THE INFLUENCE OF ASSITIVE TECHNOLOGY IN SPECIAL EDUCATION A STUDY ON THE USE OF ASSITIVE TECHNOLOGY TO SUPPORT THE LEARNING AND DEVELOPMENT OF STUDENTS WITH DISABILITIES IN BENIN CITY

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CERTIFICATION

We, the undersigned, certify that this study was carried out by Princess Omamode BENSON in the Department of Educational Evaluation and counseling psychology Faculty of Education, University of Benin, Benin City.

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DEDICATION

This project is dedicated to God Almighty, my source of strength and pillar of support.

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My prayer is that God will continue to bless and increase you All.

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ABSTRACT

This study aimed at examining the influence of assistive technology in special education. Four research questions were raised to guide the study.

The design adopted for this study is the survey research design. The sample consisted of 100 respondents (teachers) randomly selected from 10 schools in Ovia North East Local Government. Questionnaires were used for the collection of data from 100 (one hundred) respondents which were basically teachers. The research instrument was validated by the researcher's supervisor and two expert in the department of educational evaluation and counselling psychology The test re-test method was adopted in testing the reliability of the instrument after which the research instruments were administered by the researcher herself. The data obtained were analyzed using mean and standard deviation.

Findings revealed that teachers have the right perception on the effects of assistive technology in classes with special needs children. It was also revealed that Teachers have the right attitude towards the use of assistive technology in classes with special needs children. Based on the findings, it was recommended that Government and other stakeholders should organize workshop, seminars and other capacity building training regularly for teachers as means of updating their knowledge and skills in the use of assistive devices considering the dynamic nature of special education technology. It was also recommended that Special education teacher training institutions should include assistive technology in their preparatory programme that will equip pre-service

teachers with the necessary knowledge and skills that will ensure a minimum level of competence in the classroom.

CHAPTER ONE

INTRODUCTION

Background to the Study

In the Nordic countries, there is a general focus on equality when it comes to children's education. Everyone should be included and have the same possibilities of learning and growing at a pace similar to their peers, and no one should be excluded because of a special need. From this perspective, assistive technology (AT) can be of great help for children with special needs in the classroom. On a larger scale AT has been praised for its ability to enhance "possibilities for participation for all people" and it "can serve to help in the promotion and protection of bursting and equal enjoyment of all human rights and fundamental freedoms" (Kundu, 2020). In this study, children with special needs, sometimes they will be referred to as children with disabilities.

The term AT is used to describe assistive, adaptive and rehabilitative devices for people with varying degrees of disability and are aimed at assisting or expanding human function or capabilities" (Maor, 2021). Therefore, these technologies can be anything from computerized communication systems and software programs to something simpler as a handle on a telephone. Examples of computerized ATs can be text to speech programs that convert printed text to voice, graphic organizers to help students organize their writing, or voice recognition to convert words spoken by students to text on a screen. They are "produced specially or availed generally to prevent, compensate, relieve, or

neutralize impairment, disability, or handicap and improve the individual's autonomy and quality of life" (Lersilp et al, 2018).

Special needs can be related to visual, hearing, physical, and intellectual disabilities, autism, and language and communication disorders. The specific needs of the child depend on the severity of the disability and context. For some children a special education school will be necessary to meet their needs and others will thrive in a mainstream school with the right AT device and support from teachers.

On a more specific level such as in educational settings and in a classroom where children with special needs are participating, "students can have the provision of multiple means to complete their work with greater independence in performing tasks that they were formerly unable to accomplish or could accomplish with great difficulty". Children with special needs could potentially achieve similar results with extra assistance from peers and the teacher without AT, yet this would require time taken away from the teaching planned for the whole class because more focus would be placed on these specific students. Therefore, as observed by Kundu, (2020), AT allows the student with special needs to accomplish their tasks more independently, which will increase their sense of autonomy, independence, and self-esteem. Furthermore, it gives the teacher more freedom and space to focus on teaching the whole class homogeneously. This also implies that the role of the teacher is of utmost importance since they are the ones to incorporate AT into their teaching of children with special needs and make sure that this

is done as organically as possible. Not only is it crucial that teachers are trained in the general use of AT in the classroom but also the kind of AT relevant for their students.

Assistive technology have played an important role in the learning and development of students with disabilities in such a way that it has positively improved their choice-making, various components of literacy development (i.e., vocabulary, comprehension, letter identification, print concepts, phonemic awareness), and positive participation. The teachers are the middlemen between the providers and the receivers of these services and therefore perform a truly important task of making that connection and transition as smooth as possible without losing the focus on the rest of the children in the class. Therefore, the focus here is to investigate the influence of assistive technology in special education and its role in supporting the learning and development of students with disabilities.

Statement of the Problem

The world of education is currently undergoing a massive transformation as a result of the digital revolution (Halverson, 2019). Because of this "digital revolution," it is both important and practical to make use of the availability and accessibility of technology in designing educational or training programs. Technology has the potential to contribute to a better quality of life for students with intellectual disabilities, which is more than just a matter of convenience (Davies, & Stock, 2018). The use of technology in education is inevitable, students spend long hours of their day outside school using technology, so is it reasonable to expect them to come to school and find themselves in

the world of no technology and feel attracted to this world. In addition to the factor of attractiveness, there is also the effectiveness of using technology. Patton & Roschelle (2018) argue that digital textbooks offer a better alternative than traditional textbooks because they can provide instant feedback, interactive representations, and the system of universal design for learning (UDL). Continuing to deliver education and training in the traditional way and using the same tools that have been used for decades is affecting these programs' outcomes and making them fall far behind what the labor mark demands. Thus, updating school programs with current technological tools and devices for both students with and without disabilities has become necessary. It is very important to ensure that students with disabilities are prepared to meet the challenges of postsecondary settings (Conway, & Chang, 2019); many technological tools could increase, as much as possible, the possibilities for students with disabilities to overcome these challenges with fewer difficulties. In many cases adapting the right assistive technology for students with disabilities could save time and effort. Ignoring the existence of devices and tools that can help students with disabilities facilitate and maximize their educational and academic gains can also prevent students from having opportunities to reach their maximum performance, or at least to make them more confident while undertaking some tasks that can be done easily using low-tech assistive technology.

Research Questions

The following research questions will guide the study

1. How do teachers perceive the effects of assistive technology in classes with special needs children?
2. What is the level of competence of teachers in the use of assistive technology in classes with special needs children?
3. What is the attitude of teachers towards the use of assistive technology in classes with special needs children?
4. What challenges and barriers do the teachers face while working with and implementing assistive technology in classrooms?

Purpose of the Study

The aim of this research is to highlight the influence of assistive technology in special education: a study on the use of assistive technology to support the learning and development of students with disabilities

- To examine how teachers perceive the effects of assistive technology in classes with special needs children.
- To examine the level of competence of teachers in the use of assistive technology in classes with special needs children.
- To examine the attitude of teachers towards the use of assistive technology in classes with special needs children.

