



TEACHERS' ATTITUDE AND COMPETENCE IN THE USE OF ASSISTIVE TECHNOLOGIES IN SPECIAL NEEDS SCHOOLS

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Abstract: This study examined teachers' attitude and competence in the use of assistive technologies in special needs schools. The descriptive survey method was employed for the study among 100 teachers who were drawn using purposive sampling technique from special needs schools in Osun State, Nigeria. Six research questions were generated while four hypotheses were tested at 0.05 level of significance. A researcher-constructed questionnaire tagged "Teachers' Attitude and Competence in the Use of Assistive Technology Questionnaire (TACUATQ)" was used for data collection. The instrument was administered on 20 selected teachers outside the sample location through test-retest method; it yielded a reliability coefficient of 0.85 through Pearson Product Moment Correlation statistics. Data were analysed with percentage, mean and rank order, *t*-test and ANOVA statistical tools. The findings revealed that teachers have a positive attitude towards the use of assistive technologies. However, teachers were not competent in the use of assistive technologies. Gender and teaching experience did not influence teachers' attitude and competence in the use of assistive technologies. It was recommended among other things that teachers should be trained and re-trained on the use of assistive technology for students with speech disorders, visual impairments, hearing impairments, physical impairments and emotional and behavioural disorders.

Keywords: Teachers, Attitude, Competence, Assistive Technologies

1. Introduction

Globally, there is no gainsaying the fact that, education is a fundamental human right for every child. To this end, therefore, there is a consensus among stakeholders in most nations of the world, Nigeria inclusive, that every child must be educated properly irrespective of whether the child is living with disability or not. In this wise, education is broadly classified into regular education and special needs education. Regular education is the type of education given to students who do not have disabilities in the use of the five sensual modalities vis-a-vis other vital functional capabilities that are cardinal to students' success during the process of schooling and can cope with the normal classroom settings and methods of instruction. On the other hand, special education is meant for students with one form of disability or the other such as visual impairment, hearing impairment, physical and health impairment, mental retardation, emotional disturbance, speech impairment, learning disabilities and a host of others. In other words, it is incontrovertible that all students go through diverse processes that have their own prospects and problems during the course of an academic endeavour. Nevertheless, students with special needs seem to experience more problems than prospects especially in Nigeria where the goals of special education as stipulated in the National Policy on Education (FRN, 2013) are yet to be achieved. For instance, there is no question that students with special needs do not benefit properly from the diverse and indispensable prospects that are embedded in several technological innovations and devices for a plethora of reasons that are not far-fetched in the Nigerian educational system. Consequent upon this, it has been reported that the availability of assistive technology in special needs schools in South-Western Nigeria, a geo-political zone with the highest concentration of special needs

schools in Nigeria is still miniscule compared with the diverse needs and opportunities related to technology integration in special education (Adeleke, Onivehu, Afe & Ohawuiro, 2016).

In broad terms, assistive technology connotes any piece of equipment or product system, whether acquired commercially or off-the-shelf, modified, or customized that is used to increase, maintain, or improve the functional capabilities of a child with disabilities (Lee & Templeton, 2008). In like manner, Adeleke, Onivehu, Ohawuiro and Oyeniran (2016) defined assistive technology as any form of device, tool, equipment or service that could be marshaled to ensure that students with special needs benefit maximally from the teaching-learning process. That is, assistive technology gives students with special needs greater control over the learning experience, improves their communication skills and helps them to perform tasks independently (Winter & O'Raw, 2010). Substantiating the foregoing, Balmeo, Nimo, Pagel, Arisdaf-Quino and Sanwen (2014) noted that assistive technology helps students with special needs to have concrete and practical experience of what is being taught in the classroom. Latz, Stoner and Stout (2008) opined that the use of assistive technology makes information clearer and understandable in the classroom. Assistive technology also has been identified by Micheals and McDermott (2003) as a great equalizing force in education and robust tool for inclusion both in terms of promoting access to the general curriculum and in facilitating the ability of students to demonstrate mastery of that knowledge. Bruinsma (2011) added that assistive technology caters for the individual differences of learners in the classroom. Given that no two students in the classroom are ever the same and the individual need of every student has to be met, assistive technology becomes a tool that could be marshaled to meet this need. In line with the foregoing, Young (2014) opined that assistive technology benefits students with disabilities in individualized ways.

