

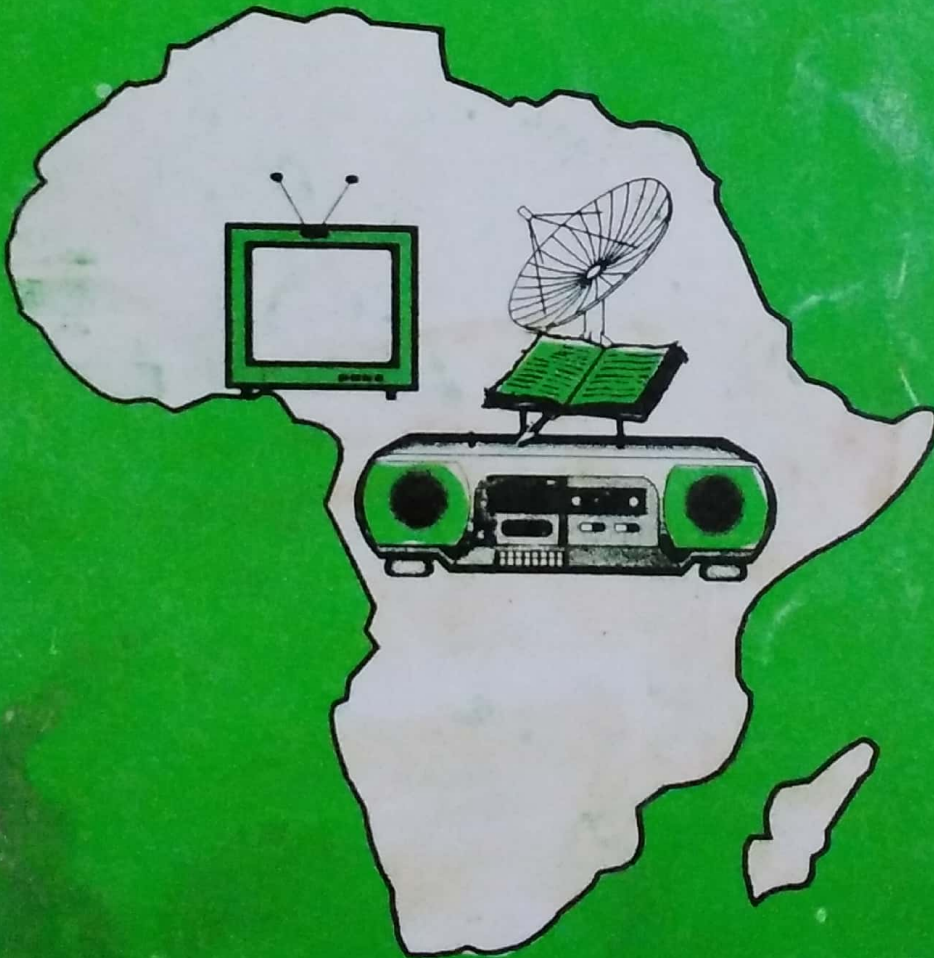
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**EMPLOYING ASSISTIVE TECHNOLOGY TO EMPOWER  
STUDENTS WITH DISABILITIES IN HIGHER EDUCATION.**

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**Abstract**

*This paper is set out to provide an insight into the possibilities and the need to acquire and employ the use of assistive technology to students with some form of disabilities in Nigeria Higher Education. It observed the experiences of students with learning disabilities within our institutions of higher learning and suggested the need to provide assistive technology and the needed training that goes along with it to aid their learning. The description of assistive technology that is appropriate for use with persons with learning disabilities at tertiary institutions were discussed as well as the training guidelines associated with it. It was concluded that the provision of appropriate assistive technology to students with learning disabilities would give them an equal chance to demonstrate their intellectual capabilities as well as enable them to express themselves at levels commensurate with their intelligence. The recommendations given revealed the roles of the Federal Government, the Universities and the departments in our institutions on how the students with learning disabilities could be assisted in order to improve their learning abilities.*

## **Introduction**

Recent advances in technology have much to offer students with learning disabilities, both as tools for instruction in school and as tools for life that can be used to compensate for specific impairments. For years, teachers of the learning disabled have searched for means to help students compensate for their inability to master certain skills. Despite adequate cognitive ability, learning disabled students' difficulties with basic skills such as reading and writing can prevent full participation in the classroom and later in critical adult life activities. Advancements in technology provide the answer for many of these students. Several people have defined disability in several ways. A broad definition of disability includes "any student with visual, hearing or motor impairment, specific learning difficulties, or any medical or psychological impairment, which requires additional support, advice or guidance to enjoy equal access to educational provision" (Curran et al 1994). Assistive technology on the other hand has been defined as any technology used to increase, maintain, or improve the functional capabilities of individual with disabilities (P.L. 100-407). Although assistive technology is recognized in the area of rehabilitation as a means to improve the quality of life for persons with physical disabilities, it has received little attention as a tool for helping individuals with learning disabilities (LD) to compensate for specific cognitive deficits.