- To examine the challenges and barriers teachers face while working with and implementing assistive technology in classrooms.

Significance of the Study

The findings of the study will be of immense benefit to students, teachers, school principals, educational administrators, parents, government, researchers in education and the general public. This study will be of immense benefit to students in such a way that it will make them understand the usefulness of assistive technology so that learning can be easy for them.

The relevance of this study to the teachers cannot be over emphasized as it will enable them adapt effectively to the use of assistive technology and help them have necessary knowledge about assistive technology and it will also reduce the burden on them during teaching and learning.

The findings will also be of great importance to school principals and administrators as it will enable them adopt the use of assistive technology for the effective teaching and learning of students with disabilities in their various schools.

Parents and the general public will be enlightened on the need to enroll their wards into schools that uses assistive technology. The content of the study will also serve as a resource material to researchers in special education who wants to carry out further research.

Scope and Delimitation of the Study

This study focuses on the influence of assistive technology in special education: a study on the use of assistive technology to support the learning and development of students with disabilities. And it delimited to schools in Ovia North East Local Government Area.

Definition of Terms

The following terms are operationally defined as used in the study.

Assistive technology: any "item, piece of equipment, or product system, whether acquired commercially, modified, or customized, that is used to increase, maintain, or improve functional capabilities of individuals with disabilities" The definition of AT used for this study, therefore, remains broad as a kind of technological helping device that helps children with special needs to learn and participate in the most similar manner as possible to their peers without special needs.

Specific Learning disability (SLD): disorder of one or more of the basic cognitive abilities involved in understanding or using a language

Special education: the practice of educating students in a way that accommodates their individual differences, disabilities, and special needs

Disabilities: physical or mental condition that limits a person's movements, senses, or activities.

CHAPTER TWO

REVIEW OF RELATED LITERATURE

This chapter reviews related literature from various scholars on the influence of assistive technology in special education. The review will be carried out under the following sub-headings.

- Concept of Assistive Technology
- The History of Assistive Technology Devices
- Why Use Assistive Technology Devices?
- Benefits of using Assistive Technology for Children with Disabilities
- Various Types of Assistive Technology for Children with Learning Disabilities
- Attitude of Teachers and the Use of Assistive Technology Device
- Strategies Required in Improving the Use of Assistive Technology
- Challenges of Using Assistive Technology for Children with Learning Disabilities
- Summary of Reviewed Literature

Concept of assistive technology

Assistive technology is an umbrella term, and the International Classification of Functioning, Disability, and Health (ICF) defines assistive products and technology as any product, instrument, equipment or technology adapted or specially designed for improving the functioning of a person with a disability (Ellis, 2016). The definition of Assistive Technology can vary slightly around the world. According to the United States U.S. Department of Education, IDEA 1998, revised in 2004, the description of an

assistive technology device is any item, piece of equipment, or product system whether acquired commercially off the shelf, modified, or customized that is used to increase, maintain or improve functional capabilities of individuals with disabilities.

There are also several types of assistive technology categories to be considered when choosing a device. These can include low technology (low tech) to high technology (high tech) devices. Cook & Polgar (2018) describe low technology devices as ‘‘inexpensive devices that are simple to make and easy to obtain”. Examples include head pointers, whiteboards, using pictures for communication, and modified eating utensils. An additional category of devices as, stated by Glennen & DeCoste (2017), point out strategies with no technology (no tech). They report, “No tech strategies involve no equipment, low tech strategies involve simple equipment, and high-tech strategies involve more sophisticated, usually programmable, types of equipment’’. From this perspective, any computer device can represent high technology. According to Dyal, Carpenter, & Wright (2019), a technology assistive device can be considered light tech or high tech. For example, they illustrate using special paper to help students read, write, or use a simple pencil grip as a light tech device. A high-tech device would include computers with extended keyboards and modified screens.

High tech devices can often be cost prohibitive along with the programs needed to make the students with disabilities successful. Due to the high costs of digital devices, such as hardware and software, it is essential to identify the assistive technology needs of the student. This process, in some countries, might begin with an effective Individual

Education Plan (IEP) before an assistive technology device is chosen. Once an effective IEP has been developed, it can be used as a guide in choosing the appropriate device for the student. Finally, resources for that individual from the local school, district, state, or national agency need to be located and obtained. In the United States, the school has the responsibility to pay for the assistive technology device for the student. However, each state may have free or inexpensive loan programs for both schools and community members.

Globally, over 75% of low-income countries across the world have no prosthetic and orthotics training programs. Countries with the highest prevalence of disability-related health conditions tend to be those with the lowest supply of skilled health professionals who are involved in the provision of assistive technology (as little as two professionals per 10, 000 population) (Gupta, Castillo-Laborde, & Landry, 2011). The World Health Organization (WHO) (2017) estimates that more than one billion people around the world (mostly elderly and persons with disabilities) need one or more assistive technology products. With populations aging and the rise in non-communicable diseases, this number is expected to increase to beyond two billion in the world by 2050 (WHO, 2017).

The History of Assistive Technology Devices

Assistive Technology has been helping individuals to live and learn for thousands of years. For example, early assistive technology devices include tools that allowed individuals to make a living or improve their daily life. James & Thrope (2019) point to

initial devices that include hand tools to access food, and water, and dentures to enable chewing. In addition, original prosthetics (artificial limbs) for arms and legs for movement and mobile devices, such as wheelchairs, are considered early forms of assistive technology. According to Robitaille (2010), around 1000 A. D., handheld lenses were used for the visually impaired and eyeglasses were being used in the 13th century. In the 15th century, Gutenberg's printing press made print materials available and accessible to many people. Robitaille also tells us that during the 19th century, after the Civil War in the United States prosthetics advancement improved to help veterans, and in the early 20th century, Alexander Graham Bell invented Braille.

After World War II, the Korean and the Vietnam conflicts, there were additional advancements in assistive technology to help veteran's function in their daily lives. Modern assistive technology devices that help people with disabilities live, teach, and learn are relatively new phenomena. According to Robitaille (2010), less than 30 years ago, there were fewer than 1000 commercially available devices on the market. However, with the advent of new computers and digital technologies, that number has increased exponentially in the last few decades. Fichten, Asuncion, & Scapin (2014) found that since the 1990s in post-secondary education, technology (i.e., the Internet), Web-based learning, and collaborative software programs (i.e., Powerpoint) were having a positive impact on students with disabilities. Fichten et al. point out that higher education organizations became early adopters of technology with their students. This early adaptation of technology for teaching and learning included the authorship of digital

presentations, the use of Learning Management Systems (LMS) and the Internet for learning (webpages). However, Vanderheiden, Boyd, Mendenhall, and Ford (1991 as cited in Fichten, Asuncion, & Scapin, 2014) also point out that early assistive technology in the last several decades was mainly focused on people with visual impairments. For example, in the past, assignments were handed out and submitted in a paper format. Now, in the digital age, students with visual impairments can view, create, and submit assignments online digitally. While digital technology and assistive technology may have helped students in higher education, it was often found to be expensive, and specific hardware and software systems did not always communicate with each other making assessing and utilizing digital devices for students with disabilities problematic.