Thus, in view of the diverse benefits that are related to the utilization of assistive technology in special needs education, there is no doubt that the success of the integration of assistive technology in any educational system is hinged on the quality and quantity of teachers as the prime implementers of the curriculum (Adegunju, Onivehu, Odetunde & Oyeniran, 2017). In this sense, the attitudinal disposition of teachers towards the use of technology plays a central role. Thus, when teachers have a positive attitude towards a specific form of assistive technology, there is a greater likelihood that they would make significant efforts to effectively integrate such technology into the teaching-learning process. Conversely, when teachers have a negative attitude towards any form of assistive technology, they tend to shy away from integrating such technology into the teaching-learning process. Consequently, this may also have some negative ripple effects on their level of competence in the use of such technology. In the field of psychology, attitude has been defined as a principal guiding force behind all human activities. One of the foremost authorities in the field of psychology, Gordon Allport, defined attitude as a mental and neural state of readiness, organized through experience, exerting a directive or dynamic influence upon the individual's response to all objects and situations with which it is related. Important elements of Allports's definition are: attitudes are personal; attitudes are formed and organized through experience. That is, man is not born with a negative or positive attitude. However, one's attitude is acquired via the socialization process. To this end, attitude is not passive construct, but rather it exerts a dynamic or directive influence on human behavior in diverse settings. Therefore, attitude is believed to directly influence an individual's behaviour (Santrock, 2012). Given the foregoing, studies have established close links and affinities between teachers' attitude and their use of ICT (Yusuf & Balogun, 2011). Similarly, Williamson-Henriques (2013) carried out a meta-analysis of literature and noted that the attitude of teachers towards special educational practices and resistance to change were notable barriers to the utilization of technology.

In like manner, teachers' level of competence in the use of assistive technology could either make or mar the process of technological integration in the field of education (Yayi, Onivehu, Ohawuiro & Oyeniran, 2016). Competence, in this sense, implies how a teacher combines and applies relevant forms of assistive technology to facilitate several processes in the teaching-learning environment. In other words, teachers who possess high levels of knowledge, skill, and proficiency in the use of assistive technology would be more competent in the process of technology integration in pedagogy (Commonwealth Department of Education, Science and Training, 2002). Hence, teachers' competence in the use of assistive technology entails what a teacher should know and be able to do with any form

of assistive technology in the special education pedagogical setting at any given point in time. As spelt out in the ICT Competency Framework for Teachers which was designed by UNESCO (2008), there are three approaches to ICT integration in education (Technology Literacy, Knowledge Deepening and Knowledge Creation) with the six components of the educational system (Policy & Vision, Curriculum & Assessment, Pedagogy, ICT, Organization & Administration, and Teacher Professional Development). It therefore follows that special needs teachers are expected to be competent in these three key areas in order to effectively cover the six dimensions that form the core of assistive technology integration in special needs education. In line with the foregoing, Williamson-Henriques (2013) noted that the teachers that are competent in the use of assistive technology are fully prepared to operate and integrate such technologies into their teaching activities.

