



CHAPTER 23

CHALLENGES IN UTILIZING TECHNOLOGIES IN SPECIAL NEEDS EDUCATION

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Introduction

The underlying basis for education hardly changes, only acquired knowledge metamorphosizes to an applicable new state which begets its own kind. Thus, the evolvement of human society has brought about corresponding changes in education and educational practices for an improved today and a better tomorrow.

Learning, a key component in the educational process is often described as a product of the interaction between sensory inputs and the coordination of the brain. Children with disabilities are predisposed to learning difficulties as a result of the problems created by impairment and other co-morbidities that compromise the process and limit their ability to learn like their normal peers, hence, the provisions of special needs education to enable them overcome their peculiar learning problems as well as other limitations posed by disabilities.

Modifications and improvements in educational practices have given birth to the idea of zero exclusion which includes those with learning difficulties, therefore, special needs education is a form of education specifically geared towards meeting the learning needs and styles of persons with special needs which employs instructional modifications and accommodations heavily dependent on technologies to help those with learning problems access the curriculum, independently reducing the impact of their disabilities

The utilization of technologies in special education is therefore a major aspect of the practice because technologies do not only mask the learning problems created by the presence of impairment but also compensate the effects of the disability, hence, the aim and practice of special needs education would be grossly inadequate without the employment of technologies.

Unfortunately, the utilization of technologies in the achievement of educational outcomes has become a major challenge faced by special educators in the classroom. Investigations into these challenges have shown that it takes a dual dimension such as its acquisition and functionality. There is no doubt that the practice of special needs education would be greatly hampered without



successfully overcoming these challenges, hence, the contributions of the authors to throw light on the challenges of special needs education in general and the education of children with disabilities and learning difficulties in particular.

The thesis statement of this chapter is hinged on the fact that the utilization of technologies in special needs education is inadequate due to challenges in the acquisition and functionality of technologies, therefore, the need to identify these challenges so as to proffer suggestions to enhancing the use of technologies in the practice of special needs education. To achieve this goal, the chapter will extensively exhaust the challenges in the utilization of technologies, implications of utilizing technologies and suggestions to overcome these challenges in the practice of Special Needs Education.

Technologies in Special Needs Education

Technology has emerged with an evolving world and has also adapted to each emerging age and field of endeavor including education in general and special needs education in particular. Emenari (2004), defined technology as the combination of the types of knowledge indispensable to carrying out the necessary operations for transforming the factors of production into products, the use of that knowledge or the production of services. Modern education with the use of technology in teaching and learning has improved the lot of man in two key ways. It has introduced man into an elevated lifestyle with daily dynamic innovations. Ismail (2017), listed the advantages of modern technology to include progress in implementing strategic technological trends that saves time and money, machines for agricultural and industrial work, use of television, mobile phones and computers amongst others. Technology is the reason for the existence of a massive scientific and cognitive revolution which entails facilitating human life by increasing inventions in various practical fields and endeavor.

Secondly, it has provided a basis for the education of persons with disabilities. Dike (2017), stated that teaching-learning in a traditional classroom has been evoked in order to contrast it with teaching-learning that is influenced by the concept of educational technology. Ubani and Sanikpege (2000), explained that special education makes use of special materials, special training, techniques, special equipments and special services or special facilities required for special categories of children having special needs. Ozoji (2005), reported that the tools employed in Special education include facilities, methods, materials and teachers which ensures that education provided exceptional children is appropriate and these factors are necessarily needed because of the special learning needs of the special children. Omede (2014), reiterated that experience has shown that the impact of disability can be cushioned by the intelligent application of technology. Adewunmi, et al. (2016), stated that the use of educational technology will help towards providing essential support to students with disabilities in area of self-care, education, employment, recreation/ leisure and community living. Ertmer



(2010), in Adewunmi, et al. (2016), opined that teachers cannot be effective without integrating technology into their practice.

Modern technology includes the use of devices such as wireless devices, software and applications (Apps). Wireless devices that work with radio frequencies found in the electromagnetic spectrum. They can be used inside and outside the learning environment and includes touch tablets, ipad and smart phones. These devices send messages, make and record calls, interact with internet, pictorial/ graphical illustrations and reinforce learning.

