

TEACHERS' ATTITUDES AND AWARENESS TOWARDS ASSISTIVE TECHNOLOGIES FOR SPECIAL EDUCATION IN NIGERIA

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Abstract

This study investigated the influence of Teachers Attitudes and Awareness towards Assistive Technologies for special education in Nigerian Institutions. The respondents comprised 1,115 teachers drawn from primary, secondary and tertiary institutions in Nigeria. A researcher designed instrument was used to collect data. Results indicated that most of the teachers are aware of the existence of assistive technologies for special education; they also have positive attitudes towards assistive technologies. The implication is that assistive technologies which are essential for quality education for people with disability are not being utilized in Nigeria. It was recommended that assistive technology hardware and software should be provided to special education institutions in Nigeria.

Introduction

For any nation to fully develop there is the need to harness the potentials of all her citizens including those with disabilities. The outstanding performance of some persons with special needs across the world has shown that there is ability in disability. International Law has made education a human right (Lynch, 1997). In Nigeria, the National Policy on Education (FRN, 2004) guarantees every individual's right to education including persons with special needs. UNESCO, (2007) cited in Olawuyi (2008) noted that 10% of the Nigerian populace are persons with special education needs. If a country can neglect 10% of her population, then there is great danger.

Attitude refers to one's feelings towards a situation or impression about something. They are best expressed when individuals make statements about their feelings or opinions about certain objects, situation, issue or thing. Attitudes are thought to influence future behavior and have implications for such things as the use of computers or the choice of careers (Olawuyi, 2008). Awareness is of being conscious of something. (Olawuyi, 1997) also noted that attitude refers to one's feelings towards a situation or one's experience about something. Yusuf & Fakomogbon (2008) stated that attitude is important in matters relating to learning because of the conscious control it has on the behavior of an individual. Attitude is the state of perceiving and taking account of some events, occasion, experience or object (Oxford Advanced Dictionary, 2008).

Assistive technology or adaptive technology (AT) is an umbrella term that includes assistive, adaptive, and rehabilitative devices for people with disabilities and also includes the process used in selecting, locating, and using them. AT promotes greater independence by enabling people to perform tasks they were formerly unable to accomplish, or had great difficulty accomplishing, by providing enhancement, or changing methods of interacting with, the technology needed to accomplish such tasks (Dell, Newton, & Petroff, 2008).

The terms may be used with a slight difference in meaning. "Assistive technology" may specifically refer to new devices designed to assist with tasks. "Adaptive technology" may specifically mean making modifications to existing devices and technology to enable their use by people with disabilities. Both terms refer to the goal of accommodating people with disabilities, who otherwise would be prevented from completing tasks. Examples of Assistive technology include the accessible

[keyboards](#), [large print](#), [Braille](#), and [speech recognition software](#). (Wikipedia, 2012). The abundance of research in the assistive technology area is making it possible for people with special needs, mainly people with impairment, to communicate, work and perform daily activities that they were not able to perform actively, efficiently, and autonomously before the existence of these technological aids. Assistive technologies have helped the physically challenged to go to school and hold jobs in any part of the world (Issa, 2009).

Assistive technology, also known as Adaptive Technology, refers to technology used to maintain, increase or improve the abilities of individuals with disabilities. Assistive technology includes computer programs or electronic devices. It doesn't have to be high-tech, but it should serve the purpose of "assistance". These technologies are dedicated to helping disabled people overcome their disability and assist them to compete in an even basis with their non-disabled peers in the workplace. Such technology enables people with disabilities to accomplish daily living tasks, assist them in communication, education, work or recreation activities, in essence, help them achieve greater independence and enhance their quality of life (Issa, 2009).

Various computer devices for the physically challenged have made their life a lot easier, helping them to face the world against all odds. It wouldn't be surprising to know that many among us are not even aware of these devices, which have shown a new ray of hope for millions around the world. Physically challenged individuals require alternative input devices in order to use the computer. These devices range from voice recognition programs to alternative computer keyboards. These devices for the physically challenged provide them with adaptive options, in the form of computer hardware and software, which help them in eliminating barriers of disability and using a computer (Johnson, 1998).