Notably, the demographic characteristics of special needs teachers are key determinants of teachers' level of competence and attitude towards the use of assistive technology. As a consequence, therefore, it has become necessary to examine how some demographic factors such as gender, teaching experience mediates teachers' attitude and competence in the use of assistive technology. This is in agreement with the viewpoint of Thomas and Stratton (2006) which stressed that many variables which influence teachers' competence and attitude towards technology integration includes gender, teaching experience, age, years of schooling. Thus, some studies (Kadel, 2005; Bebetos & Antoniou, 2008) have found that gender moderates teacher' competence and attitude towards the use of technology. In relation to teaching experience, studies (Gorder, 2008; Baek, Jong & Kim 2008; Buabeng-Andoh & Totimeh, 2012) found that teaching experience is significantly correlated with the actual use of technology. In like manner, Garcia and Seevers (2005) examined general education teachers' attitude towards the use of assistive technologies by students with learning disabilities in the classroom and found that all teachers had a positive attitude towards the utilization of assistive technology for students with learning disability in their classroom. Furthermore, gender, teaching experience and teacher qualification had no influence on the teachers' attitudes. On the influence of gender on teachers' ICT competence, Kolawole (2016) found no significant difference in the competence of male and female special needs teachers in the use of assistive technology in Oyo State, Nigeria. Thus, it is deducible from these findings that there is there is a lack of an in-depth study on teachers' competence and attitude towards the use of assistive technology in special needs schools in Osun State, Nigeria. Given that Osun State is one of the states in South-Western Nigeria with the highest number of special needs schools especially at the primary and secondary school level, a study of this nature is germane to shed more light on critical issues that are related to how special needs teachers integrate technology in the pedagogic process. In the light of the foregoing, therefore, this study investigated teachers' competence and attitude towards the use of assistive technology in special needs schools in Osun State, Nigeria.

1.1. Problem

Nigeria is the most populous black nation in the world with a population of about 170 million people which consists of approximately 20 million People Living with Disabilities (PLWDs). In like manner, there is no question that any successful inclusive educational endeavour in Nigeria requires an individualized, innovative and technology-mediated teaching-learning process that can cater for the diverse needs of about 3 million school aged children with special needs in several special needs schools that are spread across the length and breadth of the country. Hence, in order to facilitate enhance the learning outcomes of students with special needs in Osun State, Nigeria, it is germane that teachers maintain a positive attitude so as to competently integrate assistive technologies into the teaching-learning process. This viewpoint is supported by a plethora of empirical studies that have been carried out hitherto to investigate the attitude and competence of teachers in the use of assistive technology (Garcia & Seevers, 2005; Yusuf & Fakomogbon, 2008; Issa, 2009; Sharma and Madhumita, 2012; Yusuf, Fakomogbon, & Issa, 2012; Alkahtani, 2013; Williamson-Henriques, 2013; Brown, 2014; Kolawole, 2016). Nevertheless, none of these studies was carried out in Osun State, Nigeria. Thus, this constitutes a gap in literature that could be filled by this study. The problem of this study, therefore, was to investigate teachers' attitude and competence in the use of assistive technology in special needs schools in Osun State, Nigeria.

1.2. Research Questions

1. What is the attitude of teachers towards the use of assistive technology in Osun State, Nigeria?
2. What is the level of competence of teachers in the use of assistive technology in Osun State, Nigeria?
3. What is the influence of gender on teachers' attitude towards the use of assistive technology in Osun State, Nigeria?
4. What is the influence of gender on the level of competence of teachers in the use of assistive technology in Osun State, Nigeria?
5. What is the influence of teaching experience on teachers' attitude towards the use of assistive technology in Osun State, Nigeria?
6. What is the influence of teaching experience on the level of competence of teachers in the use of assistive technology in Osun State, Nigeria?

1.3. Research Hypotheses

The following hypotheses are postulated to be tested in the study:

1. There is no significant difference in the attitude of teachers towards the use of assistive technology in Osun State, Nigeria based on gender.
2. There is no significant difference in the level of competence of teachers in the use of assistive technology in Osun State, Nigeria based on gender.
3. There is no significant difference in the attitude of teachers towards the use of assistive technology in Osun State, Nigeria based on teaching experience.
4. There is no significant difference in the level of competence of teachers in the use of assistive technology in Osun State, Nigeria based on teaching experience.

