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Role of Assistive Technology in Inclusive Education Practice in Special Needs Education: Challenges and Opportunities

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Abstract
This paper explores the benefits of assistive technology (AT) in fostering inclusive learning in Nigeria. Despite the benefits of assistive technology, its implementation in Nigeria faces several challenges, including a lack of awareness, inadequate funding, and a shortage of qualified professionals. However, there are also opportunities for assistive technology in promoting inclusive education in Nigeria, including improving accessibility and participation, enhancing communication, and collaboration. The paper argues that there are ways to tackle the challenges and exploit the opportunities, such as raising awareness, providing funding and resources, establishing policies and programs, and encouraging public-private partnerships. Assistive technology has the ability to change the lives of individuals with disabilities in Nigeria, enabling them to fully participate in education and society, according to the report.

Keywords: Assistive Technology, Inclusive Education, Disability, Accessibility.

Introduction

Inclusive education in the 21st century is of utmost importance in the field of education. Inclusive education is a practice in education which aims at providing equal access and opportunities to all learners, regardless of their abilities or disabilities, in general education classroom rather than special education setting. The World Conference on Special Needs Education: Access and Quality held in Salamanca, Spain, in June 1994, was the key catalyst for inclusion. Over 300 participants from 92 countries and 25 international organizations met to discuss the fundamental policy shifts required to promote inclusive learning, adopting the guiding principles that regular schools should accommodate all children regardless of their abilities or disabilities. Federal Ministry of Education (2004) in Nigeria has also included the principle of inclusive education, which states that every child has been given equal access to educational opportunities regardless of his/her status in an inclusive classroom setting. To achieve true inclusion in our educational society, however, requires the promotion of assistive technologies for enhancement of student learning and academic success.

Assistive technology includes specific tools, software and devices that can be tailored to meet the specific needs of students with disabilities. Assistive technology is an umbrella term that includes assistive devices, adaptive and rehabilitative devices for individuals with disabilities. These individuals have difficulties performing task independently due to their disabilities, and often require the incorporation of assistive technology in their learning process (World Health Organization & UNICEF, 2015). Assistive technology is any aiding device, piece of equipment, or software that is used to measure, maintain, or improve the functional abilities of individuals with disabilities (Assistive Technology Industry Association, 2023; Bobmanuel & Mbeakwe, 2024). Assistive technology plays a significant role in supporting students with disabilities gain independence and function effectively. The role of assistive technology is to enable effective learning and make the learning environment more accessible to students with disabilities. These assistive technology devices are many with different functions

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and so can address diverse needs of persons with disabilities, by improving their areas of weakness and thus maintain their areas of strength.

When it comes to accessing inclusive education and participation in mainstream development programmes, students with disabilities often face significant barriers (Ahmed, 2018). Students with disability are those who have a significant impairment that interfere with their classroom experience in a way that they may not function effectively like other typical students. The education for Persons with Special Educational Needs Act (2004) states that an individual with disability is one whose ability to participate in and benefit from education is restricted due to a physical, sensory, mental health or learning impairment. According to Ozoji (2005), individual with special needs included persons with visual impairment, learning disabilities, physical and health impairment, mentally retarded (intellectual disabilities), persons with multiple impaired and the gifted and talented children. In Nigeria, there are various challenges that hinder inclusive education, such as inadequate infrastructure, limited resources, and lack of specialized support services. These challenges affect students with disabilities from accessing quality education. However, Technological advances in recent times have been developed to make education more accessible to students with disability, as it enables them have more control and contribute in their home, school, work environment and society at large (Evan, 2017, Bobmanuel & Mbeakwe, 2024). To effectively promote inclusive education in Nigeria, assistive technology must be integrated into the learning environment. It is against this background that this study considered it worthwhile to investigate the role of assistive technology in promoting inclusive education in Nigeria, with insights shared by special educators.