Special education is a general education programme, which identifies the difficulties among students and makes adequate provision in order to assist them to benefit optimally, from educational activities. It involves the manipulation of the physical settings and procedures to assist exceptional or special students to be successful in their academic endeavours and consequently in life (Yahaya, 2000). Special education is the area of education that caters for the educational needs of the disabled and the gifted. Issa (2009) defined special education as the education that is tailored to the special needs of the learner. The National Policy on Education (Federal Republic of Nigeria, FRN, 2004) defined it as a formal special type of educational training given to people (children and adults) with special needs.

Statement of the Problem

Students with physical disabilities may have difficulty performing basic functions such as, gripping objects with their hands, moving arms or legs in a full or even limited range of motion. These issues can lead to difficulties in the classroom such as using keyboards, touch screens, computer mice, and scroll wheels which are all used with technology (Clarke, & Kirton, 2003). Becta (2001) noted that children with multiple disabilities will have a combination of various disabilities: speech, physical mobility, learning, mental retardation, visual, hearing, brain injury and possibly others. Along with multiple disabilities, they can also exhibit sensory losses and behavior and or social problems. Children with multiple disabilities - also referred to as multiple exceptionalities - will vary in severity and characteristics. These students may exhibit weakness in auditory processing and have speech limitations (Becta, 2003). Physical mobility will often be an area of need. These students may have difficulty attaining and remembering skills and or transferring these skills from one situation to another. Support is usually needed beyond the confines of the classroom (Forgave, 2002).

Research Questions

In this study, the following research questions were raised to guide the study.

- (i) What is the Degree of teachers' awareness of assistive technologies for special education?

- (ii) Do teachers in special educational institutions have positive attitude toward assistive technologies?

Methodology

A descriptive research type using survey method was adopted for this study. This study employed an adapted questionnaire to gather the data. It is titled teachers' attitude and awareness of assistive technologies for special education in Nigeria.

Sample and Sampling Techniques

The target population for this study consisted of all special tertiary educational institutions that offer special education programme in Nigeria and all primary and secondary schools designated for students with disability either mainstream or special schools. Purposive sampling technique was used to select all the tertiary educational institutions that offer special education programmes. These are: Universities of Calabar, Ibadan, and Jos, Kaduna Polytechnic and Federal College of Education (Special) Oyo. Purposive sampling was also used to select all primary and secondary schools designed for students with disability either mainstream or special schools in South west Nigeria (Ekiti, Kwara, Lagos, Ogun, Ondo, Osun and Oyo). These seven states were selected as representative sample for the other 36 states and federal capital territory. First, the area is probably the most educationally advanced part of Nigeria, with longer history of western education, particularly special education than other parts of Nigeria. Secondly, two tertiary institutions in the area, Federal College of Education (Special), Oyo and University of Ibadan are pioneer institutions in the area of special education. The Federal College of Education (Special), Oyo, Oyo State is an institution that trains teachers for special education at the lower secondary and primary schools. Third, the area has more special educational institutions (private and public) than all others of Nigeria.

Instrumentation

The instrument used for the research was developed by the researcher. It is a questionnaire entitled; Teachers' awareness of assistive technologies for special education in Nigeria and Teachers' attitude towards assistive technologies for special education in Nigeria. It has three major sections. Section One provides the bio-data on the educational institutions. Section Two, with 20 items focuses on teachers' awareness of assistive technologies for special education in Nigeria. Section Three, also contains 20 items on teachers' attitudes towards assistive technologies for special education in Nigeria. The response mode for the two instruments is: I have Used, I am Aware, I am not Aware. The research instrument was validated and tested for reliability by five special education lecturers, in Federal College of Education, Oyo. The reliability co-efficient was 0.76. The researcher personally administered 1120 questionnaires to the respondents waited and was able to collect 1115 that is, 99.7% from the respondents. The collected data was analysed using frequency counts and simple percentages.

Research Question 1

What is the Degree of teachers' awareness of assistive technologies for special education in Nigeria?