Why Use Assistive Technology Devices

When appropriate to the user and the user's environment, assistive technology is a powerful tool to increase independence and improve participation (Funk, 2012). It allows children with special needs to become independent and to participate in learning activities with their peers. Children with special needs have a variety of specialized issues that need to be addressed to make them successful in the inclusive classroom. Choice of the appropriate assistive technology device is paramount in effectively helping students with disabilities succeed in the learning process. Brown et al. (2011) indicate that assistive technology devices when used effectively with students with disabilities have produced positive results in students performing day-to-day operations. Brown et al. suggest that game-based learning and location-based services (high tech) can be useful in helping

users navigate the "real-world". Tamakloe & Agbenyega (2017) concur and tell us that AT devices can create a positive environment for the independence and improvement of skills for students with disabilities. They state, "… studies have shown that effective use of ATD enable young children with disability to bypass their weaknesses because the devices augment children's strength to reach their potential …". Also, Robitaille (2010) claims that a positive attitude towards assistive technology by the children using the technology positively affects the motivation of both the children using assistive technology devices and their classroom teacher.

One of the goals in education for children with disabilities should be to make all children successful within the inclusive general education classroom. That means providing an environment and opportunities where all students can learn. Classroom teachers and special education professionals need to create positive and effective learning environments for all students, not just the student with disabilities. For this positive learning environment to happen, educational leaders need to develop a culture of diversity and learning for all students (an inclusive classroom).

Educational leaders and administrators are an essential part of creating an inclusive culture in schools. They are involved in the decision-making process in developing and evaluating a student's IEP. To make appropriate decisions regarding a student's IEP, educational leaders and administrators need the necessary knowledge and skills to make good choices for the students to succeed in the general education curriculum.

Also, educational leaders need to be aware of available assistive technology devices and services in their regional or local area. According to Dyal et al. (2019), to have a positive impact on assistive technology on learning, school leaders and educators should have the following essential skills:

- Defining assistive technology
- Following assistive technology laws and legislation
- Participating in an IEP team
- Recognizing assistive technology devices and services
- Identifying assistive technology funding sources
- Providing professional development in assistive technology
- Following ethical guidelines.

School leaders are only one part of the team that develops an Individual Education Plan (IEP). Additional personnel can include a special education teacher, a general classroom instructor, a parent or legal guardian, and when appropriate, the student may have a voice or insight in using a particular technology device. This team needs to give an accurate assessment of the student's needs to be able to choose the right device that is the best fit for the student. It is also essential to consider how the devices will be utilized, in what environments and then connect them to the curriculum. High tech devices, such as computers and digital technologies, can be expensive, and the consequences of selecting the wrong devices and services can be detrimental to the student's learning.

Grandin (2018) & Hutinger, Bell, Daytner, & Johanson (2016) concur and point out that choosing the right assistive device for an individual relies on the support staffs' and teachers' knowledge, values, and philosophy as to how they view the educational process and effective learning.

Attitude of Teacher and the use of assistive technology

The attitude of teachers about the existence of assistive technology and where they can acquire them is of great importance. Teachers need to be aware of the services that are available to acquire assistive technology and the people that are providing the different services that they need. Special education and regular education teachers must focus not only on course content and pedagogy, but also on technology in accordance with the national policy on education. Teachers must also be trained to use technology with students who have special learning needs. They must be knowledgeable of assistive technology availability and its usefulness for students with needs. Yet both special and general education teachers lack an awareness of both the availability and effective use of assistive technology (Holmes, Burton and Heaton, 2016). In a recent survey by Margolis and Goodman (2017) for the united cerebral palsy project, they found that 87% of the survey respondents (parents of students with disabilities) said that students had access to some form of assistive technology in schools but primarily computers. But there is more to assistive technology than computers. However, less than 12% said that students had access to assistive technology services; for example, most families were not aware that assistive technology services were required to make assistive technology functional.

Although the use of assistive technology for young children is increasing, the lack of awareness and training continue to act as major barriers to providers using assistive technology. As a result, parents express frustration that professionals lack the necessary knowledge to make assistive technology determinations because teachers and IEP teams are often unprepared to make assistive technology decisions because of their limited awareness of assistive technology, (Goldman, Lowman, Bryen, & Lemanowicz, 2017). Professionals are responsible for helping children and families select and acquire assistive technology devices and equipment as well as instructing them in their use. Because of these mandates, agencies that serve young children are struggling to meet the challenge in a manner that provides appropriate technology, train professionals and families in the use of assistive technology, and demonstrate unique ways for families to access assistive technology in a timely and reasonable manner (Mistrett, Lane, & Ruffino, 2015). However, this kind of service is not available for children with disabilities in north central Nigeria. It is reasonable to assume that if teachers and other professionals in the field of education have inadequate skills and knowledge about technologies, they will be failing to consider and use assistive technology well with young children.

Several studies found evidence of professionals overcoming their fears in regard to utilizing assistive technology. Bushrow and Turner (2018) studied barriers and change facilitators as they affect full use of assistive technology. Results revealed that the district used in the study was aware of assistive technology but that it was not a main priority.

Two participants felt that "a radical restructuring of the teaching process was required for successful implementation of assistive technology".

Dublinske, Harlan, and Bruskin (2019) studied the effectiveness of self-instructional material on the technology usage and knowledge of special education professionals and family members. A comparison of the pre- and post- scores showed a significant increase in comfort levels regarding knowledge about usage of assistive technology. Their findings also revealed that care providers felt significantly less comfortable with their knowledge of using assistive technology than did the teachers.

Care providers, though, had a less desire to learn more about assistive technology than the teachers and related service personnel. Hutinger (2015) studied reluctance of utilizing assistive technology with administrators, teachers, program assistants, and therapists. Hutinger cited several basic reasons for reluctance such as the fear of the unknown, fear of damaging or misusing equipment, time constraints to learn the device and implement into the curriculum, inadequacies with working with computers, previous unsuccessful experiences, lack of support, frustration due .to lack of funding, and a lack of belief in the benefits of technology on young students with disabilities. Results indicated that all participants, even those who were reluctant, believed that the presentations and training sessions were informative.

A two year qualitative study completed' by Todis and Walker (2017) on user perspectives of assistive technology in educational settings found a conflict between what the families and the professionals viewed as the students' potential for independent use-

of assistive technology as well as the students' long range goals. Researchers contributed the acquisition and implementation of assistive technology with the family values and parental views.