2. Method

The research design adopted for this study is the descriptive survey method because it made it easier for the researchers to take a broad view from a sample of special education teachers in primary and secondary schools in order to draw conclusions regarding their attitude and competence in the use of assistive technology in their classrooms (Check & Schutt, 2010). The population for this study was all special education teachers in Osun State, Nigeria. The target population for this study was special education teachers in mainstreamed and segregated primary and secondary schools for students with special needs in Osun State, Nigeria. One hundred (100) teachers were drawn from the population using a purposive sampling technique from four special needs primary and secondary schools in two Local Government Areas in Osogbo and Ife, Osun State, Nigeria because Ile-Ife and Osogbo are two prominent cities in Osun State, with Osogbo being the capital city. The selected schools were Schools for Person with Special Needs, Osogbo in Olorunda Local Government Area; Secondary School for Persons with Special Needs, Osogbo; Special Needs Children School, Ilare, Ile-Ife; and School for Special Needs Children, Ife East L.G.A., Modakeke, Ile-Ife, Osun State, Nigeria.

The main instrument that was used for collecting the required information for the study was a self-designed questionnaire tagged "Teachers' Attitude and Competence in the Use of Assistive Technology Questionnaire (TACUATQ)". Section A sought demographic information of the respondents, Section B with 15 items focused on teachers' attitude towards the use of assistive technology while Section C focused on teachers' competence in the use of six different dimensions of assistive technology. Section B was patterned in Likert scale format of Strongly Agree (SA) = 4 points, Agree (A) = 3 points, Disagree (D) = 2 points, and Strongly Disagree (SD) = 1 point. Items in Section C were patterned in a five point Likert scale format of Fully Competent (FC) = 5 points, Regular and Confident User (RCU) = 4 points, Occasional User (OU) = 3 points, Do not Use (DU) = 2 points and Not Aware (NA) = 1 point.

The content validity of the instrument used in this study was established through five experts in the Faculty of Education, University of Ilorin. The experts did the necessary corrections which were used to produce the final version used for the study. The reliability of the instrument (CUICTQ) was established by applying the test retest method. Thus, the reliability of 0.85 was obtained which was

considered as reliable for the study. The data obtained was analyzed using different statistical measures which include percentages, summated mean ranking, t-test and Analysis of Variance (ANOVA).

3. Results

Table 1 shows respondents’ gender, out of 100 respondents that were sampled, 40 (40%) of the respondents were males while 60 (60 %) were females. Table 2 shows that 41(41%) of the respondents had teaching experience of 0-5 years, 21(21%) of the respondents had teaching experience of 6-11 years while 38(38%) of the respondents had teaching experience of 11 years and more. Table 3 indicates that 26(26%) of the respondents were primary school teachers while 74(74%) of the respondents were secondary school teachers. Table 4 shows that 37(37%) of the respondents teach in mainstreamed special needs school while 63(63%) of the respondents teach in segregated special needs schools.

Table 1: Demographic Distribution of Respondents by Gender

Gender	Frequency	Percentage (%)
Male	40	40
Female	60	60
Total	100	100.0

Table 2: Demographic Distribution of the Respondents by Teaching Experience

Teaching Experience	Frequency	Percentage (%)
0-5 years	41	41
6-11 years	21	21
11 years and more	38	38
Total	100	100.0

Table 3: Demographic Distribution of the Respondents by Teaching Domain

Teaching Domain	Frequency	Percentage (%)
Primary School	26	26
Secondary School	74	74
Total	100	100.0

Table 4: Demographic Distribution of the Respondents by Type of Special School

Type of Special School	Frequency	Percentage (%)
Mainstreamed	37	37
Segregated	63	63
Total	100	100.0

Research Question 1: *What is the attitude of teachers towards the use of assistive technology in Osun State, Nigeria?*

