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Extent of use of Assistive Technology to Improve Primary School Pupils English Studies in Inclusive Classrooms: Nigeria Experience

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Abstract

Education in developing countries faces many obstacles in the process of implementing inclusive education. Assistive technology is very important to the development of a child and goes a long way to facilitate learning effectiveness. The study examined the extent of use of assistive technology for primary school pupils in inclusive English studies classroom in Awka South local Government Area of Anambra State, Nigeria. The study was guided by two research questions. Descriptive survey design was adopted. A sample size of 240 pupils was randomly selected through balloting without replacement from a population of 1,442. 18 items Four point scale questionnaire was used for data collection and the reliability coefficient yielded 0.74 using Cronbach Alpha. The researchers administered the instrument using direct delivery method. Data were analyzed using mean. Findings reveal that extent of use of assistive technology for reading among pupils in inclusive English studies classroom is low while its usage in writing is high. It was recommended amongst others that the State Ministry of Education should recognize the potentials of assistive technology in supporting English education for pupils in inclusive classroom.

Keywords: *Extent, Assistive, Technology, Primary, English, Inclusive, Classroom, Education*

1. Introduction

Every child has the elemental right to quality education. To this end, therefore, there is accord among stakeholders in most nations of the globe, as well as Nigeria, that each child despite whether or not the child is resides with incapacity or not should be educated properly. In this wise, education is loosely classified into regular education and special needs education.

Regular education is the sort of education given to students who do not have disabilities within the use of five sensual modalities vis-à-vis different very important useful capabilities that square measure cardinal to pupils success throughout the process of schooling and may deal with the conventional schoolroom settings and ways of instruction [Onivehu, Ohawuiro & Oyeniran, 2017]. On the opposite hand, special education is supposed for students with one style of incapacity or the opposite like visual impairment, hearing impairment, physical and health impairment, mental disorder, speech impairment, learning disabilities, and a bunch of others [Gronlund, Lim & Larsson, 2010]. It is incontrovertible that each one pupil undergoes various processes that have its own prospects and issues throughout the course of their academic endeavor.

Nevertheless, pupils with special needs appear to experience a lot of issues than prospects particularly in Nigeria wherever the goals of education as stipulated in the National Policy of Education [FRN, 2013] are yet to be achieved. For instance, there is no doubt that pupils with special needs do not profit properly for the varied and indispensable prospects that are embedded in many technological innovations and devices for a plethora of reasons that do not seem far-fetched within the Nigerian academic systems.

The predominant view nowadays is that disabled youngsters ought to be educated beside their peers in thought faculties instead of separate academic systems as employed in the past. This means having an inclusive and

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holistic approach to education for all youngsters (girls and boys) as well as those from poor households, disabled, conflict and post-conflict conditions and rural and remote locations [Unite for Quality Education, 2012]. Inclusive classrooms education can foster fairness and equity for the education of special wants youngsters by giving them a good platform to justly show their distinctive skills, proving themselves capable enough to find out and perform beside their non-disabled peers [Ahmad, 2015].

With inclusive education there arises the requisite needs for inputs (including adequate infrastructure, facilities and resources and qualified and well supported teachers), a comprehensive and inclusive teaching and learning programs (including broad curricula that specialize in life skills, literacy and special subjects, learner centered pedagogies and continued skill development for teachers/instructors) and broad outcomes (including civic-mindedness, crucial thinking and drawback determination skills and different life skills), to handle the varied learning needs of all learners in an equitable manner [Unite for Quality Education, 2012]. The education of youngsters with special wants in inclusive faculties ought to be a shared responsibility for the various stakeholders concerned, thus it is imperative for various stakeholders concerned in education to acknowledge the capabilities and differential skills of all learners (Ahmad, 2015); stern a shift in perspective, wants assessment and analysis, pedagogy, handiness and accessibility of infrastructure, need-based ways and materials for educational delivery; and obvious drawback of acceptance and accommodation in the slightest degree levels within the education system (Ahmad, 2014; 2015). In confronting the individual learning wants of all youngsters, with a special focus in those vulnerable to marginalization and rejection, inclusive education affords all learners (with or without disabilities) the chance to learn together through access to common pre-school provisions, schools and community educational setting with an appropriate network of support services, which might be attainable solely in a very versatile education system that assimilates the requirements of various learners and adapts itself to fulfil these needs, by guaranteeing that each one stakeholder within the system square measure comfy with diversity and see it as a challenge instead of a drag.