Studies on perspectives of parents, specialists, teachers, instructional assistant, users, and peers on assistive technology in educational settings through observation and interviews of 13 children who utilize assistive technology devices in school. The study found several characteristics of successful implementation that met educational and social needs. Successful experiences with assistive technology occurred when student and family goals and values were the basis of programming, purchase and implementation were related to student goals, a team approach with honest communication was used, replacement of old or outgrown devices and quick solutions to problems.

Benefits of using Assistive Technology for children with Disabilities

Assistive technology refers to any device, equipment or software that helps people with disabilities to perform tasks that might otherwise be too difficult. For students with disabilities, assistive technology can play a vital role in increasing independence, enhancing communication and improving academic performance. These are just some ways in which assistive technology can benefit students with disabilities, we discuss these in more detail below.

Increased Independence

Through strategic implementation of assistive technology, students are able to gain key skills while maintaining their independence. It is clear that student independence through assistive technology can be very empowering. As students have access to the correct education tools, they become more independent in their learning environments and overall lives. It's important they have access to the appropriate tools so students with special needs can maximise their own potential. This will ensure that they are happy and secure within an educational environment.

The main factor is that everyone deserves a chance to live life to its fullest. Those who are provided with more individualised support are given the ability to thrive in today's increasingly technological world.

Services source Education Support provides appropriately qualified and experienced Educational Support Workers (ESW) to assist individual students with disabilities. This provides them with equal access and participation during their studies in Further and Higher Education Colleges.

Our educational support workers support students with disabilities who may require an enhanced level of help to enrich their learning experience and support their participation in their chosen course of study. Examples of this type of support may include personal assistants who would assist a student with mobility and orientation,

sourcing library books, and carrying personal belongings. Note takers are also available, who record detailed and accurate notes from attending lectures, tutorials, or seminars.

Enhanced Communication

With advances in assistive technology, students can now receive higher quality education and support, as well as increased opportunities for communication. Examples include speech recognition software and modified keyboards. These methods enable students to write and express themselves more easily. They can also be used to help students build their reading, writing, spelling, and math skills or simply make daily tasks easier.

It allows them to communicate more naturally and effectively within the classroom environment. It gives them access to communication tools they may not have had access to in a traditional setting. Students have a variety of useful resources at their disposal that could greatly increase their learning potential in a classroom setting.

Improved Academic Performance

Today, students with disabilities have access to assistive technology that can help them reach their academic goals and it can greatly help students improve their organisation and focus. It can also facilitate peer relationships as students gain confidence and self-esteem by using the same educational tools as their classmates.

Improving writing and reading abilities

For all children, reading and writing are essential elements in learning. Unfortunately, for children with special needs this is not an obvious and easy process to acquire in school because they require extra help and support to learn. The children with writing disabilities normally encounter challenges in spelling and grammar. For children with reading disabilities, their shortcomings normally appear in decoding words and understanding reading materials. Fortunately, to compensate for their writing and reading disabilities, the students used apps for text-to-speech (TTS) and speech-to-text (STT), which are in this case a substitute for traditional reading and writing.

These apps are accessed using tablets, which are provided by the schools. Children spoke into the computer and the computer would write what they spoke thereby enhancing the learning abilities. The tool is also used to read out pieces of documents aloud for children with reading difficulties. This way they were able to participate and get more involved in classes by being able to express their thoughts and their ideas. Supporting this Lewis (1998 as cited in Forgrave, 2002) explains the importance of using AT as having two main purposes; the first being to enhance the individual's strengths, in this case being the children and the second being, as being a tool that compensates for the disabilities thus enabling to perform better. This we can say has been demonstrated by the responses received from the teachers, for example, where teachers have observed tremendous development in reading and writing.

According to the teachers, the use of these tools assisted in increasing the students feeling of independence and equal participation with their peers. In living in an era where technology is readily available for, the teachers noticed that there was little resistance if any when working with these apps. Since most children are used to handling technical devices in their day-to-day life, this lessened their anxiety when introduced to the AT.

Another of the commonly used tools for spelling and writing amongst the teachers was AppWriter. There was a general agreement amongst the teachers who used these tools, that they observed the changes in the children as they assimilated information and were able to communicate better, thus increasing their motivation in reading and improving their self-confidence in class settings.

In Forgrave (2012), according to a study done on thirty-nine students using speech-to-text devices, the results revealed improved performance in reading, spelling and writing skills in most students who were consistent in using these devices. In addition, the researchers noted that despite this success with the devices, some disadvantages could not go unnoticed. These were mainly connected to the rigorous training required to identify each student's voice and instances where students work files would be corrupted (Forgrave, 2012). On the other hand, an intervention done by Nordström et al (2018) where 59 students using STT apps were accessed also revealed most of the students improved their skills of reading and writing. Unfortunately, the teachers also noted that there was a smaller group that did not benefit from using the apps. These were students

experienced the apps as being complex and were dependent one-on-on help from teachers, in using the AT devices.

Aiken and Whitney (2009) studied the use of technology in the curriculum. In their study, students in the School of Business rated their comfort with using technology in the classroom and also using a specific software program in their studies during their academic life and beyond.

The study examined participants' level of comfort in using technology in the classroom through the use of software in the classroom. The programs used were the Comfort Scale (CCS) and an Excel-based assessment to determine computer proficiency. The results indicated that students used the software successfully, and it helped them to participate in the School of Business and understand the statistical programs without difficulty.

Assistive technology in the classroom is one of the most important accommodations that educational agencies have to provide; moreover, teachers should be aware of their students' needs (Watson & Johnston, 2007). Additionally, Watson and Johnston report that high–tech computers and software can be helpful tools for students with mild disabilities such as dyscalculia, dyslexia, or dysgraphia. One of teachers' major responsibilities is to provide children, regardless of their disabilities, with successful learning experiences and assistive technology can help teachers to reach this goal giving their students an opportunity for a brilliant future (Netherton & Deal, 2007). However, accessibility to assistive technology devices is still difficult for financial reasons and

prevents some students with disabilities from having access to them in the classroom (Watson & Johnston, 2007).

In schools, millions of students with learning disabilities are not able to access the technology and information available, while in the same school the rest of the students can access the information they need with the click of a mouse (Bausch & Hasselbring, 2006). Through the use of assistive technology and digital technologies, students with learning disabilities are able to gain the same benefits as their peers in the classroom (Bausch & Hasselbring, 2006). Additionally, using software and assistive technology in the home, students with learning disabilities can learn alongside their typically developing peers in the classroom (Bausch & Hasselbring).

Typically, students with physical disabilities face difficulties that prevent them from accessing and participating in regular education programs. However, assistive technology allows them to be included in the regular classroom (Behrmann, 1994). Assistive technologies also provide students with disabilities opportunities for learning independence. There is a great deal of software and assistive technology that can open a bright future for students with disabilities (Hopkins, 2006).

