AVAILABILTY AND UTILIZATION OF INFORMATION COMMUNICATION TECHNOLOGIES BY SPECIAL EDUCATION TEACHERS TO ENHANCE INCLUSIVE EDUCATION GOALS

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Abstract

The study sought to investigate availability and utilization of information and communication technologies (ICTs) by special education teachers to enhance inclusive education goals in Anambra State, Nigeria**.** The research design was descriptive design. The total population of ninety-two teachers from special education centers was used; therefore no sampling technique was used because of the manageable size of the entire population. The instrument for data collection was a structured questionnaire administered through direct delivery approach. Research question one was answered using percentage, while research question two was answered using mean and standard deviation. Finding from this study revealed that some of the ICTs were available but not fully utilized. Based on the findings, it was recommended that teachers should be grounded on ICTs skills so as to impart the required knowledge on students with special needs and in turn enhance inclusive education goals. Also government through the ministry of education should ensure that before commissioning or accrediting any special education center, required ICT facilities must be put in place to enhance learning in special education centers.

Keywords: Availability, Utilization, Inclusive education, Special education, Information, Communication, Technology.

1. Introduction

Inclusive education as a concept in education is gaining wide publicity by the day [1]. [1] further stated that it is becoming very popular in education because inclusion is the most effective means of fighting discriminatory attitudes towards persons with special needs. Inclusive education remains a factor for building strong and self-reliant

inclusive communities throughout the country. This is because a well-educated individual will avoid the shame of street begging. Similarly, products of inclusive education will be able to make a living and thus will not be nuisance to their communities but assets capable of making their contributions to the development of their communities, it is therefore through inclusive education that effective education can be made to reach majority of the children if not all [1].

Inclusive education according to [2] is defined as the child's right to participate in school's duty and programmes regardless of his or her challenge as against special education that is meant for students with special needs only. [2] further posited that inclusive education implies providing to all students, including those with significant need, equitable opportunities to receive effective educational services, with the needed supplementary aids and support services, in age appropriate classrooms, in order to prepare students for productive lives as full members of the society. Nevertheless, there has been a major challenge facing educational systems around the world. In some developing countries like Nigeria, inclusive education is thought as an approach to serving children with special needs within the general education settings, however this aligns with the goals of special education as stated in the National Policy on Education [3] which are;

a. To give concrete meaning to the idea of equalizing educational opportunities for all children, their physical, sensory, mental, psychological or emotional disabilities notwithstanding;
b. To provide adequate education for all people with special needs in order that they may fully contribute their own quota to the development of the nation;
c. To provide opportunities for exceptionally gifted and talented children to develop their talents, natural endowments/traits at their own pace in the interest of the Nations' economic and technological development.
d. To design a diversified and appropriate curriculum for all the beneficiaries.

Similarly, special education is created as a formal educational training offered to people (children and adults) with special needs, these individuals can be classified into three categories which are the disabled; the disadvantaged; the gifted and the talented

[3]. Generally, over 650 million people around the world live with disabilities of which 150 million live in Africa [4, 5]. Over 80% of these persons with special needs live in developing countries such as Nigeria where their challenge often exclude them from full participation in societal activities with most of them not having the opportunity to attend school, obtain gainful employment, and make a home and family [5]. However, the right to education as a universal right which ought to have extended to all with special need in all parts of the world has not in the main time been implemented.

According to a flagship project report by United Nations Educational, Scientific and Cultural Organization under the Education for All Programme, the goal of Education For All was aimed at meeting the learning needs of all children, youths and adults by 2015. The report further stated that these goals will only be achievable when all nations (developed and developing) recognize that the universal right to education extends to all and when all nations act to establish or reform public education systems that are accessible to meet the needs of individuals with special need [5]. This however draws attention from the general public towards the challenges in special education programmes offered for people with special need. In the same vein, there is a growing recognition that including students with special needs in general education (inclusive education) can provide them with the opportunity to learn in a natural and stimulating setting, which also could lead to increased acceptance and appreciation of individual differences. Thus, the debate continues among educators, local, state and federal policy makers, parents, and even people with special need in Nigeria regarding the efficacy of inclusion and the inevitable restructuring of general education that will occur to make learning meaningful in an inclusive environment.