Concept of Assistive Technology

Assistive technology according to World Health Organization (WHO), is a generic term that designates all systems and services related to the use of assistive products and performance of services (WHO, 2001 in Fernàndez-Batanero et al., 2022). Assistive technology can also be defined as piece of equipment, or product system, whether it is purchased commercially, off the shelf, modified, or customized, that is used to maintain or improve the functional capabilities of individuals with disabilities (Assistive Technology Act, 2004; Auwal et al., 2021; Emmanuel-Worgu, 2023). In special education, assistive technology refers to devices, equipment, or systems that are designed to enable individuals with disabilities to perform tasks or activities that would otherwise be difficult or impossible, academically, socially and emotional (Danlami, 2016; Bobmanuel & Mbeakwe, 2024).

The United Nations Convention on the Rights of Persons with Disabilities (UNCRPD) suggested that assistive technology is a tool for promoting inclusivity, accessibility, and equal opportunities for individuals with disabilities. This is to say that, assistive technology is a tool for improving the health, education, employment, and well-being of individuals with disabilities (Ebuenyi, 2020). In the words of Bobmanuel (2022), AT can be soft or hard ware devices that help students learn and achieve success in education. It can be wheelchair, telecommunication devices, electronic note takers, cassette recorders, large-prints books, tactile materials for visually impaired, pencil grips, hearing aids, and many more. It is a vital tool that helps individuals with disabilities become mobile, communicate more effectively, see and hear better, and participate more fully in learning activities.

Inclusive education and assistive technology

An inclusive education philosophy is one of acceptance, which believes that all children regardless of their abilities or disabilities can be valued equally, deserve respect and provided with equal opportunities at school. That means that an ideal inclusive education programme must have goals that address the needs of children with disabilities to ensure that they can thrive into the school environment as their counterparts without disabilities. Dada et al. (2022), opined that appropriate inclusion of children with disabilities required appropriate provisions of total service delivery of the child's physical, mental and emotional abilities. Effective inclusion refers to the use of appropriate supportive facilities and services to support children with disabilities in the regular school setting. The advancement of technology has filled in some gaps in the provision of appropriate services by encouraging inclusivity and promoting equal opportunities for all learners (Mario et al., 2009; Bobmanuel,2022).

It is evident, that Assistive technology improves inclusive education in various areas such as belonging, design and learning development (Personen et al in Aftah et al., 2022). Aftah et al further explained that Assistive technology gives individuals with disabilities a sense of belonging in the school environment as it enables them access curriculum and effectively communicate with teachers and their counterparts. Secondly, that teachers with the help of technology can plan their lesson and inculcate the necessary adaptive technology that enable the students meet their academic and social needs. Thirdly, that provision of assistive devices for all student with disability will make teaching and learning progressive, as no student will be disadvantaged in the classroom. This then implies that assistive technology is the vehicle of inclusive education in which students with disabilities benefit from the same learning and activities as their peers without disabilities.

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Challenges of Implementing Assistive Technology in Nigeria

Despite the potential benefits of assistive technology, it's implementation in Nigeria faces several challenges. These include:

1. Lack of awareness and understanding:

This is one of the major challenges in implementing assistive technology in Nigeria. The public, the individual with disabilities, including their families and even the professionals involved are not aware of the importance of assistive technology. The lack of awareness leads to lack of understanding of the benefits of assistive technology to individual with disabilities, making it difficult to advocate for its implementation.

2. Inadequate funding and resources

Assistive technology devices and services can be expensive. And many families, individuals and organizations in Nigeria lack the financial resources to procure and maintain these technologies. This limit the access to assistive devices and services for individual from low-income background.

3. Limited availability and lack of accessibility:

Assistive technology devices and services are not available in Nigeria, particularly in rural area. Nigeria is still struggling with basic infrastructure challenges, such as bad roads, lack of reliable electricity, and internet connectivity, which are essential for the successful implementation of assistive technology. These limitations pose a significant challenge to the widespread adoption and access of such technology.

4. High cost of assistive technology devices and services:

The affordability of assistive technology devices and services is a significant challenge for Nigerians. Many individuals with disabilities and their families may not have the financial means to afford assistive technology devices, which can be quite expensive. This lack of affordability hinders the implementation and access to assistive technology in the country.

5. Technical support and maintenance.

Due to the limited availability of technical support services and trained professionals in assistive technology, maintaining and repairing devices becomes a major challenge. This lack of technical support can lead to a high failure rate of assistive technology devices, discouraging users from relying on them.