Reports have shown vital progress created in inclusive education in developed nations like North America and also the Western Europe [Norwich, 2008], however, the level of inclusive education in developing countries (like in Africa and Asia) sometimes highlights the challenges related to the implementation of inclusive education (Charema, 2007). Principally, political instability, economic crises, restricted governmental support, ineffective policies and adequate funding, light trained academics and support, and the ineffective and inefficient use of assistive technologies are known as major obstacles forestalling the successful implementation of inclusive education in developing countries (Gronlund et al., 2010).

Inclusion is usually thought to mean the location of scholars with disabilities in a very general education setting. Several researchers opined that it is quite the placement of youngsters with disabilities within the mainstream schoolroom (Ferguson, 2008; Thomazet, 2009). Whereas, inclusive education below the law most directly suggests that it is the participation of scholars with disabilities in the general education curriculum, this participation involves quite mere physical presence. Voltz, Brazil and Ford (2001) emphasize that inclusive education involves significant participation and interaction between the scholar with disabilities, the teacher and non-disabled peers. Inclusion additionally involves a climate of belonging and acceptance among all students within the schoolroom. Booth and Ainscow (2011) acknowledge inclusion to be about increasing participation for all youngsters and adults; and also supporting faculties to become more receptive to the heterogeneousness of children's backgrounds, interest, experience, knowledge and skills. Voltz et al. (2010) imply that another element of inclusion is shared possession among faculty for the education of all scholars, despite teachers' specialization. The aim of inclusion is to extend the participation of special wants scholars within the general education curriculum, which increases the interaction of special wants scholars with general education teachers and with students without disabilities.

Research study by Scruggs, Mastropieri and McDuffie (2007) indicate lack of appropriate teaching materials, differentiation in activities and opportunities for individualizing the curriculum in the education of students with disabilities in inclusive classroom. One practice that may support inclusive education for disabled pupils is the use of assistive technologies (AT) in the classroom (Hemmingsson, Lindstrom & Nygard, 2009; Huang, Sugden & Beveridge, 2009). AT is broadly defined and includes any item that increases, maintains or improves the abilities of an individual with disabilities. AT includes items that are both very low-tech (pencil grip) and high-tech (argumentative and alternative communication devices) (Merbler et al, 1999). In inclusive classroom, assistive technology has the potential to improve the functioning and performance of children with disabilities. The functioning improved by AT can allow a student to successfully function, and thus remain in a general education setting, rather than be removed to a more restrictive setting (Parette, Smith, & Gray, 2006).

On the other hand, AT 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 disability (Lee & Templeton, 2008). In like manner, Adeleke, Onivehu, Afe, and Ohawuiro (2016) defined AT as any form of device, tool, equipment or service that could be marshaled to ensure that pupils with special needs benefit maximally from the teaching-learning process. That is to say that assistive technology gives pupils with special needs

greater control over the learning experience, improves their communication skills, listening skills, writing in English studies and helps them to perform tasks independently.

Lartz, Stoner and Stout (2008) opined that the use of AT makes information clearer and understandable in an inclusive classroom. Given that no two pupils in the classroom are ever the same and the individual need of every pupil has to be met, AT becomes a tool that could be marshaled to meet this need. In line with the foregoing, Young (2014) opined that AT benefits pupils with disabilities in individualized ways. Some of these ATs and their category of usage are;

1) AT for people with visual impairment- Brails, Audio book recorder, Screen reading magnifier, Personal computer with Braille key, Zoom tech program, Large print book, Tape recorder, Electronic lesson material, FM system.
2) AT for people with hearing/speech impairment- Hearing aids, Closed captioning, Monitor, Noise cancelling head phone, Talking laptop, Reading machine, Electronic textbook recorder, Books on tape, Television/Video.
3) AT for people with dyslexia- Scanner with talking word processor, Multimedia presentation device, Talking electronic device, Pencil with adaptive grip, Text with pictures, Reading guide, picture charts.
4) AT with the physically challenged- Wheel chair, Padded mat, Walker, Clutches, Orthotic devices, Pressure relief, Chair padded with cushion.

AT helps to include every child with equal participation, enhances academic performance, makes them independent and improves their writing and reading skills. Thus, in view of these diverse benefits of the utilization of AT in inclusive classroom, there is still a gap/challenge in a developing country like Nigeria and Anambra State in particular. The use of AT in primary school still poses a big challenge owing to many factors like, limited fund, economic meltdown, lack of support from government, ineffective policies and legislation, and lack of well-trained teachers that can make use of modern technology which have become a barrier to effective implementation of ATs. Moreover, several studies have found that AT assigned for use in schools is sometimes used as intended, but quite often used less than intended, in unintended ways, all totally abandoned altogether (Murchland & Parkyn, 2010; Soder-Strom, 2012).