Apps are special kinds of software often installed in a computer to promote ease of work, relaxation/enjoyment and learning. They are fashioned to handle specific tasks, thus, they can downplay the symptoms of a particular disability so that the child can settle down and learn. Clare (2020), gave a list of some apps that can be used to handle symptoms of specific disabilities to enable children with disabilities learn:

Speech and communication problems: My Play House App increases verbalization and helps in social and emotional learning.

Deficits in fine motor skill, eye and hand coordination: Sounding Board App.

Reading problems: Epic App, Talesto Go App, Word Wizard App

Attention deficits and fine motor deficits: Busy Shapes App teaches cause and effect/ problem solving skills

Mathematics: Edoki Academy App, Math Drill App,

Reading and speaking problems: Sentence Builder

Social anxiety disorder: Sentence Builders App

Communication deficits: Conversation Builders App for older children with communication deficits. It also teaches how children can respond to bullying.

Osisanya (2016), also highlighted the followings: Assistive Listening Devices, Hearing Aids, Mobility Aids, devices to compensate for visual impairment such as Braille, Braille embossers, Screen magnifier, Speech Syntheser, typewriters, talking browsers, JAWS Computer Software and Close Circuit Television (CCTV), Cognitive Support Technologies such as computer software and hardware, electrical/electronic assistive devices. Organizational Memory Technologies, Reading Technologies such as Optical Character Recognition, Recording Poems, Screen Review System and Tape Recorder, Written Technologies such as computer-based writing system, spell checker tools, speech recognition system, proof reading programmes, outlining programmes, alternative computer keyboards and brainstorming package. Computer Assisted Instruction (CAI), Sport and recreation adaptive technologies such as racing wheelchair and talking foot balls.

Challenges in the Utilization of Technologies

The effective practice of special needs education is heavily dependent on technology, most of which is foreign based and this is why the utilization of technologies includes a lot of considerations made in both its acquisition and function. Emenari (2004), explained that integrated technology transfer connotes



that the transfer of basic scientific knowledge and technological know-how involves a combination of the learning to know process with that of learning to do and these processes seem empirically inseparable if social development and economic wellbeing are to be achieved. Challenges in the utilization of technologies are diverse and multidimensional. They include the followings:

Nature of Developing Countries: Most developing countries like Nigeria may be poor in technologies because these technological devices are not manufactured within the country. They face a major problem of not being able to easily adopt technologies that they are unable to produce, perhaps, due to their economic state. Challenges in importation of technology may arise because of the basic assumptions associated with the transfer of technologies from developed to developing countries. Therefore, developing countries may lack technologies, knowledge of their use and maintenance. Jones (2017), explained that the problem of technology transfer is that it is unusual for a receiving site to have exactly the same analytic and production equipment as a donor site and even if it does, the chances are that one is a later version of the other, hence, adaptability and manageability of the few available ones is difficult. Developed countries employ technological devices to work on new innovations, therefore, their marginal productivity rate are directly related to their technical discoveries which ensure sustainable economic growth over competitors. Ubani and Sanikpege (2000), explained that it has been duly observed that no subsystem of education uses as much imported equipment and technology like special education and in the face of economic realities, these equipment and technologies would either not be imported due to high cost or only few would be imported for same reason. Johnson and Kristina (2009), explained that lack of scientists, small market size, lack of infrastructure, brain-drain and others are the characteristics and circumstances of developing nations that hinder innovations. They further stated that new technology requires significant on-going support, training and assistance with maintenance as well as considerations made on skill required for continuous use and repair of new technology at the onset of the adoption. Richardson (2011), also reiterated that hardware incompatibility, complexity, language barrier, lack of electricity, computers, internet accessibility and practice of trainers were the biggest challenges associated with adopting new technologies in developing countries. The utilization of any technology would naturally begin with its acquisition and adoption, without which utilization may be impossible.

This was why Trucano (2014), opined that a persistent challenge for educational policy makers and planners related to the potential use of information and communication technology (ICT) in remote low income communities around the world is that most products, services, usage models expertise and research related ICT used in educational communication come from high income context and environment. Akinuwmi, et al. (2017), explained that persons with special needs live in remote rural places where technology facilities are not within their reach or too expensive for them to purchase. Hanna (1994), in Akinwumi, et al.



(2017), reiterated that most of our public primary, secondary and tertiary institutions lack ICT facilities that play vital role in facilitating learning in the process of globalization by making it highly information based.