Assistive technology can help students with physical disabilities tremendously; similarly, Bateni and Maki (2005) found that assistive technology also has many clinical benefits, such as improving people's mobility and their ability to complete daily tasks through the use of canes and walkers. Mobility aids can increase people's self-confidence

and feelings of safety, which helps them to achieve the highest level of independence in their lives.

Bryant (1998) demonstrated that teachers used cooperative learning in the classroom to promote academic achievement and social acceptance of students with and without learning disabilities. Cooperative learning is of interest to classroom teachers because it can provide an opportunity for more instruction and feedback by classmates than that which is provided by teachers to individual students who require additional assistance. Bryant stated that students with learning disabilities may need assistive technology allowing them to engage and interact with their typically developing peers during cooperative learning activities in the classroom.

Various Types of Assistive Technology for Children with Learning Disabilities

Assistive Technology (AT) is capable of addressing many types of learning difficulties. Higgins & Raskind (2020) stated that a child who has difficulty writing can compose a school report by dictating it and having it converted to text by special software. Moreso, a child who struggles with arithmetic problem can use a hand-held calculator to keep score while playing a game with a friend. Also, a teenager with dyslexia may benefit from AT that will read aloud from the textbook guide. A child who cannot speak may need a communication device such as a language board or a device with a speech synthesizer to participate in class. Additionally, a child with a learning disability may need a computer programmes to learn to read.

AT has usually been applied to computer hardware and software and electronic tools. The AT tools help children with learning disabilities, who struggle with listening, mathematics, organization and memory, reading and writing skills. Each of the skills is listed and how AT could help to solve the learning skills.

Written Language Assistive Technologies

Some of the written language AT tools that help children with learning disabilities include:

a. Spell Checkers: They are part of word processing programmes with vary sizes which could be portable or stationed. They could be attached to word processors to scan written documents and display to the user or children the misspelled words and speak the words by ways of speech synthesizer. The disadvantage of these tools is that when two words sound the same (there, their), the child find it difficult to choose the correct word suitable for the sentence, as the tool do not recognize and offer suggestions for correct spellings.

b. Proofreading: otherwise called "grammar checkers". They check for errors in grammar, capitalization and word usage. The errors are identified on the computer screen and the child corrects.

c. Speech Synthesizers: These tools give the children the opportunity to hear spoken text on the computer monitor. The child can review the text already written down and read it from the monitor and at the same time hears the spoken words from the computer. This is to enable the child to know if the text he or she writes down makes sense. These tools

allow children to spell words and hear them pronounced correctly rather than phonetically (Beukelman, Hunt-Berg & Rankin, 2018).

d. Speech Recognition: This system allows the child to speak to the computer through microphone, and the spoken words show as texts on the computer monitor. If this system recognizes words incorrectly, the child can have the opportunity to choose from the list of similar sounding words shown on the monitor. The speech recognition tool is most useful to children who have better oral language abilities than written language.

Reading Assistive Technologies

Some of the reading AT tools that help children with learning disabilities includes:

a. Microsoft Word: One of the easiest differentiation tools for a reading passage is a software programme that most teachers have readily at hand Microsoft Word. Smaller reading passages copied and pasted into Microsoft Word, can be easily enhanced to aid comprehension using standard formatting features within the programme. Using the highlighting feature can help students focus on particular aspects of a text like parts of speech, literary devices, or key elements of a paragraph.

b. Tape Recorders: These tools are used to play audio taped text by children with reading disabilities. The child listens to the recorded texts in books or printed materials rather than reading it.

c. Speech Synthesis: This tool can serve the purpose of reading engine. It could be available on computer disc loaded to the computer and then the child read back by the speech synthesizer.

d. Optical Character Recognition (OCR): This tool could be connected with speech synthesis. It enables the child to type printed text to the computer, while the speech synthesizer reads the text back and aloud for the child to hear and alongside see the text. This device also works with scanner that reads images and text from the written or printed materials. Texts or words are inputted data into the computer file shown on the screen, and thereafter change the printed text from the scanner to computer text. This tool therefore is useful for children with reading disabilities to read printed words, and also those children who understand better what they hear than what they could see (Raskind, 2020). Also, the software makes the resulting computer file capable of being edited.

e. Variable Speech Control (VSC): This tool is in form of tape recorder, which enable the child to play the texts recorded in audio tape very fast than the originally recorded, with all the sounds of the words still intact. This is very useful for children who better understand when texts are presented at a slow rate.

Mathematics Assistive Technologies

Some of the mathematics AT tools that help children with learning disabilities includes:

a. Electronic Mathematics Worksheets: These worksheets could assist children with arithmetic problems to arrange, ally and route through the basic mathematical sums with the use of computer. The basic mathematical problem like addition, subtraction, division and multiplication are inputted into the computer through keyboard or mouse. The tool will automatically align itself to correct vertical format. The inputted numbers will be

read aloud by the child through the use of speech synthesizer. This is beneficial to children with arithmetic problems, in that, it helps to align or arrange math problems with pencil and paper.

b. Talking Calculators: This tool is used to speak number, symbols and other operation keys, with the use of speech synthesizer, whenever a child presses the keys. When completed, the child could read back the answers from the completed calculations. By listening to it, the child could find the inputted errors, when wrong keys are pressed. It could also help the child to double check for errors, when copying numbers or symbols.

Listening Assistive Technologies

Some of the listening AT tools that help children with learning disabilities includes:

a. FM Listening Systems: These tools are used with the help of a small-sized transmitter unit, together with the microphone. The tool redirects child's voice straight to his or her ear. This makes the child/speaker's voice louder. The advantage of these tools to the children with listening problem is, it enables them to hear what the teacher or the speaker is saying.

b. Tape Recorders: These tools are used by children with listening problems to capture spoke information of the speaker or teacher's lesson. These recorders allow children to the oral presentation again and again, especially for those children who have problems processing, understanding or remembering what they hear.

Memory/Organization Assistive Technologies

Some of the listening AT tools that help children with learning disabilities includes:

a. Personal Data Managers: These data managers could be in form of software packages, which could be used for a computer or as electronic devices. They are useful for children with memory or organizational problems to store and retrieve large information from the system, as in saving phone numbers, keeping memorable dates and appointments; forming a reminder for the users.

b. Free-form databases: These databases allow children with memory problems to type or enter notes or pieces of information into the computer, rather than or as written down in a piece of paper. The child can retrieve the information from the screen of the computer whenever he or she needs them, and serve as reminders to the child.

c. Prewriting organizers: The writing process involves a number of stages. Many children have difficulty with the preparation stage, which integrates brainstorming, clustering, and listing ideas, themes, or keywords. Some children with memory problems find graphic organizers helpful in mapping ideas during the planning stage. Graphic organizers such as Inspiration provide organizational frameworks to help children generate topics and content for writing projects. Inspiration shows ideas in graphic "bubbles" that can be moved and then converted into a standard outline (Male, 2017).