However, in the context of Anambra State of Nigeria, empirical studies showed that there is the need for AT to improve English studies among primary school pupils in inclusive classrooms. In view of the foregoing, the researchers are motivated to determine the extent of use of AT for primary school pupils in inclusive English studies classrooms in Awka South Local Government Area of Anambra State, Nigeria by investigating the following research questions: To what extent is assistive technology used for reading among primary school pupils in inclusive English studies classroom?; To what extent is the assistive technology used for writing among primary school pupils in inclusive English studies classroom?

2. Method

This study adopted a descriptive survey design. The area of study was Awka South Local Government Area. The population of the study comprised all the inclusive primary schools with a population of 1,142 pupils. Using simple random sampling technique of balloting without replacement, 240 pupils were selected from four schools. The participants were 30 pupils from primary 5 and 30 pupils from primary 6 in each of the selected four schools. The instrument titled "*Assistive Technology for Primary School Pupils in Inclusive English Studies Classroom Questionnaire* (ATPSPIESCQ) was used. The Questionnaire contained 18 items on a 4-point rating scale of Very High Extent (VHE-4 points) High Extent (HE-3 points) Low Extent (LE –2 points) Very Low Extent (VLE -1 points). Face validity of the instrument was determined by three experts; one from Department of Early Childhood and Primary Education, another from Department of English Language and Literature, and one from Department of Educational Foundations, all in Nnamdi Azikiwe University, Awka. Cronbach Alpha was used to obtain the reliability coefficients of 0.73 and 0.74 for the two clusters of the instrument. The researchers personally employed face to face method of administration of the instrument to the respondents. Data collected were analyzed using mean (x). The decision for cut-off in the mean scores were 2.50 and above was taken as high while mean scores below 2.50 were taken as low.

3. Results

Table 1. Mean ratings of respondents on extent of use of assistive technology for reading among primary school pupils in inclusive English studies classroom

S/No	Items	Mean(X)	Remark
1	Changes in background colour	2.32	LE
2	Screen readers (this programme scans the text and converts the written text into spoken language through speech synthesis).	2.53	HE
3	Reading pen	2.24	LE
4	Large print material	2.65	HE
5	Screen magnification software	2.35	LE
6	Audio taped/CD books	2.46	LE
7	Electronic books (nook, ipad, daisy reader, kindle etc)	2.45	LE
8	Changes in spacing of words	2.36	LE

Data in Table 1 show that only screen readers and large print material with mean scores of 2.53 and 2.65 indicate high extent, while changes in background colour, reading

pen, screen magnification software, audio-taped/CD books, electronic books and changing in spacing of words with means scores of 2.32, 2.24, 2.35, 2.46, 2.45 and 2.36 respectively indicate low extent of use. This implies that the use of AT for reading among primary school pupils in inclusive English studies classroom is to low extent.

Table 2: Mean ratings of respondents on extent of use of assistive technology for writing among primary school pupils in inclusive English studies classroom

S/No	Items	Mean(X)	Remark
9	Word processor	2.53	HE
10	Tape recorder for note taking	2.62	HE
11	Electronic spell checker without auditory output	2.33	LE
12	Electronic spell checker with auditory output	2.48	LE
13	Adapter paper (bold line, raised line, different paper)	2.57	HE
14	Alternative keyboard	2.36	LE
15	Pencil grip	2.55	HE
16	Keyguard	2.43	LE
17	Spell checker	2.52	HE
18	Slant board	2.64	HE

Data in Table 2 reveal that items 9, 10, 13, 15, 17, and 18 have mean scores of 2.53, 2.62, 2.57, 2.52 and 2.64 respectively. This shows that word processor, tape recorder, adapter paper, pencil grip, spell checker, and slant board are used to a high extent among primary school pupils for writing in inclusive English studies classroom. Items 11, 12, 14 and 16 with mean scores of 2.33, 2.48, 2.36 and 2.43 respectively show that electronic spell checker without and with auditory output, alternative keyboard and keyguard are used to a low extent for writing in inclusive English studies classroom. The items indicating high extent of use appear more. This implies that the use of AT for writing among primary school pupils in inclusive English studies classroom is to a high extent.

