the method of applying technical knowledge in any area of human endeavour. It is the knowledge of creation and development of tools and skills for the production of other realities (Anyago, 2015). Pitt in Anyago (2015) saw technology as the deliberate design and manufacture of the means to manipulate the environment to meet humanity’s changing needs and goals. Technology is a way of thinking about problems and the feasibility of the proposed solution. Consequent upon the aforementioned facts therefore, technological innovations are planned changes through the development and use of information and communication technologies. With the advent of technology, some important changes are made in education. Due to technological innovation in education, teachers are seen as facilitators rather than

dispensers of knowledge, and students are provided the opportunities to work and learn on their own (Anyago, 2015).

Quality Delivery

Any statement about quality delivery implies a certain relative measure against a common standard (Abali, 2011). Quality demonstrates not only a certain degree of objectivity but the performance of subjectivity (Su Zhang & An, 2010). Hornby (2010) asserted that quality is the standard of something when it is compared to other things like it; how good or bad something is. Peterson in Mbachu, Oragwu and Osuji (2011) averred that quality denotes superiority or excellence. Abraham and Uche (2011) stated that quality can be seen as the worth of something. Iheanacho (2011) opined that once learners and teachers abide by the rules and regulations and act in accordance with usual methods of doing things, they are acclaimed to be maintaining quality. On the other hand, delivery connotes bringing to the knowledge of others what is intended. It is the way in which someone teaches, speaks, sings a song, etc. in public (Hornby, 2010). Quality delivery is therefore the purposeful and meaningful transfer of knowledge, skills, competencies and attitude formation in human beings either in the formal or informal educational set-up. It is all about communication between the teacher and the learner, and the learning resources which involves giving and receiving information. Quality delivery is the statutory curricula functions that performed by teachers/educators, which ultimately depends on the commitment of the teacher/educator to make judicious and adequate use of both human and material resources to ensure effective teaching and learning (Ayeni et al in Alonge, 2021). Amaele (2010) posited that the delivery ability of teachers requires sound knowledge of the subject and ability to communicate well. This enables them to teach the ways that result in understanding what is taught and assess learner's abilities and capabilities accurately.

Adult Education

Adult education is education at all levels, all times and in all conditions of educational needs of the adults (Otty, Opara & Izekor, 2022). It is an umbrella term for all educational programmes or services designed for the adults in formal, non-formal and informal sector of the society. It is a practice in which adults engage in systematic and sustained self-educating activities in order to gain new forms of knowledge, skills, attitudes, or values (Olasupo, 2015). Wami, Nwafor and Deekor (2019) averred that adult education is the process by which men and women (alone, in groups or institutional settings) seek to improve themselves or their society by increasing skills, their knowledge, or their sensitiveness. It is any process by which individuals, groups or institutions try to help men and women improve their skills, and knowledge (Houle in Wami et al., 2019).

Townsend-Coles in Kobani (2018) asserted that adult education is all forms of educative experiences needed by men and women according to their varying interests and requirements of their differing levels of comprehension ability and in their changing roles and responsibilities throughout life. It is any education given to men and women based on their cultural and socio-economic needs; and to enable them adjust fully to changes and issues in life and society (Nzeneri in Otty et al., 2022). Adult education is a practice in which adults engage in systematic and sustained self-educating activities to gain new forms of knowledge, skills, attitudes, or values. It is any form of learning adults engage in beyond traditional schooling, encompassing basic literacy to personal fulfillment as a lifelong learner (Wami & Egumah, 2021).

Formal Adult Education Programmes

Formal adult education programme is a systematically arranged adult education programme in which students are enrolled or registered to follow established courses, either on a full time or a part time basis. The programmes are normally held within the walls of institutions, and follow established norms set by the school-type of learning. Here, the teachers lecture the learners (Anywu, 2015). Anywu posited that the

distinguishing characteristics of formal adult education is that it involves a combination of registered enrolment and work of a syllabus which leads to some sort of certificate. It is parallel to the regular school, college or tertiary institutions provision. Examples of these programmes are NTI, NCE, and Degree certificate, Sandwich programme for the award of PGD and FSLC for literacy adult education learners.