Socio-economic Status: Parents with low socioeconomic status may not be favourably disposed to participate in habilitation and/or rehabilitation programmes either by way of technological application or therapy. In either ways, technologies are necessary for such children. Also, parents may need to consider their financial stand before they enroll their children in schools. Parents with low socioeconomic background may not enroll their children in schools where technologies are employed in the instruction of children with disabilities because such schools are usually expensive. Alimi (2011), explained that there was a significant difference in facilities available in public and private schools. The importance of technologies like prosthetics, hearing aids, conventional optical intervention, electronic mobility aids and others are useful technologies for persons with disabilities but only the rich may afford them, which limits their use.

Again, disability cases are often demanding and parents with low socioeconomic status may lack knowledge of the condition, are financially deficient or both, thus, children with disabilities may remain with the condition and other co-morbidities which tells on them increasingly. Ubani et al. (2020). stated that disability is often difficult to manage because the facilities are specialized and most parents can ill afford them. In the long run, utilization becomes a challenge because the equipment are not available.

Funding of Schools: The high rate of dollar per naira, high import duties, restrictions in importation of machines and others make funding and equipping of schools difficult as well as the practice of special needs education inefficient. Without technologies, school administrators in public or private schools have problems ensuring that educational outcomes are achieved. Unfortunately, such schools are few and most public institutions are barely equipped by the government. Robert-Okah (2005), opined that budgeting allocations to education has been on the increase but the percentage of the total budget allocated to education was grossly inadequate. The author further declared that the mode of financing education in Nigeria is deplorable. Kumvenda (2017), reiterated that students in independent schools had a significantly high mean score than children from state funded schools. This result is an expected outcome because private schools are more technologically equipped to cater for the specific learning needs of children with disabilities, however, lack of technologies make accessibility of the curriculum difficult, thus, the aim of special needs education and special educational services are defeated. Ozoji (2016), stated that special education is an expensive enterprise in terms of equipment, materials and teacher-pupil ratio and unless funds are provided, it is scarcely possible that good special education programmes can be provided. Inadequate funding in the acquisition of technologies makes utilization of same impossible.



Nature of Work: Work specification of a special needs educator is extensive and physically challenging due to the negative impact of disabilities on the children they handle. Most special teachers are not fully aware of their job coverage until they get to the classroom and begin to groan under the weight of the job, thus, some are unable to cope with the job. Ubani and Sanikpege (2000), explained that the scope of special education covers children with different kinds of impairment, degrees of disability, identification of children with disability based on physical and behavioral characteristics, placement of children with disability in appropriate settings, use of various types of intervention measures such as environmental, administrative, social and academic, various support services for children, teachers and allied services, provision of aids and equipments for meeting the needs of exceptional children and others too numerous to mention. Aduwo (1982), stated that the teacher of the handicapped child has a more complex task than the teacher of a normal child. Alia and Oluyomi (2013), reiterated that many special education teachers are under considerable stress due to heavy workload, administrative tasks, insufficient supply of materials and modern equipment and also the physical and emotional demand of the job cause some special education teachers to leave the occupation. With reduced number of special educators, there are challenges in the use of technologies in the practice of special education. Shortage of management and technical expertise in the use of technology facilities is a major challenge in the utilization of technology (Akinuwmi, Udo & Daniel, 2017). These three authors should have been listed at first mention above and Akinwumi et al subsequently.

Ineffective Implementation of the Individualized Education Plan (IEP): The use of technologies in the education of children with disability is often tied to the application of the IEP and special educators in developed countries are guided by the Individuals with Disabilities Act and the Public Law (94-142), where one of the provisions of the law is the development of the IEP (Biehler and Snowman, 1999). Ormrod (2000), stated that IEP includes short and long term goals in the education of the child as well as the specialized services that should be provided. The researcher went further to explain that an instructional programme tailored to the students' strength and weaknesses called Individualized Educational Programme (IEP) must be developed and described in written form for each student identified as having a special educational need. Biehler and Snowman (1990), reiterated that children who are labeled as handicapped or exceptional may be permanently stigmatized, rejected and denied opportunities for full development, yet, if they are not labeled, they may fail to benefit from special programmes intended to help them.