S/N	Questionnaire Item	I have Used		I am Aware		I am not Aware	
		F	(%)	F	(%)	F	(%)
1	Assistive technologies could be used for teaching the students with special educational needs	214	21.6	758	76.9	14	1.3
2	Knowledge of using Assistive technologies would assist me in teaching the students with special educational needs	12	1.1	1093	97.9	11	1.0
3	I am not aware that computers could be used to teach	23	2.1	1079	96.7	14	1.3

	the students with special educational needs						
4	E-mail could help the students with students with special educational needs to learn more	10	.9	1052	94.3	54	4.8
5	Computers could be used for students with special educational needs instruction in the classroom	16	1.4	1074	96.2	26	2.3
6	The internet facilities could be used for teaching the students with special educational needs	25	2.2	1058	94.8	33	3.0
7	E-mail is an effective means of disseminating class assignment to students with special educational needs	16	1.4	983	88.1	11	10.5
8	Computer hardware and software have made things easier for teaching the students with special educational needs	23	2.1	987	88.4	10 6	9.5
9	An overlay keyboard can provide the visually impaired student with a combination of sensory stimuli	16	1.4	1052	94.3	48	4.3
10	Assistive technologies creates more interaction between teachers and students with special educational needs	24	2.2	1062	95.2	30	2.7
11	I am aware of the existence of assistive technologies that could be used for teaching the students with special educational needs	23	2.1	1074	96.2	19	1.7
12	The use of E-mail could help to provide better learning experience for students with special educational needs	23	2.1	1009	90.4	84	7.5
13	The computer could be used to complete tasks that were previously not possible for the students with special educational needs	19	1.7	1039	93.1	58	5.2
14	Texts can be scanned into a computer and be enlarged on a screen for the student with special educational needs	23	2.1	1004	90.0	89	8.0
15	Braille translation packages can translate the printed text of an electronic document to be used for students with special educational needs	23	2.1	947	84.9	14 6	13.1
16	E-mail can be an effective means of sending information to the students with special educational needs	25	2.2	942	84.4	14 9	13.4
17	Texts converted into electronic form can be read aloud by a speech synthesizer attached to the computer and be used for students with special educational needs	24	2.2	928	83.2	16 4	14.7
18	Speech recognition system can benefit student who can speak to their computer and produce sound in main stream classroom	25	2.2	956	85.7	13 5	12.1
19	Voice commands can allow the `students with special educational needs to use a microphone to command the software to read, scan and so on	23	2.1	969	86.8	12 4	11.1
20	Calculators, thermometers, electronic dictionaries all with in-built speech can be useful for the students with special educational needs	13	1.2	1033	92.6	70	6.3

Table 1: shows that the level of teachers' awareness of the assistive technologies is very high. Most of the items such as 2,3,4,5,6,9,10,11,12,13,14 and 20 have their percentages ranging from 90.0% to 97.9%. While items 1, 7, 8, 15, 16, 1, 18, 19, have their percentage ranging from 76.9 to 88.4. This also indicates that their level of awareness is very high. Only very few of the teachers in special education institutions in Nigeria are not aware of the existence of the assistive technologies for students with special education needs. Their percentage ranges from 1.0% to 14.7%. Results arising

from Table 1, indicates that teachers in Nigerian special education institutions are aware of the existence of assistive technologies that could be used for students with special educational needs. This can be deduced from the items 1 – 20.

Research Question 2

Do teachers in special educational institutions have positive attitude towards assistive technologies?

Table 2: Teachers' attitude towards assistive technologies for special education in Nigeria

S/No	Questionnaire Items	Strongly Agreed		Agreed		Disagreed		Strongly Disagreed	
		F	(%)	F	(%)	F	(%)	F	(%)
1	I enjoy doing things on the Assistive information and communication technology to teach the students with special educational needs.	695	62.3	413	37.4	4	4	-	-
2	I am tired of using Assistive information and communication technologies in teaching the students with special educational needs.	1	.1	-	-	527	47.2	588	52.7
3	I would work harder if I could use Assistive technologies more often to teach the students with special educational needs.	591	53.0	523	46.9	2	2	-	-
4	I can learn many things when I use Assistive technologies more often to teach the students with special educational needs.	586	52.6	530	47.5	-	-	-	-
5	I believe that it is very important for me to learn how to use Assistive technologies to assist the students with special educational needs.	638	57.2	478	42.8	-	-	-	-
6	I think that Assistive technologies are very easy to use in assisting the students with special educational needs.	587	52.6	480	43.0	28	2.5	21	1.9
7	I feel that working with Assistive technologies will assist me in teaching the students with special educational needs.	628	56.3	447	40.1	19	1.7	22	2.0
8	Using the Assistive technologies to assist the students with special educational needs is very frustrating.	52	4.7	30	2.7	451	40.4	583	52.2
9	Assistive technologies do not scare me at all in assisting the students with special educational needs.	508	45.5	570	51.5	26	2.3	12	1.1
10	I can learn more from books than Assistive technologies for assisting the students with special educational needs.	448	40.1	446	40.0	128	11.5	96	8.4
11	Technologies would improve the education of the students with special educational needs.	534	47.8	580	52.0	2	2	-	-
12	I want to learn more about Assistive technologies so as to assist the students with special educational needs to learn better.	626	56.1	486	43.5	4	4	-	-
13	Knowing how to use Assistive technologies to	355	31.8	498	44.6	125	11.2	138	12.4