6. Lack of trained professionals:

The lack of education and training opportunities for professionals is another challenge. Without proper training, professionals may not understand how to fully utilize assistive technology devices, and may also lack the knowledge and skills to recommend and support the use of these technologies effectively.

7. Lack of support policies:

There is a lack of comprehensive policies and regulations that specifically address assistive technology in Nigeria. The absence of supportive policies makes it difficult to prioritize and fund the implementation of assistive technology initiative.

8. Limited research and development:

There is a lack of investment in research and development of assistive technology in Nigeria. This hinders the availability of locally developed and tailored solutions that could better meet the specific needs of the country population.

Opportunities for assistive technology in promoting inclusive education in Nigeria

In Nigeria, the adoption of inclusive education practices has been slow, and students with disabilities often face significant barriers to accessing and participating in the educational system. It is expected that assistive technology will help bridge the existing gap. Some of the key opportunities presented by the roles of assistive technology in promoting inclusive education in Nigeria are as follows:

1) Improving Accessibility and Participation

Assistive technologies, such as screen readers, braille displays, and voice-to-text software, can significantly improve the accessibility of educational materials and learning environments for students with visual, hearing, or physical disabilities (Olanrewaju & Popoola, 2020). By providing these tools, Nigerian schools can ensure that all learners can access and engage with the curriculum, fostering greater inclusion and participation in the educational process.

2) Enhancing Communication and Collaboration

Communication devices, including augmentative and alternative communication (AAC) tools, can enable students with speech and language impairments to express themselves, interact with their peers and teachers, and actively participate in classroom activities (Eze et al., 2021). For students with impairments, improving communication skills can result in greater social integration, improved academic performance, and an overall increase in well-being.

3) Supporting Cognitive Development and Learning

Assistive technologies, such as text-to-speech software, mind-mapping tools, and organizational applications, can provide cognitive support for students with learning disabilities or attention-deficit disorders. These tools can help

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improve information processing, enhance comprehension, and facilitate the development of essential academic and life skills (Okolo & Diedrich, 2014).

4) Fostering Personalized and Adaptive Learning

Personalized learning technologies, including adaptive educational software and virtual reality simulations, can create customized learning experiences that cater for the unique needs and learning styles of students with diverse abilities (Mabawonku & Aladesote, 2020). These technologies have the potential to develop a more inclusive educational system and support academic success by customizing the learning environment to each student's needs.

Suggestions

1. Government should provide adequate funding and resources for assistive technology procurement and maintenance.
2. Government should develop nation policies on assistive technology development and inclusive education, and establish programmes to support its implementation.
3. Stakeholder such as government, disability organisations can launch campaign and organize workshops to increase awareness and understanding of assistive technology among educators, policymakers, and the public
4. Educational institutions can incorporate assistive technology into our curriculum and establish training programmes for professionals to assess, recommend and support the use of assistive technology
5. Government should encourage private partnerships to support assistive technology development and implementation.

Conclusion

The use of assistive technology in Nigerian educational institutions offers a notable prospect to promote inclusive education and provide equal access to high-quality learning experiences for all students, irrespective of their ability. Through the effective use of these technologies, policymakers, educators, and stakeholders in Nigeria may effectively tackle the obstacles encountered by students with disabilities, establish more inclusive learning environments, and enable them to realize their maximum potential. In Nigeria, the aim of inclusive and egalitarian education should place a high premium on funding the creation, implementation, and efficient use of assistive technologies.

References

Ahmed, A. (2018). Perceptions of using Assistive Technology for students with disabilities in the classroom. *International Journal of Special Education*, 33(1),129-139.