Adult Educators/Facilitators

The terms “adult educator” and “facilitator” are used interchangeably to mean the same thing within the confines of this paper. Adult educators or facilitators are professional teachers that care for and encourage adult learners in the delivery of formal adult education programmes. The National Commission for Mass Literacy, Adult and Non-formal Education in Okoye, Nworie, Ukponu, and Ezugoh (2022) asserted that a facilitator is a person directly charged with the responsibility of making adult learners to learn in any NFE centre. The person may be the owner of the centre taking some responsibilities; or may be an employed teacher. Adult educators are known for facilitating learning in adult literacy centres. Okoye et al (2022) averred that adult educators are experts and instructors in andragogical practices who facilitate adult learning. They are generally those who are charged with the task of educating, instructing, directing and teaching adult learners in different subject matters in a conducive classroom environment in adult literacy centres.

Hornby (2010) posited that a facilitator is a person who helps somebody do something more easily by discussing problems, giving advice, etc., rather than telling them what to do. A facilitator is a person that teaches something; especially a person whose job is to teach adult learners about certain subjects (Merriam Webster Dictionary, 2016). Otty, Mbaegbu and Ubochi(2021) stated that the quality of any teaching and learning outcomes in an adult class is usually determined by the professional facilitators. This is because an effective adult educator’s quality preparation and teaching is the hub of adult learners’ acquisition in the desired social, economic and cultural change and development (Nzeneri, 2010). Nzeneri further stated that a facilitator is an expert in the field of adult education who determines or fosters adult learning. A facilitator is a professional or educationist who helps the adult learners to acquire knowledge, facts, information, descriptions, or skills, which are acquired through experiences or education by perceiving, discoveries or learning (McDiarmid & Clevenger-Bright in Ezugoh, Okoye, Ukponu, & Nworie, 2022).

Adult educators’ duties, roles and responsibilities are enormous. Apart from the role of mentoring and the responsibility of facilitating learning, other additional responsibilities of adult educators include:

1. Providing critical and evaluative feedback to the adult learners;
2. Helping the adult learners acculturate into the broader learning; and
3. Being willing to invest themselves in a professional relationship with the adult learners in their charge (Korth, Erickson & Hall in Ezugoh et al., 2022).

Other roles of adult educators include teaching, supervision, evaluation, coaching, facilitation, reporting the adult learners’ academic performances and achievements, among others (Korth et al. in Ezugoh, et al., 2022).

Adult Educators’ Adoption of Computer as a Technological Innovation for Quality Delivery of Formal Adult Education Programmes

The introduction and adoption of computers in the Nigerian educational system in recent times is a technological innovation. Today, computers perform a host of functions in teaching and learning as educational institutions are adding computer literacy, reading and writing literacy as skills students (adult learners) will need for succeeding in this technological developed world (Nwanekezi & Ugonna, 2011; Abali & Suanukordo, 2015). Poole in Ejesu (2015) opined that computer illiteracy is now regarded as the new illiteracy. This perception has elicited a new and strong desire for schools (including formal adult education centres) to be equipped with computer facilities and qualified personnel (adult educators)

necessary for producing technological proficient and effective teaching and learning that increases people's creativity and intellectual resources in today's society. According to Ejesu (2015), computers aid instructional processes and facilitate students' learning. Through simultaneous use of audio, text, multi-colour images, graphics, motions and others, computers provide varied opportunities to students (adult learners) to develop capacities for high quality learning.

A computer is an electronic machine that can store, organize and find information, do calculations and control other machines (Hornby, 2010). It is a piece of equipment that uses electricity. It operates through instruction (software packages) which have been stored in its own memory. It can accept data and process it in order to get the required information (Lawal, Ezeah, Yaro, Aderiye, & Akindele, 2014). There are four categories of computers, namely microcomputers (personal computers), minicomputers, mainframe computers, and supercomputers. Computers are making enormous contributions to education at a very fast rate so that today computer is a compulsory subject at all levels of education (Achuonye in Abali, 2018). The contributions of computer in teaching and learning is evident from the educational perspective; since marker boards, textbooks, radio/television sets and film as instructional materials are been used for educational purposes, but none has so much impacted on the educational process like the computer. Unlike others, the computer activates the senses of sight, hearing and touch of users (Ejesu, 2015).