Strategies required to improve the use of assistive technology

In today's learning environments, a wide range of technologies are creating new alternatives for differentiating instruction and supporting the contribution of children with learning disabilities. With array of assistive technologies available in the stores and on the internet for teachers and parents to select, there is no fast rule in choosing the right ones for children with learning disabilities. Even though, the availability of these tools poses problems for teachers and parents in the developing world like Nigeria, as the tools are scarce and not provided for in schools, and not available in most of the local shops and markets, for them to choose and purchase (Liman, Adebisi, Jerry & Adewale, 2015).

However, the few stores and markets found the cities and metropolis sell at high cost for parents and schools. This places children with disabilities in these areas the choice of wrong AT that would enable adequate supports. It is also important to note that, the developing countries lack experts to manage and apply these devices, as teachers managing children instructions are ill – trained on the use of assistive technology. This leads the teachers with learning disabilities to improvise or source for local tools in lieu of low – tech devices.

Nevertheless, the choice of the appropriate use of AT, whether available or improvised, the right selection depends on the individual child, the skills problems, the setting and the particular tasks the child wants to achieve. This implies that one tool used for a child may not be useful for another child in different setting. Raskind (2020) presented guidelines that may assist children with learning disabilities achieve amidst the array of assistive technologies. Some of them are discussed below:

Determine the Child's Specific Problem

The use of assistive technology tools should depend on the identified problems of the child with learning disabilities. For instance, AT could help solve the problem of writing difficulty, such as problems with grammar or compensate for a memory problem should be selected to meet or support the child's specific problems.

Identify the Child's Strengths

Assistive technology could work best when it is used to develop the potential of children with learning disabilities. For instance, a child who has problem reading printed words, other than who easily understands spoken words, might benefit from an OCR/speech synthesis system that changes printed words to computerized speech.

Involve the child in the selection process

The interest of the child in the assistive technology tools is paramount to the selection of the tools. This will enable the child to easily learn how to use the tools that will translate to change in the teaching – learning process. The parents or teachers should therefore consider this in the selection and purchase of tools, as well as in the developing the child's interest on the tools.

Choose the types of technology that are helpful and based on the child's strengths and weaknesses. Always consider that the technologies that are useful to your child's needs are important to him or her, than just purchasing and using the ones that would not meet the identified needs or problems. Technology can be quite impressive, with all its shapes and designs, but not necessarily helpful to the child.

Determine the specific settings for the technology

The location of the technology for the child could be at home, school, playing ground, open space or in a social setting. Placing the one that supposed to be used at home, in the school could be a wrong choice, and would not serve the right purpose for the child. The setting for the technology could include where they could be stored or kept and the right furniture to place them.

Choose technologies that work together

Imagine a speech recognition system that would not work or incompatible with the current computer window system could pose a problem and could be frustrating.

Choose technologies that are easy to learn and operate

Consider a child or learner with learning disabilities that has difficulties in memory and other cognitive problems, finding it difficult to use and operate most of the assistive technologies; this may not benefit them if they found it hard to manipulate the tools. They may as well lose interest in such tools. Therefore, choosing the easy to operate devices will be helpful and develop interest in the child.

Derer, Polsgrove, and Rieth (1996) surveyed 1100 public school special education teachers in Kentucky, Tennessee, and Indiana. Researchers focused on the use, benefits, and barriers of using AT. Lack of AT skills and knowledge and professional development opportunities were listed as prominent barriers to the implementation of AT. Over 41% of special educators surveyed reported that the professional development that they had received was not adequate to assist and support students using AT.

In another study Thompson, Siegal, and Kouzoukas (2000) surveyed over 200 Illinois special educators. Over 60% of these educators indicated that the lack of knowledge about assistive technologies and the amount of time and professional development needed to effectively use assistive technologies were major barriers to the provision of AT services.

Challenges of Using Assistive Technology for Children with Learning Disabilities

The reading, listening, mathematics, writing and memory/ organizational deficits in children with learning disabilities may pose delay in the use and application of AT at home and in the school. In many of the developing countries, including Nigeria, the problems may be as a result of the following as enumerated by Mishra, Sharma and Tripathi (2010):

- Lack of specialized ICT teachers for the children with learning disabilities
- Limited flexibility in training options for children with learning disabilities
- Limited availability of specialized disabled friendly hardware and software resources in developing countries.
- Lack of formal involvement of the government organizations and support structure for ICT for the persons with learning disabilities
- Attitude barriers towards children with disabilities
- Lack of appropriate disabled legislation and policies and their implementation
- Limitation of finances.

Summary of Reviewed Literature

This section gives a summary of the reviewed literatures. It revealed Concept of Assistive Technology, the History of assistive technology devices, why use assistive technology devices, benefits of using assistive technology for children with disabilities, various types of assistive technology for children with learning disabilities, strategies required in improving the use of assistive technology, challenges of using assistive technology for children with learning disabilities, summary of reviewed literature.

The first sub-headings revealed the concept of Assistive Technology. This simple explains what Assistive Technology is, what it does. The second sub-heading revealed the history of assistive technology devices, it also explained why it's necessary for the use assistive technology devices, this chapter also explained the benefits of using assistive technology for children with disabilities, various types of assistive technology for children with learning disabilities was also revealed, strategies required in improving the use of assistive technology, challenges of using assistive technology for children with learning disabilities were revealed and lastly revealed some of the challenges facing cooperatives societies.

CHAPTER THREE

METHODOLOGY

This chapter explains the various methods and procedures that will be employed in the collection and analysis of data for this study. It will be organized under the following subheadings;

- Research Design
- Population of the Study
- Sample and Sampling Technique
- Instrument for Data Collection
- Validity of the Instrument
- Reliability of the Instrument
- Method of Data Collection
- Method of Data Analysis.

Design of the Study

The design adopted for this study is survey research design. The survey research is interested in the accurate assessment of the characteristics of the whole population through the study of a sample considered to be the representative of the population. According to Egbochuckwu (1999), survey research collects data from defined population which describes the present condition of the population using the variables under study.

Population of the Study

The population of the study comprised of all teachers teaching in a special education center in Ovia North East Local Government Area of Edo State. The total population of teachers happens to be 1254 in all the 19 schools. (Edo State Post primary board, 2021)

Sample and Sampling Technique

A simple random sampling technique was utilized to select at least 10 respondents (Teachers) from ten (10) randomly selected schools in the Local Government Area, which are 100 respondents (Teachers) in total.

Instrument for Data Collection

The instrument for this research is a questionnaire designed by the researcher. The instrument is titled "Questionnaire on the Influence of Assistive Technology in Special Education" (QIATISE). The instrument consists of two parts. Part 1 is meant to elicit demographic information about the respondents, Part 2 is made up of four sections meant to gather information concerning the research topic and will be made up of 4 items each giving a total of 16 items in the questionnaire. The instrument is a 4 point rating scale, where the respondent is to tick either "strongly agree", “agree”, “disagree” “strongly disagree”.