	assist the students with special educational needs is a worthwhile skill.								
14	I would probably not learn to use Assistive technologies so as to assist the students' with special educational needs.	41	3.7	18	1.6	478	42.8	579	51.9
15	Learning about Assistive technologies to assist the students with special educational needs is boring to me.	28	2.5	12	1.1	539	48.3	537	48.1
16	I would probably never learn to use Assistive technologies to teach the students with special educational needs.	111	9.9	128	11.5	433	38.8	444	39.8
17	I feel that Assistive Technologies are necessary tools in teaching the students with special educational needs.	555	49.7	517	46.3	18	1.6	26	2.3
18	The challenge of learning about Assistive technologies to teach the students with special educational needs is exciting.	550	49.3	543	48.7	14	1.3	9	.8
19	Assistive technologies can be useful instructional aids in assisting the students with special educational needs.	651	58.3	464	41.6	-	-	1	.1
20	Assistive technologies would increase my productivity in teaching the students with special educational needs.	646	57.9	4.68	41.9	2	2	-	-

Results arising from Table 2, shows that teachers in special education Nigeria have positive attitude towards assistive technologies. This can be deduced from the responses of the positive items in the instrument item that had 99.6% of the respondents that either agreed or strongly agreed to the item. Items 3, 4, 5, 6, 7, 9, 10, 11, 12, 17, 18, 19, and 20, all have their percentages of either Agreed or Strongly Agreed ranging from 76% to 99.7%. However, most of the respondents reported that they have never seen most of these devices. For the negative statements, items 2, 8, 14, 15, 16, have their percentages of either Disagreed or Strongly Disagreed between 78.6%, to 99.9%. In comparison, however, it could be deduced from the percentages of this table that they have high positive attitude towards assistive technologies.

Discussion

Results from the findings indicate that awareness had a positive result. It emphasized the need for the provision of assistive technologies for special education in Nigeria. The highest level of awareness is that of the lecturers in tertiary institutions, probably because most of them had their training abroad and have used some of these devices and equipment before. These findings are similar to those of some researchers such as (Olawuyi, 2008, & Yusuf & Fakomogbon, 2008). The findings have the following implications. First, teachers in all the levels of special education that is, primary, secondary and tertiary institutions are aware of the assistive technologies for special education. Second, teachers' have positive attitude towards assistive technologies. With this positive attitude towards assistive technologies in schools implies that the teachers are ready to integrate the required assistive technologies if provided for the institutions.

A positive attitude of teachers towards assistive technologies was recorded irrespective of their experience, gender and area of specialization. This was so because of the popularity that these technologies have gained due to their multifaceted use that they can be put. This was in support of (Olawuyi, 1997) who also noted that attitude refers to one's feelings towards a situation or persons

experience about something. Yusuf & Fakomogbon (2008) stated that attitude is important in matters relating to learning because of the conscious control it has on the behavior of an individual.

Conclusion

From the results, it can be noted that teachers in special education institutions in Nigeria are aware of assistive technologies and they have positive attitude towards assistive technologies. Teachers' in all levels of special education that is, primary, secondary and tertiary institutions in Nigeria are aware of assistive technologies and they have a positive attitude towards them. With this positive attitude, it implies that the teachers are ready to integrate the required assistive technologies if provided in instruction.

Recommendations

Based on these findings, it was recommended that teachers in special educational institutions in Nigeria should be retrained to update their knowledge and skills of assistive technologies so that they can use them for teaching and learning in schools. Assistive technology hardware and software should be provided to all special educational institutions in Nigeria.

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