Table 5 indicates the measure of central tendency and rank order analysis on the attitude of teachers towards the use of assistive technology in Osun State, Nigeria. Specifically, Item 1 which states that “assistive technology facilitates presentation of the subject matter” ranked 1st with a mean score of 3.48. Similarly, item 4 which states that “assistive technology improves students’ academic performance” ranked 2nd with a mean score of 3.38. Also, item 13 which states that “assistive technology helps teachers to tailor instruction to the specific needs of students” ranked 3rd with a mean score of 3.36. In like manner, item 3 which states that “students with special needs function maximally in the classroom with the use of assistive technology” ranked 4th with a mean score of 3.35. More so, item 15 which states that “I am convinced that assistive technology plays an indispensable role in the teaching-

learning process” ranked 4th with a mean score of 3.35. Furthermore, item 8 which states that “I think a greater percentage of special education funds should be used to acquire assistive technologies” ranked 6th with a mean score of 3.28. On the whole, it is deducible from the results presented in Table 5 that all the 15 items are an indication of teachers’ attitude towards the use of assistive technology in special education because they had mean scores above the mid-mean score of 2.50. Nevertheless, it is plausible to infer that the respondents have a positive attitude towards the use of assistive technology because all the 11 items that measured the positive aspect of teachers’ attitude towards assistive technology had mean scores that were above 2.50.

Table 5: Rank Order of the attitude of teachers towards the use of assistive technology in Osun State, Nigeria

Items	Mean
Assistive technology facilitates presentation of the subject matter	3.48
Assistive technology improves students’ academic performance	3.38
Assistive technology helps teachers to tailor instruction to the specific needs of students	3.36
Students with special needs function maximally in the classroom with the use of assistive technology	3.35
I am convinced that assistive technology plays an indispensable role in the teaching-learning process	3.35
I think a greater percentage of special education funds should be used to acquire assistive technologies	3.28
I can endeavour to improve my assistive technology competence for the benefit of students with special needs	3.27
I am satisfied when I use assistive technology in the classroom	3.25
Assistive technologies can facilitate communication in the classroom	3.22
I believe assistive technology has an overall benefit for students with special needs	3.20
The availability of assistive technology in the class is very relevant	3.11
I feel assistive technology takes so much stress to obtain and therefore should not be provided	2.89
I feel assistive technology is very complicated and difficult to use	2.89
Utilization of assistive technology frustrates me and takes too much of my personal time	2.85
I cannot use assistive technology in my class because it is expensive to purchase	2.56

Research Question 2: *What is the level of competence of teachers in the use of assistive technology in Osun State, Nigeria?*

Table 6 presents teachers’ level of competence in the use of assistive technology in Osun State, Nigeria. Thus, the analyzed data showed that majority of the respondents were competent in the use of assistive technologies for students with disabilities. That is, the teachers were competent in the use of computer, mobile technology (tablets, iPads, smartphones), graph paper, models or 2D and 3D geometric shapes, abacus, graphing calculators, talking calculator, electronic organizers, portable or adapted keyboards, audio books, digital recorders and highlighting pens to facilitate the teaching-learning process for students with learning disabilities. However, the respondents were not competent in the use of assistive technologies for students with speech disorder (simple voice output device, voice output device with dynamic display and voice output device with icon sequencing); visual impairment (talking computers, multimedia projectors, Braille note taker, closed circuit television, Braille translation software, screen magnification software screen magnifier and dictation software);

hearing impairment (Telecommunication Device for the Deaf, Computer aided note taker, FM or loop system , Real Time captioning, Closed captioning and Signaling device); physical impairment (powered mobility toy, powered wheel chair with joystick or other control) and emotional and behavioural disorder (Learning games with instructional software program, Beads- in-pocket, Golf counters, and Visual representation system).