Adult Educators' Adoption of Interactive Whiteboard as a Technological Innovation for Quality Delivery of Formal Adult Education Programmes

The adoption of interactive whiteboard in teaching and learning has brought about fundamental changes in traditional classroom environments and teaching methods. The interactive whiteboard also known as electronic smart board is another striking technological innovation that combines the computer, projectors, and touch screen electronic board (Akbas & Pektus, 2020). It is one of the most popular educational technologies in today's world (De Vita, Verschaffel, & Elen, 2018). Interactive whiteboard was first used in education in the late 1990s, and quickly began to be used in many countries around the world. They are expected to become even more widespread in the next ten years (De Vita, 2018). The interactive whiteboard symbolized significant development that allows adult educators in formal adult education centres to arrange and organize information and teaching contents in a more effective and efficient manner, this automatically promised improved instructional quality or an improved teaching experience.

Interactively via interactive whiteboard remains within the framework of the electronic magic of technological innovation which allows the adult educator and adult learner to have a reciprocal and interactive relationship with the board. The interactive whiteboard is an instructional resource made up of a computer connected to both a projector and a touch-sensitive board that presents the pictures projected from the computer which allows for changes, and receives input electronically or by touch. The adoption of interactive whiteboard in teaching integrates the functions of a regular board with additional means that enable interactive and constructivist teaching and learning (Betcher & Lee, 2019). Therefore, the adoption of interactive whiteboard influences teaching processes, specifically where the integration between the facilitator's instruction style and the interactive whiteboard potential enables meaningful instruction. Becta (2018) and Higgins (2017) asserted that the adoption of the interactive whiteboard enhances motivation to learn, raises the level of concentration, improves behaviour, and enhances learning because it is fun and innovative. Miller (2017) posited that teaching with the use of interactive whiteboard enables students to be more attentive and more engaged in learning, participate more actively in the classroom, and interact much more with their teachers, their peers, and even with the interactive whiteboard.

Benefits of Adult Educators' Adoption of Technological Innovations for Quality Delivery of Formal Adult Education Programmes in Nigeria

The adoption of technological innovations in education in recent times is the best thing that has happened in

the education sector. A situation where an adult educator can conveniently instruct a class of more than one thousand adult learners at ease using a set of computer system and an interactive whiteboard is a great relief to teaching and learning process. In today's classroom, computers are used in aiding instruction. Computer aided instruction (CAI) is the use of computer to provide drills, practices and tutorial sequences to the students. It is a direct two-way interaction or communication between an individual student and programmed instructional material stored in a computer. The computer acts as an assistant teacher, a medium of instruction. CAI involves questions and answers with detail explanations. Most of the educational tutorials today come with multimedia presentation that is providing information using variety of media, including text and graphic displays, voice and audio photographs, and video segment. CAI has the ability to elicit curiosity thereby making the drill very interesting (Anyago, 2015).

In modern times computer is used to manage learning. Computer manage learning. CML according to Anyago (2015) does not have direct teaching effect on the students but to organize and manage instructions. This can be done in three ways: track records, instructional and resource availability. CML helps the adult educator or teacher to keep the tracks of the adult learners. It comes in form of software in order to create files for the individual learners in form of bookmark for a systematic progression. CML facilitates instructional management especially in the area of data collection, monitoring students' progress and other vital issues that will help improve learner's wellbeing. Ruth in Mecarech and Light in Wosowei (as cited in Wami & Wami, 2022) posited that lesson can be programmed and stored in the computer or in software packages as tutorials, drills, practice, and stimulation. Learners will have access to the lessons that have been taught in the class; as such, slow learners can go through for better understanding. According to ICT Advantages & Disadvantages in Wami & Wami (2022), students are generally more on track and express more positive feelings when they use computers than when they are given other tasks to do; and computer use during lessons motivate students to continue to participate in learning outside school hours.