Aftah, M. J., Bano, H., Qureshi, M. S., Nadeem, H.A., & Qamar, A.M. (2022). Role of assistive technology in promotion of inclusive education for children with disabilities: Special educator's narrative. *Multicultural Education 8*(1),325-334. http://doi.org/10.5281/zenodo.6359453

Assistive Technology Industry Association. (2023). *What is AT?* https://www.atia.org/home/at-resourses/what-is-at/

Assistive Technology Act of 2004, Pub. L. No. 108-364 (2004). https://www.govinfo.gov/app/details/108publ364

Auwal, A.A., Abdullah, U. A., Aminis, Y., & Hussaini, U. (2021). Utilization of assistive technology in classroom for learners with special needs in an inclusive setting in Nigeria. *The Special Educator*, *20*(1), 67-74. https://www.tspeducator.com/index.php/TSE/article/view/13

Bobmanuel, D.P. (2022). Enhancing teacher training programme for inclusive education in Nigeria. *Journal of the Department of Special Education. University of calabar,7*(47-56).

Bobmanuel, D. P., & Mbeakwe, N. U. (2024). Repositioning education for Nigerian learners with special needs through the use of assistive technology. *Rivers State University Faculty of Education Conference Journal, 3*(1), 246-257.

Dada, O.A., Anam, B., Obi, F.B., & Abilola, C. A. (2022). Special sport and recreational facilities for sustainable special needs education programme at primary school level in south-south, Nigeria. *Journal of the Department of Special Education. University of Calabar,7*(1-9).

Danlami, A. (2016). Role of assistive modern technology devices and software in educating children with special needs. *National Journal of Special Needs Education, Department of Special Education, University of Bayero, Kano, 2*(2-3).

Ebuenyi, I. D. (2020). Commentary: A case for assistive technology policy in Nigeria; leaving no one behind. *Niger Delta Medical Journal*, *4*(4), 24-26

Emmanuel-Worgu, M. (2023). Impact of assistive technology (augmentative and alternative communication) in non-verbal special learners. *A paper presented at the 34th Annual national conference of the Nigeria Association of Special Education Teachers held at Ibadan: University of Ibadan.*

Evan, C. (2017). *Positioning education of Nigerian child with visual impairment through information, communication technology (ICT) and assistive technology (AT)*. Jos. Aydee creation.

Eze, U. N., Eseadi, C., Okolo, C. C., Ugwu, L. I., Oboegbulem, A. I., Omeje, J. C., & Nwankwo, O. E. (2021). Effectiveness of a group-based assistive technology training program on communication skills of children with communication disorders in Nigeria. *Assistive Technology, 33*(3), 133-143.

Federal Ministry of Education (2004). National Policy on Education. Abuja: NERDC press.

Fernàndez-Batanero, J.M, Montenegro-Rueda, M., Fernàndez-Cerero, J., & García-Martínez. I. (2022). Assistive technology for inclusion of students with disabilities: A systematic review. *Educational Technology Research and Development*, *70*(3),941-960 https://doi.org/10.1007/s11423-022-10127-7

Mabawonku, A. O., & Aladesote, B. A. (2020). Assistive technology in inclusive education: Opportunities and challenges in Nigeria. *African Journal of Educational Studies in Mathematics and Sciences, 16*(2), 63-76.

Mario, M. T., Sameshima, P., & Beecher. C. C. (2009). Enhancing TPACK with assistive technology: promoting inclusive practices on preservice teacher education. *Contemporary Issues in Technology and Teacher Education*,9(2). Retrieved from https://citejournal.org?volume-9/issues-2-09/general/enhancing-tpack-with-assistive-technology-promoting-inclusive-practice-in-preservice-teacher-education

Okolo, C. M., & Diedrich, J. (2014). Twenty-five years later: How is technology used in the education of students with disabilities? Results of a national survey. *Journal of Special Education Technology, 29*(1), 1-20.

Olanrewaju, A. F., & Popoola, B. I. (2020). Assistive technology for inclusive education in Nigeria: Prospects and challenges. *International Journal of Disability, Development and Education, 67*(1), 78-92.

Ozoji, E. D. (2005). *Special needs education and rehabilitation for beginner professionals, (revived edition)*. Jos, Daka publication.

The Education for Persons with Special Educational Needs Act 2004 (No, 30 of 2004). Retrieved from https://www.irishstatutebook.ie

WHO & UNICEF. (2015). Assistive technology for children with disabilities: Creating opportunities for education, inclusion and participation. *A discussion paper. Geneva: World Health Organization*. http://www.unicef.org/media/126246/file/Assistive-Tech-Web.pdf