Table 6: Domain Item Analysis of Teachers' Competence in the Use of Assistive Technology

Assistive Technology Domain	Mean	Decision
Learning Disabilities	2.57	Competent
Speech Disorder	2.04	Not Competent
Visual Impairment	2.32	Not Competent
Hearing Impairment	2.19	Not Competent
Physical Impairment	1.98	Not Competent
Emotional and Behavioural Disorder	1.83	Not Competent

Hypotheses Testing

Hypothesis One: *There is no significant difference in the attitude of teachers towards the use of assistive technology in Osun State, Nigeria based on gender*

As shown on Table 7, the calculated t-value was 1.06 while its critical t-value is 1.96 ($0.29 > 0.05$ level of significance). Since the calculated t-value is less than the critical value, the null hypothesis which states that there is no significant difference in the attitude of teachers towards the use of assistive technology in Osun State, Nigeria based on gender was not rejected.

Table 7: Mean, Standard Deviation and t-value on the attitude of teachers towards the use of assistive technology in Osun State, Nigeria based on Gender

Gender	No	Mean	SD	Df	Cal .t-value	Crit. t-value	P-value
Male	40	48.05	4.95	98	1.06	1.96	0.29
Female	60	47.03	4.47				

Hypothesis Two: *There is no significant difference in the level of competence of teachers in the use of assistive technology in Osun State, Nigeria based on gender*

As shown on Table 8, the calculated t-value was 0.13 while its critical t-value is 1.96 ($0.90 > 0.05$ level of significance). Since the calculated t-value is less than the critical value, the null hypothesis which states that there is no significant difference in the level of competence of teachers in the use of assistive technology in Osun State, Nigeria based on gender was not rejected.

Table 8: Mean, Standard Deviation and t-value on the level of competence of teachers towards the use of assistive technology in Osun State, Nigeria based on Gender

Gender	No	Mean	SD	df	Cal .t-value	Crit. t-value	P-value
Male	40	37.57	4.96	98	0.13	1.96	0.90
Female	60	37.41	6.70				

Hypothesis Three: *There is no significant difference in the attitude of teachers towards the use of assistive technology in Osun State, Nigeria based on teaching experience.*

The result in table 9 shows calculated F-ratio was 2.14 while the critical F-ratio was 2.78 ($0.12 > 0.05$ level of significance). Since the calculated F-ratio is less than the critical F-ratio, the null hypothesis which states that there is no significant difference in the attitude of teachers towards the use of assistive technology in Osun State, Nigeria based on teaching experience was not rejected. Therefore,

there was no significant difference in the attitude of teachers towards the use of assistive technology in Osun State, Nigeria based on teaching experience.

Table 9: Analysis of Variance (ANOVA) showing the attitude of teachers towards the use of assistive technology in Osun State, Nigeria based on teaching experience

Groups	Sum of Squares	df	Mean Square	Cal. F-ratio	Crit. F-ratio	P-value
Between Groups	91.297	2	45.648	2.14	2.78	0.12
Within Groups	2069.343	97	21.333			
Total	2160.640	99				

Hypothesis Four: *There is no significant difference in the level of competence of teachers in the use of assistive technology in Osun State, Nigeria based on teaching experience.*

The result in table 10 indicates that the calculated F-ratio was 1.03 while the critical F-ratio was 2.78 ($0.36 > 0.05$ level of significance). Since the calculated F-ratio is less than the critical F-ratio, the null hypothesis which states that there is no significant difference in the level of competence of teachers in the use of assistive technology in Osun State, Nigeria based on teaching experience was not rejected. Therefore, there was no significant difference in the level of competence of teachers in the use of assistive technology in Osun State, Nigeria based on teaching experience.