The benefits of electronic interactive whiteboard in education have attracted the attention of education authorities, educators, and researchers. Thus, Sarikaya (2015) and Kaymak and Unal (2018) asserted that the adoption of interactive whiteboard in teaching for student's academic achievement in education is highly commendable. Interactive whiteboard offers great convenience to adult educators during lessons. The adult educator can adopt the interactive whiteboard to perform many functions such as to drag, cut and copy items, to take handwritten notes, convert these into text and highlight them, add annotations, notes, drawings and save them for printing and sharing, show animations and videos to all students in the classroom, capture and save screenshots, to retrieve, review and change these, if necessary, to use the contents of websites (Balta & Duran, 2015). Interactive whiteboards are equipped with software and serve as digital centre that enables adult educators and adult learners to integrate the internet and other hardware resources into lessons (Merces, Hennessy & Warwick, 2010). These functions of the interactive whiteboard have significant effect on the quality delivery of programmes in adult education. Batdi (2017) opined that the adoption of interactive whiteboard in education creates a teaching environment rich in visual and auditory aspects, and makes teaching materials more concrete.

Akar and Karakas (2020), Bozkus and Karacabey (2019) stated that interactive whiteboard makes lessons and learning fun, increases the interest, motivation and concentration towards the lesson and also contributes positively to the interaction between the educator and the learner. According to Akar and Celik (2020), interactive whiteboard accelerates teaching and saves time, increases the participation of learners and provides permanent learning, positively affects academic achievement and performance, attitude towards the course/programme, provides more teaching content that increases learners' ability to adopt technological innovation. Indeed, technological innovations in the area of computer and electronic interactive whiteboard adoption has made tremendous changes in the act of teaching and learning in education. Adoption of technology in education encourages active participation in classroom interactions as well facilitates the sharing of knowledge (Anyago, 2015). Students who use educational technology in school felt more

successful in school, and were more motivated to learn and have increased self-confidence and self-esteem. Students found learning in a technology-enhanced setting are more stimulating and student centred than in a traditional classroom (ICT Advantages & Disadvantages in Wami & Wami, 2022).

Constraints of Adult Educators' Adoption of Technological Innovations for Quality Delivery of Formal Adult Education Programmes in Nigeria

The adoption of technological innovations in the Nigerian educational system has not yielded much of the needed changes in improving quality delivery of formal adult education programmes. The changes noted are much smaller than expected, in spite of the fact that potentials for improvement are great. Some constraints seem to impede adult educators' adoption of technological innovations to bring about the desired improvement in adult education programmes. Such constraints include:

1. Limited access to ICT; access to technology implies the availability of equipment, machines, several appliances, and associated infrastructure like up-to-date computers, software and communication network that is efficient, effective and affordable.
2. Adoption of technology;
3. The environment;
4. Funding and facilities;
5. Dearth of skilled manpower to manage the system;
6. Poor maintenance culture due to lack of trained and experienced personnel;
7. Poor power supply, as all technological tools depend heavily on steady supply of electricity if they are to function effectively (Anyagou, 2015).

Other constraints include non-inclusion of ICT programmes in teachers training (Chigozie-Okwum, 2018), and poor ICT policy, programme and project implementation (Okai, 2021).

CONCLUSION

The adoption of technological innovations in the area of computer and interactive whiteboard for the enhancement of quality delivery of formal adult education programmes is the best thing that has happened in the education sector of Nigeria. In modern times, computer is used in aiding instruction (CAI) and to manage learning (CML) while electronic interactive whiteboard offer great convenience to adult educators during lessons. In spite of the enormous benefits of these technological innovations, they have not yielded much of the needed changes. The changes noted are much smaller than expected due to constraints such as limited access to ICT, adoption of technology, poor environment, inadequate funding and facilities, dearth of skilled manpower, poor maintenance culture, poor power supply, among others.

SUGGESTIONS

1. Government should ensure that technological tools such as computers and interactive whiteboards are adequately provided in adult education centres.
2. Adult educators should be trained to acquire the skills of using technological tools in teaching and learning.
3. Government should ensure the steady supply of electricity in formal adult education centres.
4. Administrators of adult education programmes should create a conducive environment for educators for quality delivery of lessons.

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