In view of this, people living with special needs and the need for basic and compulsory education for all, it becomes pertinent to integrate tools, facilities, and necessary modalities by special education teachers to enhance inclusive education for people with special needs. One of such widely known and acceptable tool is the information and communication technology (ICT) which comprises audio, visuals, and audio-visuals as well as hardware, and software.

In a study conducted by [6] it highlighted five models of ICT integration thus: Model One: ICT as a subject matter: in this model, ICT is accepted as a subject matter. Therefore, this model requires a specific course ICT course integrated into the curriculum. Model Two: ICT Integration: within this model, ICT is not a subject of teaching. ICT is a cultural, meditational tool in the activity system in which students and teachers construct and co-construct new knowledge, in other words, students, and teachers are doing the work of knowing. Model Three: Integration of ICT into an integrated curriculum: this model uses curriculum integration theory as a basis for the integration of ICT. In this model, ICT is seen as a subject matter (one of the content area) that is integrated into a variety of other subject matters, such as math, science, literacy, and technology together. Model Four: Curriculum integration (ICT as a cultural meditational tool). Model Five: A Mixed Curriculum: Subject matter supported with an ICT lab course.

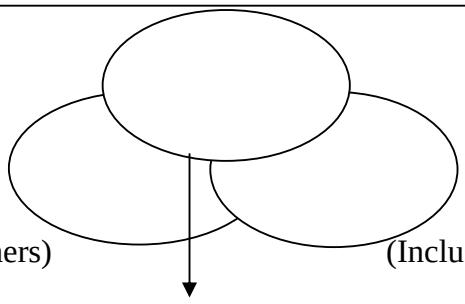
This study adopted the Model Two: ICT Integration. As stated by [6], in this model ICT is not a subject of teaching. ICT is a cultural, meditational tool in the activity system in which students and teachers construct and co-construct new knowledge, in other words, students, and teachers are doing the work of knowing.

Goal: Availability and Utilization of ICTs by Special Education Teachers to Enhance Inclusive Education Goals.

Content: Inclusive Education Goals

Material: Visual classroom, Digital microphone, Audiometers and others

Figure 1: ICT Integration Model



According to [6] this model supports the idea of ICT as a cultural, mediational tool to construct meaning within an activity system. The main problem is that teachers need certain expertise in using the ICT facilities, in addition to his/her approach to teaching learning (socio-cultural theories), but there is not much literature on under what conditions, and on what ways, ICT tools can be useful. One way knowing is to have no prior expertise, but instead to learn together with students. In the same vein, [7] noted that the array of information provided through ICTs would help tremendously in the production of professionally competent graduate's, therefore ICT introduction in the educational system is a big boost to education at that level. In order to plan, design and successfully integrate ICTs in the educational system of Nigeria, there is need for strong and committed professionals (teachers) in this field and adequate facilities must be in place for successful integration of ICT in schools and special education centers.

Literatures on successful ICT integration for inclusive education conducted by [1] examined the growth of our communities in the light of inclusive education. [1] further stated that education is an important social service meant for everybody in the community whether the person is able bodied or suffers some disabilities. It is a right for everybody both young and old to be educated because the purpose is for all to gain access to knowledge, skills and information that will prepare them to contribute to their the development of their communities. In this wise, inclusive education becomes important so that human resources would not be wasted. Among the recommendations made was that education should be for all with adequate equipment to cater for children with and without special needs through formal and non-formal education in an attempt to foster the growth of our communities. On the other hand, [8] conducted a study on constraints to effective implementation of elements of special education curriculum in teacher preparation programme in Nigeria: A case study of colleges of education. The findings of the study revealed that most of the required facilities were not available, not adequate and not utilized. Most lecturers (54.5 to 96.3%) did not teach some of the specified content areas. Findings also showed that various aspects of classroom were ineffective. The weakness in the implementation of the elements of special education curriculum has been identified for the purpose of improvement. Towards effective special education teacher preparation in Nigeria, government

should employ professionally qualified personnel and provide adequate facilities (ICTs) towards achievements of the objectives of the curriculum.

Similarly, countries like Japan, Malaysia, Spain and Israel has showed great emphasis on ICT implementation at different levels of schooling with adequate facilities. The incorporation of ICT for special education shows great impact on the academic performances students in these countries. This is a result of integrating ICT into the curriculum at different levels in schools and has proven to be effective. Teachers and lecturers of special education to effectively use these ICT tools provided for them need to be trained in this area so that they can integrate technology in the classroom. However empirical investigations as those earlier mentioned on ICT integration at school level have shown that the thinking and task performance process of students has improved considerably with the help of different ICT facilities used in the classroom, therefore the need for special education teachers to utilize available ICTs to foster and achieve the set goals of special education programmes becomes glaring.