Table 10: Analysis of Variance (ANOVA) showing the level of competence of teachers in the use of assistive technology in Osun State, Nigeria based on teaching experience

Groups	Sum of Squares	df	Mean Square	Cal. F-ratio	Crit. F-ratio	P-value
Between Groups	75.167	2	37.584	1.03	2.78	0.36
Within Groups	3537.793	97	36.472			
Total	3612.960	99				

4. Discussion

The main focus of this research was to investigate the teachers' attitude and competence in the use of assistive technology in special needs schools in Osun State, Nigeria and to determine if gender and teaching experience had any influence on both attitude and competence. The first research question, which was analyzed using rank order revealed that the teachers covered by this study had a positive attitude towards the use of assistive technology in special needs schools. This finding might be due to the fact that, the respondents teach in schools located in the urban areas of Osun State, and as such, they may have used assistive technology at one point or another. More so, special needs schools in the urban areas are generally more funded and equipped with more assistive technologies in Osun State. As a consequence, teachers who have more access to use assistive technologies in the urban areas, tend to have positive attitude towards the use of assistive technology in the teaching-learning process. In any case, this finding corroborates the findings of Yusuf and Fakomogbon (2008) which found that teachers had a positive attitude towards the use of assistive technologies in special needs schools in Kwara State, Nigeria. The similarities in these findings may be attributed to the fact that both studies focused on special needs teachers who are have a greater propensity to have a positive attitude towards any form of assistive technology that could be harnessed to enhance learning outcomes in special education.

The level of competence of the respondents covered by this study in the use of six different categories of assistive technologies is shown in the mean ratings in Table 6. Thus, the teachers were competent in the use of some assistive technologies for students with learning disability such as computer, mobile technology (tablets, iPads, smartphones), graph paper, models or 2D and 3D geometric shapes, abacus, graphing calculators, talking calculator, electronic organizers, portable or adapted keyboards, audio books, digital recorders and highlighting pens. Conceivably, the respondents were competent in the use of assistive technologies for students with learning disabilities because computers and mobile technology and a host of others are often used by teachers in one way or the other from time to time. Similarly, the teachers may have come in contact with these technologies during a plethora of training programmes they might have been exposed these form of assistive technologies as pre-service or in-service teachers. This finding is consistent with the findings of Kolawole (2016) which found that teachers in Oyo State were competent in the use of assistive technology. Nevertheless, the teachers were not competent in the use assistive technologies for students with special needs (speech disorders, hearing impairment, visual impairment, physical impairment and emotional and behavioural disorder). Consequent upon these findings, it may be advanced that the high-tech nature of these assistive technologies implies the high cost of importation from other countries and as such they may not be readily available and accessible for teachers to use. Hence, these findings are at variance with that of Kolawole (2016) which found that teachers in Oyo State were competent in the use of assistive technologies. The discrepancy in these findings may be as a result of the differences in the research instruments used for data collection in both studies.

The *t*-test computation on the difference in the attitude of teachers towards the use of assistive technology in Osun State, Nigeria based on gender showed that gender did not in any way influence teachers' attitude towards assistive technology in special needs schools in Osun State. In other words, no matter the gender, the attitude was positive and the same. This finding may be due to the fact that the male teachers and their female counterparts that participated in this study are aware of the significant benefits that are related to the proper integration of assistive technologies in special needs education. Garcia and Seever (2005) made a similar conclusion that irrespective of gender, the attitude of teachers towards the use of assistive technology was similar in nature. The *t*-test computation on hypothesis two revealed that there was no significant difference competence of teachers in the use of assistive technology in Osun State, Nigeria based on gender, implying that both male and female teachers were not competent in the use of assistive technology. This finding might have been caused by the similarity of the type of training that teachers have been exposed to regardless of their gender at one time or the other. This finding may also be attributed to the fact that the teachers covered by the study had a positive attitude towards the use of assistive technology. Given the foregoing, it is expected that the teachers would be more motivated to increase their level of competency in the use of assistive technology since they have a positive attitude towards the use of assistive technology in special needs classrooms. Supporting this finding, Kolawole (2016) found that there was no significant difference in the ICT competence of teachers based on gender.