Validity of the Instrument

To ensure content validity of this instrument, the researcher's supervisor and two experts in the Department of Educational Evaluation and Counseling Psychology, Faculty of Education, University of Benin, Benin City, Edo State validated the instrument. The experts carefully examined the relevance of the instrument in order to ensure that the instruments measure what it is intended to measure and to ascertain the appropriateness of the instrument.

Reliability of the Instrument

In order to ensure the reliability of the instrument, the test re-test reliability method was adopted. A pretest of the questionnaire was conducted using respondents outside the target population. Twenty (20) Teachers were administered the questionnaire twice within a period of two weeks. The scores obtained from both exercise was correlated using Pearson's product moment correlation coefficient to determine the reliability of the instrument and was found to be **0.71** and the instrument is considered to be highly reliable

Method of Data Collection

The researcher administered the questionnaire to the respondents who are expected to respond to all items by ticking one of the options from the response columns. Completed questionnaires were collected as soon as they are filled by the respondents.

Method of Data Analysis

Data collected from the instrument administered were quantitatively analyzed through descriptive statistics such as frequency, mean and simple percentage.

The respondents' bio-data variables and responses from the research questions were analyzed using frequency and simple percentage.

CHAPTER FOUR

PRESENTATION OF RESULTS AND DISCUSSION OF FINDINGS

Presentation of Results

Research Question One:
How do teachers perceive the effects of assistive technology in classes with special needs children?

Table 1: Mean responses on how teachers perceive the effects of assistive technology in classes with special needs children?
(N=100)

S/N	ITEMS	SA	A	SD	D	MEAN	REMARK
1.	The use of assistive technology devices will enhance teachers classroom presentation with children with special needs	83	76	13	14	3.74	High
2.	The use of assistive technology devices will help students with physical disabilities to access the curriculum better.	88	65	18	15	3.42	High
3.	The use of assistive technology devices will help teachers to provide instruction in a purposive way to take care of students' diverse needs in the classroom.	60	53	33	40	2.79	High
4.	The use of assistive technology devices will help teachers to develop lessons that will actively engage students with special needs in the classroom.	33	66	50	37	2.75	High
5.	The use of assistive technology devices will encourage participation of students with physical disabilities in the classroom.	45	47	46	48	2.63	High
	Total Mean Score					**3.066**	

Cut off mean=2.5

The analysis above revealed that teachers' perception is high on the effects of assistive technology in classes with special needs children.

Research Question Two:
What is the level of competence of teachers in the use of assistive technology in classes with special needs children?

Table 2: mean responses of respondents on the level of competence of teachers in the use of assistive technology in classes with special needs children

S/N	ITEMS	SA	A	SD	D	MEAN	REMARK
1.	As a special educator, I know that assistive technology device range among low-mid and high tech.	88	52	12	24	2.02	High
2.	As a special educator, I am confident in my ability to identify variety of assistive technology devices that will be useful for students with special needs.	65	75	38	8	3.11	High
3.	As a special educator, I know how to operate a variety of assistive technology devices (low-tech, mid-tech, high-tech) to support students with special needs.	57	59	40	30	3.11	High
4.	As a special educator, I am convinced that assistive technology plays an indispensable role in the teaching-learning process.	58	52	34	42	3.34	High
5.	As a special educator, I have the knowledge to assess students with special needs to determine what assistive technology would be appropriate.	42	12	54	42	2.28	Low
	Total Mean Score					**2.772**	

Cut off mean= 2.5

Table 2 revealed that the level of teacher's awareness in the use of assistive technology in classes with special needs children is high.

Research Question Three:
What is the attitude of teachers towards the use of assistive technology in classes with special needs children?

Table 3: mean responses on the attitude of teachers towards the use of assistive technology in classes with special needs children

S/N	ITEMS	SA	A	SD	D	MEAN	REMARK
1.	Nearly, assistive technology must be provided in educating people with disabilities	73	19	44	50	3.45	High
2.	To facilitate the use of assistive technology, classroom must be properly arranged.	85	45	29	27	3.34	High
3.	I like the use assistive technology in the classroom	67	45	43	31	3.75	High
4.	I believe assistive technology has an overall benefit for students with special needs	41	39	54	52	3.37	High
5.	I feel assistive technology takes so much stress to obtain.	33	56	40	57	2.34	Low
	Total Mean Score					**3.25**	

Cut off mean= 2.5

Table 3 revealed that teachers has high and good attitude towards the use of assistive technology in classes with special needs children.

Research Question Four:

What challenges and barriers do the teachers face while working with and implementing assistive technology in classrooms?

Table 4: mean responses of teachers on the challenges and barriers do the teachers face while working with and implementing assistive technology in classrooms.

S/N	ITEMS	SA	A	SD	D	MEAN	REMARK
1.	Lack of awareness of the existence of assistive devices in schools hinders their use by teachers	50	50	55	31	3.77	High
2.	Lack of training reduces the use of assistive devices/software in the classroom by teachers.	69	45	34	38	3.34	High
3.	Poor teachers' attitude hinders the use of assistive devices in class rooms.	71	12	76	27	3.55	High
4.	Lack of fund to purchase assistive technology device is a major problem	56	48	39	43	3.93	High
5.	Assigning the right device to the right child could be a challenge.	65	59	20	42	3.21	High
	Total Mean Score					**3.56**	

Cut off mean= 2.5

On the above Table are listed some of the challenges and barriers teachers face while working with and implementing assistive technology in classrooms. This includes lack of awareness, training, fund, poor teachers attitude and assigning the right device to the right child.

Discussion of findings

The results obtained in this study are discussed based on the research questions.

The result from research question one revealed that the use of assistive technology devices will help teachers to provide instruction in a purposive way to take care of students' diverse needs in the classroom. The research findings are in agreement with the study conducted by Fichten and Asuncion, (2014) in their research Digital technology, learning, and post-secondary students with disabilities: Where we've been and where we're going. Which they highlighted how teachers perceive the use of assistive technology in classes with special needs children which they quoted that assistive technology devices will help teachers to develop lessons that will actively engage students with special needs in the classroom.

The result from research question two revealed the level of teacher's awareness in the use of assistive technology in classes with special needs children. The findings from this research showed that teachers have high level of awareness about the influence and use of assistive technology. This finding is line with the findings of Robitaille, (2010). In his journal, the illustrated guide to assistive technology and devices, who stated different awareness of teachers with the use of assistive technology. He further states that teacher should be confident in their ability to identify variety of assistive technology devices that will be useful for students with special needs.

Findings from the research question three revealed that teacher's attitude plays a major role towards the use of assistive technology in classes with special needs children.