Availability of ICT facilities in schools and centers for special education presupposes that teachers and lecturers of special education can utilize them to enhance awareness, adjustment and particularly inclusive education. According to [7], investment in ICT facilities will help in teaching and coping with people of different societal background, [7] further stated that other support services necessary for effective delivery of an ICT-based curriculum should be utmost in government priorities. In view of this, the need for education at all level which promotes National consciousness and societal participation for National development makes its necessary to equip schools for special education with required facilities (ICTs inclusive) to facilitate learning and achieve effectiveness. Effectiveness and growth of inclusive education requires that teachers of special education in an inclusive education setting ought to utilize available ICT facilities to facilitate teaching and learning in order to measure up with needs of people with special learning needs.

Given the importance of ICT and the need to promote inclusive education at all levels, the utilization of ICTs by teachers/lecturers of special education is vital in promoting and achieving the goals of special education as aforementioned and giving students with special needs a sense of belonging. Therefore, it is on the premise of this that this

paper examined the availability and utilization of ICTs by special education teachers to enhance inclusive education goals.

1.1 Purpose of the Study

This study investigated:

1. Information and communication technology facilities available for teaching special education in Anambra State.
2. Information and communication technology facilities utilized by special education teachers for teaching special education in Anambra state.

1.2 Research Questions

The following questions guided the study:

1. Are there information and communication technology facilities available for teaching special education in Anambra state?

2. Do teachers utilize information and communication technology facilities for teaching special education in Anambra state?

2. Method

The design of the study was descriptive survey. The study was carried out in Anambra state, Nigeria. A total of ninety-two (92) teachers in special education centers situated in Umuchu, Isulo, Odoakpu, Ozubulu, Oraifite, and Awka constituted the population. No sampling was done due to the manageable size of the population. The instrument for data collection was a structured questionnaire developed by the researchers. The instrument was validated by two experts, one from the Department of Educational Management and Policy and one from the Department of Guidance and Counselling all in Faculty of Education, Nnamdi Azikiwe University. The reliability analysis yielded co-efficient of 0.81. The instrument was therefore deemed reliable for the study.

The researchers adopted direct approach in administering the questionnaires to the respondents. In this method, copies of the questionnaire were distributed to the

respondents with the help of two research assistants. Data collected was analyzed using percentage, mean, and standard deviation. Responses that attracted mean ratings of 2.50 and above were seen as fully utilized, while those with mean ratings below 2.50 were seen as not fully utilized.

3. Results

Research Question 1: Are there information and communication technology facilities available for teaching special education in Anambra state?

Table 1

Summary table showing percentages of available and not available ICT facilities

S/N	Items	Available (%)	Not Available (%)
1.	Social networks (blog, wikis, twitter)	49 (53.26)	43 (46.73)
2.	Interactive white board	63 (68.47)	29 (31.52)
3.	Webcams	15 (16.30)	77 (83.69)
4.	Screen casting	35 (38.04)	57 (61.95)
5.	Virtual classroom	35 (38.05)	57 (61.95)
6.	Digital microphone	87 (98.73)	3 (3.26)
7.	Instructional video	70 (76.08)	22 (23.91)
8.	Speech trainer	90 (97.81)	2 (2.17)
9.	Internet facilities (laptops and others)	91 (98.91)	1 (1.08)
10.	Projectors	76 (82.67)	16 (17.39)
11.	Audiometers	2 (2.17)	90 (97.82)
12.	Abacus	1 (1.08)	91 (98.91)
13.	Photo vocabulary	4 (4.34)	88 (95.65)
14.	Frequency modulation system (FM)	1 (1.08)	91 (98.91)
15.	Electronic tables	3 (3.36)	89 (98.73)