4. Discussion of Findings

The findings of the study revealed that AT for reading among primary school pupils in inclusive English studies classroom is used to a low extent. This implies that pupils with special needs sparingly benefit from the use of AT for reading in inclusive English studies classroom. This finding contradicts that of Johnstone, Altmant, Timmons, Thurlow and Laitusis (2008) who found that AT in instruction and assessment of students with visual impairment improved their reading; and they were able to read regular and large prints. They further found that students who read large print also read in Braille and used a variety of AT from handheld magnifiers to computer-based products. The finding further disagrees with that of Murchland and Parkyn (2010), and Soder-Strom (2012), who found that AT allotted to be used in class might quite often be used less than meant, in unintentional ways or completely abandoned altogether.

The findings of the study further revealed that AT for writing among primary school pupils in inclusive English studies classroom is of high extent. The findings of this study is in agreement with the findings of Adeleke et al. (2016) who found that the use of AT gives pupils with special needs greater control over their learning experience, improves their communication skills, listening and writing skills in English studies and helps them to perform tasks independently. They further found that the use of word processors led to improved writing outcomes for pupils with learning disabilities and that technology enhanced the quality of final written products, facilitate communication, and promote interaction for all students especially primary school pupils with disabilities.

Conclusions

Based on the findings of the study, the researchers concluded that AT for reading in inclusive English studies classroom is of low extent while the use of assistive technology for writing among primary school pupils in inclusive English studies classroom is to a high extent. Therefore, it is imperative that teachers' competency should be looked into at all cost and urgent too. This will help to enhance effective utilization of AT and hence, improve the performance of children with special needs, especially in inclusive English studies classroom.

References

[1]. Adeleke, F.O., Onivehu, A.O, Afe, T.T., & Ohawuiro, O.E. (2016). Availability of assistive technology in special needs schools in south-west, Nigeria. A paper presented at the 10th annual conference of Association of Sociologists of Education in Nigeria.

[2]. Ahmad, F.K. (2014). Assistive provisions for the education of students with learning disabilities in Delhi schools. *International Journal of Fundamental and applied Research*, 2(9), 9-16.

[3]. Ahmad F.K. (2015). Use of assistive technology in inclusive education: Making room for diverse learning needs. *Transcience*, 6(2).

[4]. Charema, J. (2007). From special schools to inclusive education: The way forward for developing countries south of the sahara. *The Journal of the International association of Special Education*, 8(1), 88-97.

[5]. Federal Republic of Nigeria. (2013).National Policy on Education. Abuja: NERDEC Press Ltd.

[6]. Gronlund, A., Lim, N., & Larsson, H. (2010). Effective use of assistive technologies for inclusive education in developing countries: Issues and challenges from two case studies. *International Journal of Education and Development using Information and Communication Technology*, 6(4), 5-26.

[7]. Johnstone, C., Altman, J.R., Timmons, J., Thurlow, M. & Laitusis, C. (2008). *Field based perspectives on technology assisted reading assessments*: *Results of an interview study with teachers of students with visual impairments (TVIS).* Princeton, NJ: Education Testing Service.

[8]. Lartz, M.N., Stoner, J.B., & Stout, L. (2008). Perspectives of assistive technology from deaf students at a hearing university. *Assistive Technology Outcomes and Benefits*, 5(1), 72-87.

[9]. Lee, H. & Templeton, R. (20080. Ensuring equal access to technology: Providing assistive technology for students with disabilities. *Theory into Practice*, 47, 212-219.

[10]. Merbler, J., Hadadian, A. & Ulman, J. (1999). Using assistive technology in the inclusive classroom. *Preventing school Failure*, 43.

[11]. Norwich, B. (2008). Dilemma of difference, inclusion and disability: International perspectives on placement. *European Journal of special Needs Education*, 23(4), 287-304.

[12]. Onivehu, A.O., Ohawuiro, O.E., Oyeniran, B.J. (2017). Teacher's attitude and competence in the use of assistive technology in special needs schools. *Acta Didactica Napocensia,* 10(4):22-32.

[13]. Parette, H., Smith, S. & Gray, T. (2006). The state of assistive technology: Theme from an outcomes summit. *Assistive Technology Outcomes and Benefits*, 3(1), 15-33.

[14]. Unite for Quality Education (2012). El Policy brief: Every child has the right to quality education and this right begins at birth. http://www.rand.org/content/ dam/rand/pubs/ corporte_pubs/2012/RAND_CP693z1-2012-09.pdf

[15]. Voltz, D.L., Brazil, N. & Ford, A. (2001). What matters most in inclusive education; a practical guide for moving forward. *Intervention in School and Clinic*, 37(1), 23-30.

[16]. Young, G. (2014) Assistive technology for students with learning disabilities. From: *http//: www. Idatschool.ca/technology/assistive-technology/.*