The ANOVA computation on hypothesis three revealed that there was no significant difference there was no significant difference in the attitude of teachers towards the use of assistive technology in Osun State, Nigeria based on teaching experience. This corroborates the findings of Issa (2009) who found that teachers' years of teaching experience had no influence on their attitude towards the use of assistive technologies. This agreement in findings may be because experienced and inexperienced teachers in the field of special needs education may have a basic knowledge about the relevance of assistive technology in the teaching-learning process. The ANOVA computation on hypothesis four showed that there was no significant difference in the competence of teachers in the use of assistive technology in Osun State, Nigeria based on teaching experience. This finding is in line with the findings of Kolawole (2016) which found no significant difference in the level of competence of teachers in the use of assistive technology based in Oyo State based on their experience.

4.1. Implication of Findings

The following implications were drawn based on the findings of this study. Firstly, majority of the respondents had a positive attitude towards the use of assistive technology. Therefore, this implies that the probability of teachers shying away from the use of assistive technologies in the teaching-learning

process due to a negative attitudinal disposition is negligible. Nevertheless, it also implies that this positive attitude needs to be sustained by ensuring that teachers have access to relevant forms of assistive technologies in line with global best practices. Second, respondents were found to be not competent in the use of assistive technologies for students with speech disorders, visual impairments, hearing impairments, physical impairments and emotional and behavioural disorders. The direct implication of this unwelcomed finding is that teachers would not be able to effectively integrate these forms of assistive technologies in the teaching-learning process. In other words, even when some forms of assistive technologies are made available for teachers' use by concerned stakeholders, the expected outcomes may not be achieved because teachers lack the relevant form of competence. In this regard, more efforts are required to expose teachers to in-service development programmes and at the level of teacher education. In like manner, all teachers irrespective of difference in the demographic profiles such as gender and teaching experience should be a beneficiary of such teacher development programmes.

5. Conclusion

Teachers in any nation, Nigeria inclusive, play a cardinal role in the development of a sustainable educational system. In this sense, if the goals of inclusive education as articulated in the sustainable development goals of the United Nations are to be achieved in Nigeria by the year 2030, there is no question that teachers are required to do the needful. Thus, there is no gainsaying that availability of teachers in the right quantity and quality is a critical engine that drives the vehicle of technological integration in the field of special needs education. In the light of the foregoing, therefore, gaining an insight into teachers' attitude and level of competence in the use of assistive technology is of great importance. To this end, therefore, this study concluded that teachers have positive attitude towards the use of assistive technology in special needs schools in Osun State, Nigeria. The study also concluded that, teachers were not competent in the use of assistive technologies for students with speech disorders, visual impairments, hearing impairments, physical impairments and emotional and behavioural disorders but were competent in the use of mobile technologies as assistive technologies for students with learning disability. It was also discovered that gender and teaching experience did not influence teachers' attitude and competence in the use of assistive technology. In the light of these findings, it is therefore recommended that the Nigerian government should make assistive technology accessible, available and considerably subsidized so that administrators of special needs students can purchase it easily. More so, the need for capacity building trainings, workshops and seminars that are geared towards enhancing teachers' competence in the use of assistive technology cannot be over stressed given the dynamic nature of technological innovation. Thus, teachers should be encouraged and motivate to upgrade their level of competence in the use of assistive technology for students with speech disorders, visual impairments, hearing impairments, physical impairments and emotional and behavioural disorders. Similarly, it is posited that there is also an urgent need for the improvised production of assistive technologies by using the broad range of raw materials and human resources that are available in Nigeria. This could go a very long way in reducing the high cost of importing the foreign made assistive technologies that may be too costly for special needs schools in Osun State to procure. Finally, the teacher education programme for pre-service special needs teachers and educational technologists should endeavour to equip teacher trainees with the vital skills that are needed for the design, production, utilization and evaluation of assistive technologies in the Nigerian special education setting.

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