Findings revealed that teachers in the study area have a positive view on the use of assistive technology. This is alignment with the study conducted by Tamakloe (2017), Exploring preschool teachers' and support staff's use and experiences of assistive technology with children with disabilities. Findings from this study revealed that teachers in the study area accept the use assistive technology in the classroom. This was also in line with his study.

Findings from research question four revealed that lack of awareness of the existence of assistive devices in schools hinders their use by teachers. This finding was in line with Mishra, (2010) in his research ICT as a tool for teaching and learning in respect of learner with disability.

CHAPTER FIVE

SUMMARY, CONCLUSION AND RECOMMENDATIONS

In this chapter, the summary, conclusion, recommendations, contribution to knowledge and suggestions for further studies are presented.

Summary

The study was designed to highlight the influence of assistive technology in special education: a study on the use of assistive technology to support the learning and development of students with disabilities. Four (4) research questions were raised to guide the study.

One hundred (100) respondents basically teachers were randomly selected from 10 schools in Ovia North East Local Government Area of Edo State. The 100 respondents made up the sample of study. A questionnaire was designed by the researcher for data collection. The questionnaire is made up of two sections A and B. Section A elicited the respondents' demographic data, such as genders, years of experience and school type. Section B, sought to highlight the influence of assistive technology in special education.

The findings of the study revealed that:

- Teachers have the right perception on the effects of assistive technology in classes with special needs children.
- Teachers' has the right awareness on the use of assistive technology.
- Teachers have the right attitude towards the use of assistive technology in classes with special needs children.

- There are challenges and barriers teacher face while working with and implementing assistive technology in classrooms.

Conclusion

Based on the findings, the following conclusions are made:

It was concluded that teachers' perception has a great effect on assistive technology in classes with special needs children; there is a high level of competence of teachers in the use of assistive technology in classes with special needs children. Teachers' attitude has a great influence on the use of assistive technology in classes with special needs children. There are some challenges and barriers teachers face while working with and implementing assistive technology in classrooms which includes Lack of awareness of the existence of assistive devices in schools, lack of training on the use of assistive devices/software in the classroom by teachers, Poor teachers' attitude hinder the use of assistive devices in class rooms, lack of fund to purchase assistive technology device is a major problem, assigning the right device to the right child could be a challenge.

Recommendations

Based on the findings of the study, it is recommended that:

- Government and other stakeholders should organize workshop, seminars and other capacity building training regularly for teachers as means of updating their knowledge and skills in the use of assistive devices considering the dynamic nature of special education technology.

- Special education teacher training institutions should include assistive technology in their preparatory programme that will equip pre-service teachers with the necessary knowledge and skills that will ensure a minimum level of competence in the classroom.
- Curriculum planners should see these assistive devices beyond just the high-tech they are, but life-changing technologies that can bring improvement in the way teachers teach and learners learn. Hence, the need to incorporate them in planning curriculum and pedagogy for students with special needs.

Contribution to knowledge

This study has contributed to knowledge in the following ways.

1. It will make the general public understand the usefulness of assistive technology so that learning can be easy for the students with special needs.

2. it will also enlighten the public on how to enable them adapt effectively to the use of assistive technology and help them have necessary knowledge about assistive technology and it will also reduce the burden on them during teaching and learning.

3. The content of the study will also serve as a resource material to researchers in special education who wants to carry out further research.

Suggestions for further research

The researcher suggests that further studies could be carried out in the following areas:

1. Further future research could look at the use of specific assistive technology devices being used for specific needs.

2. Regarding the needs of children, we were also open and did not focus on specific special needs. An advantage of being specific is that it would be easier to access progress or effect when it is focused.

3. Since the lack of training was evident, future research could examine how teachers' perceptions and use of AT change after receiving formal training.

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APPENDIX
DEPARTMENT OF EDUCATIONAL EVALUATION AND COUNSELING PSYCHOLOGY,
FACULTY OF EDUCATION,
UNIVERSITY OF BENIN,
BENIN CITY.

Dear Respondents,

Request to fill Questionnaire

I am an undergraduate student of the Department of Educational Evaluation and Counseling Psychology, Faculty of Education, University of Benin, Benin City in Edo State. I am presently carrying out a research study titled **'Influence of assistive technology in special education'.** Kindly help to complete the questionnaire as your frank response will help this research. It is purely for academic purpose and the information provided will be treated as confidential and will be used only for the purpose of the research.

Thank you for your cooperation.

Yours faithfully,

Benson Princess Omamode

Researcher

SECTION A: SOCIO-DEMOGRAPIC INFORMATION

INSTRUCTION: Please tick (√) where appropriate

Gender: Male ( ), Female ( ).

School: _____

Years of experience: 0-5years ( ), 6-10years ( ), 11-15years ( ), 16years and above ( ).

Type of Special School: Mainstreamed ( ), Segregated ( ), Inclusive education ( ).

SECTION B: For each statement, tick (√) under the column that best describes your response.

N/B: strongly agree (SD), Agree (A), Strongly disagree (SD), Disagree (D).

S/N	**How do teachers perceive the use of assistive technology in classes with special needs children?**	SA	A	D	SD
1	The use of assistive technology devices will enhance teachers classroom presentation with children with special needs				
2	The use of assistive technology devices will help students with physical disabilities to access the curriculum better.				
3	The use of assistive technology devices will help teachers to provide instruction in a purposive way to take care of students' diverse needs in the classroom.				
4	The use of assistive technology devices will help teachers to develop lessons that will actively engage students with special needs in the classroom				
5	The use of assistive technology devices will encourage participation of students with physical disabilities in the classroom.				
	What is the level of teacher's awareness in the use of assistive technology in classes with special needs children?				
6	As a special educator, I know that assistive technology device range among low-mid and high tech.				
7	As a special educator, I am confident in my ability to identify variety of assistive technology devices that will be useful for students with special needs.				
8	As a special educator, I know how to operate a variety of assistive technology devices (low-tech, mid-tech, high-tech) to support students with special				

	needs.				
9	As a special educator, I am convinced that assistive technology plays an indispensable role in the teaching-learning process.				
10	As a special educator, I have the knowledge to assess students with special needs to determine what assistive technology would be appropriate.				
	What is the attitude of teachers towards the use of assistive technology in classes with special needs children?				
11	Nearly, assistive technology must be provided in educating people with disabilities.				
12	To facilitate the use of assistive technology, classroom must be properly arranged.				
13	I like the use assistive technology in the classroom				
14	I believe assistive technology has an overall benefit for students with special needs				
15	I feel assistive technology takes so much stress to obtain.				
	What challenges and barriers do the teachers face while working with and implementing assistive technology in classrooms?				
16	Lack of awareness of the existence of assistive devices in schools hinders their use by teachers				
17	Lack of training reduces the use of assistive devices/software in the classroom by teachers.				
18	Poor teachers' attitude hinder the use of assistive devices in class rooms				
19	Lack of fund to purchase assistive technology device is a major problem				
20	Assigning the right device to the right child could be a challenge.				