Data presented in Table 1 reveals that 46.73% of special education teachers rated social networks unavailable, while 53.26% rated it available and probably have social network applications installed in their smart phones. 31.52% of special education teachers indicated that they lack interactive white boards in their schools while 68.47% indicated that interactive whiteboard is available in their schools. 16.30% have access to webcams in their school while 83.69% indicated that they do not have webcams in their school. 38.04% indicated the availability of screen casting while 61.95% indicated not available. Visual classroom was rated available by 38.05% of special education teachers, while 61.95 rated it unavailable. Digital microphone was

rated available by 98.73% of the teachers while 3.26 rated it unavailable. Instructional video was rated available by 76.08% of the teachers while 23.91% rated it available. Speech trainer was rated by 97.82% of the teachers as available while 2.17 rated it unavailable. 98.91% of the teachers rated internet facilities as available while 1.08% rated it as unavailable. 82.60% of teachers rated projectors as available in teaching special education while 17.39% rated it as unavailable. Audiometer was rated by 2.17 % of the teachers as available while 97.82% rated it unavailable for teaching special education. 1.08% of special education teachers rated Abacus as available while 98.91% rated it unavailable. 4.34% of the teachers rated photo vocabulary available in teaching special education while 95.65% rated it unavailable. Frequency modulation system was rated by 1.08% of teachers as available while 98.91% rates it unavailable. Finally, electronic tables were rated available by 3.26% and unavailable by 98.73% of teachers teaching special education in special education centers.

Research Question 2: Do teachers utilize information and communication technology facilities for teaching special education in Anambra state?

Table 2

Summary table showing utilization of available ICT facilities

S/N	Item Statements	Mean	SD	Decision
1.	Use of social networks to interact and teach your students	2.65	.84	Fully Utilized
2.	Use of interactive white board during teaching process	2.32	.76	Not fully Utilized
3.	Use of digital microphone when speaking to students	2.55	.96	Fully Utilized
4.	Use of speech trainers when interacting with students	2.78	.69	Fully Utilized
5.	Use of internet facilities (laptop and others) to access teaching materials online	3.01	1.01	Fully Utilized
6.	Use of projectors to project learning	2.33	.62	Not Fully Utilized
	Grand Mean	**2.48**		**Not Fully Utilized**

Data presented in Table 2 shows utilization of information communication technology (ICTs) in by special education teachers in special education centers in Anambra state. The results indicated that available information and communication technologies are

not fully utilized by special education teachers in special education centers. This is evident in the grand mean of 2.48 which is below the 2.50 bench mark of fully utilized.

4. Discussion

The result from the data analyzed revealed that based on the respondents response, information and communication technology facilities available in special education centers include social network tools (wikis, blogs, twitter), interactive white board, digital microphone, instructional video, speech trainer, internet facilities (laptops and others), and projectors. This reveals that other necessary ICT facilities are inadequate. This however does not conform to [6], who revealed that investment in ICT facilities will help in teaching and coping with people of different societal background, and further stated that other support services necessary for effective delivery of an ICT-based curriculum should be utmost in government priorities.

On the other hand, result on the utilization of available ICT facilities by special education teachers revealed that teachers of special education do not fully utilize ICT facilities available for them during instructional delivery. This could lead to insufficient knowledge transfer. This however disagrees with [6] who noted that the array of information provided through ICT use would help tremendously in production of professionally competent graduate's, therefore ICT introduction in the educational system is a big boost to education at that level. The finding agrees with [8] who found that most of the required facilities were not available, not adequate and not utilized. The findings of [8] further revealed that lecturers (54.5 to 96.3%) do not teach some of the specified content areas. This finding also showed that various aspects of classroom were ineffective.

5. Conclusion

Information and communication technologies if adopted could serve as the backbone for many educational activities (special education inclusive). Nevertheless, this study revealed that most special education centers have these ICTs but fail to utilize them in the course of instructional delivery. However if the aforementioned and available

ICTs are used by teachers of special education, it will give students with special needs a sense of belonging, and improve their learning and overall academic achievement.

In view of the fact the results showed non-utilization of available ICT facilities, Teachers of special education should be exposed to ICT facilities during training and retraining processes. Teachers who are not ICT digital natives should be mobilized for vigorous training and workshops Government (federal and state) through the ministry of education should ensure that before commissioning or accrediting any special education center, required ICT facilities must be put in place to enhance learning in special education centers.

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Competing Interests

Authors have declared that no competing interests exist.

Authors' contribution

This work was carried out in collaboration with the authors. Author NSM designed the study, wrote the protocol and performed the statistical analysis. Author ALI carried out the literature searches and wrote the first draft, Author NCN managed the written protocol of the study. The authors read and approved the final manuscript before submission.

ETHICAL ISSUE: NA

CONSENT: NA

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