Special educational services are thus meant for children who have been identified with a disability and labeled as such. Unfortunately, the practice of special needs education may not be advanced enough in Nigeria as it is found in developed countries where the IEP is applied. Ubani and Sanikpege (2020) stated succinctly that there are presently no laid down laws and procedures to serve as a means of identifying individuals with special needs. This is a disadvantage to the



practice of special needs education in Nigeria and a challenge to the utilization of technologies in the practice of special needs education in Nigeria because the provision of special educational services starts with the use of IEP. Without the formulation of the IEP, utilization of technologies has no place. Omede (2014), pointed out that lack of knowledge, inadequate power supply, maintenance and repair of equipment, teachers' attitude, high cost of equipment and gadgets were a summary of the various challenges in the use of technology.

Power Supply and Maintenance: Most of these technologies are manufactured in other countries and their ability to function is another factor to consider. Kraft (2019), stated that in Nigeria, the standard voltage is 230V, frequency is 50Hz, power plugs and sockets are type D and G. The author also stated that this applies to countries like United Kingdom, Europe, Australia and most of Asia and Africa, unlike United States, Canada, South American countries with standard voltage of 100V to 127V, 60Hz and power plugs and sockets of type A and B. This invariably means that technologies manufactured without Nigeria's power specification will not work except they have dual voltage and can accommodate 50Hz outlet. These technologies would further need other technologies such as step up or step down power transformers to enable them function.

Again, inconsistent power supply as well as fluctuations in power may be a challenge to the use of imported technologies. In Nigeria, there is an epileptic supply of electricity in most parts of the country while some parts of the country there is no power supply at all. The unreliable power supply has made it difficult for technology facilities to be put to effective and constant use (Akinuwmi, et al, 2017).

Also, getting skilled workers to repair or maintain them when they develop any fault is a big challenge. Most special needs educators may not have the skill for this and this fact was confirmed in a study review reported by the University of Cambridge (2021), stating that many teachers lack training on how to use new technologies or are reluctant to do so. Maintenance and/or repair of these technologies are difficult when the needed know-how is unavailable. Sometimes when the machines are faulty, the replacement of damaged parts becomes difficult because they may either be out of stock or difficult to get a knowledgeable technician to do such repairs (Ajobiwe, 2009 & UNESCO, 1994 in Akinuwmi, et al, 2017).

This makes teachers and administrators abandon the devices when they develop faults. Ubani and sanikpege (2020), opined that barriers in the use of technological devices include unavailability and high cost of assistive technology and abandonment by students who purchased assistive technological devices. Richardson (2011) summarized the problem of technologies when he explained that hardware incompatibility, complexity, language barriers, lack of electricity, internet access, practice of trainee, inability to understand the advantages of technologies.



Implication of Utilizing Technologies

Acquisition of Information: With the utilization of internet facilities, one can receive information as well as stumble into an information data base to acquire unlimited knowledge. Nwajinka (2004), stated that the internet is at work day and night giving out full information in different issues.

Immediacy in Feedback: Utilization of technology provides instantaneous feedback amongst learner/learners, instructor and the learning process. This makes it an active and interesting process in whatever one is engaged in. Immediacy in feedback may easily guarantee on-the-spot assessment and evaluation.

Cost Advantage: Acquisition of knowledge through the use of internet facility is cheap and affordable to most persons including those from low socioeconomic status. Amount paid to subscribe or cost of acquisition of Apps and software cannot be compared to studying in a university for same knowledge.

Learning Experience: The use of technologies such as internet use is usually very interesting because the learning experience is embedded in entertainment. Nwajinka (2004), further stated that an avalanche of varieties of entertainment derivables from multiple internet networks are available on the internet and the convenience with which the user can obtain such entertainment is marveling. Unique learning experience is the product of any learning activity and is of utmost necessity in exceptional children. When learning is embedded in pleasure, it creates a desire for continuity and enhances recall.

Conclusion

The practice of special needs education is largely dependent on the use of technologies as persons with disabilities and learning difficulties need specialized materials and procedures for their management and same form a major aspect in their instruction so as to achieve educational objectives. Utilization of technologies in the instruction of children with disabilities has been found to be a major challenge in the practice of special needs education in Nigeria.

Suggestions

1. Special educational technology should be taken as a course in institutions of higher learning where special needs education is studied.
2. The use of technologies should be enshrouded in the curriculum and effected as a course in special needs education. In this way, special educators would graduate from higher institutions endowed with such skills. Thus, the use of technologies becomes part of the teaching and learning process and knowledge in the use of these devices would create room for improvisation whenever the devices are unavailable.



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