In the field of education, reports addressing the benefits of using assistive technology to compensate for specific learning disabilities have been generated primarily by professionals at the post secondary level attempting to meet the needs of increasing numbers of students with learning disabilities attending College (Raskind, 1994). As students with learning disabilities in University increases in large numbers, the impact of assistive technology on their ability to successfully complete their course of study is being recognized (Raskind, 1994; Raskind & Scott, 1993). Educational support service providers, in meeting the demands of these students, will likely rely on assistive technology (Sherly, 1996).

## **Methods And Procedures**

The method adopted for gathering of information for this paper includes the use of secondary data and observation. The students were shadowed through a normal day's activity and were observed in considerable detail through their experience within the University. The use of Journals, textbooks, and Internet facilities were also adopted.

## **Result**

Disabled students are actually getting their degrees through the system and little provisions they are offered. But their daily experiences could be describe as at least in convenient, if not discriminatory. Conditions are not ideal, obstacles exist. technological assistance not available. Sometimes something has been done to remove the obstacles but, in many cases, they are inadequate. The challenge to higher education institutions is to identify appropriate technology to support the disabled students in form of employing modern assistive technology such as Braille printers, voice-synthesizer software, spell-checks and word-prediction software etc to ameliorate their difficulties. Evidence suggests that the fund is there and that improvement on what is provided is possible.

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### Description of Assistive Technology Devices

An Assistive Technology Device (ATD) is defined by P. L. 100-407 as "any item, piece of furniture, or system used to increase, maintain, or improve the functional capabilities of individuals with disabilities" it can be low-tech (mechanical) or high-tech (electro-mechanical or computerized). The technologies available for student with learning disabilities include word processors with spell checking, proofreading, abbreviation expanders (Programs that allow students to type abbreviations for frequently used words or phrases and press the space bar to produce the complete word or phrase), and outlining software programs. Also available are variable speech-control tape recorders, optical character recognition systems (reading machines), listening aids (systems that use a microphone and headset designed for students with auditory deficits), speech – synthesis (screen review systems (voice output systems that read back text displayed on the computer screen), speech-recognition systems (Systems that allow the user to operate the computer by speaking to it), data managers (technologies that store personal information for students with organization and memory difficulties), and talking calculators.

These devices can enhance the individual's learning abilities by circumventing deficits. According to Garner and Campbell (1987), circumventing deficit is one of the two major purposes of assistive devices and is referred to as the compensatory approach. In this approach, an individual is helped to perform a specific task using assistive technology. For example, when a student acquires and listens to a taped version of the book that is to be read for a course like English Language in order to correctly answer comprehension question about the material, his or her aim is to by pass a reading disability, not to learn to read. If, instead, the student wishes to improve his or her reading, the student might use a computer program to practice skills. In this example, using assistive technology to learn to read exemplifies the second major purpose of assistive technology and is referred to as the remedial approach (Garner & Campbell, 1987). The purpose of this approach is to improve areas of deficiency. Of course the two purposes may overlap. The compensatory strategy in which the student utilizes a taped book could possibly have remedial results if, while listening to the tape, the student follows along in the print version of the book, attempting to learn unfamiliar words.

Remedial and compensatory approaches are both beneficial for students with learning disabilities. Raskind (1994) suggested that the compensatory approach might offer the most expeditious means of addressing specific difficulties within particular contexts. The burnout that students with learning disabilities experience as a result of years of remedial instruction that yielded little benefit, and the appeal of immediate solutions to a particular problem, lend support to using a compensatory approach when using assistive technology.

### Advantages of Using Assistive Technology

The advantages of using assistive technology are numerous such as:

- Greater independence and relief from anxiety for students with learning disabilities who use tools to free them from the drudgery imposed by the disability
- A heightened sense of self-esteem in students with disabilities who gain competency with technology.
- A regaining of a sense of control leading to vocational success.
- A reduction of reliance on others and a move toward independence.

### Training For Application Of Assistive Technology

Effective training strategies in teaching all students with learning disabilities should be carried out by our institutions of higher learning and these should include the following:

- Using a multisensory approach to training, in which students are provided with visual instruction (including videotapes and diagrams), oral instructions, and written instructions. Related to this strategy is the notion of using technology to teach technology. Having students watch videotapes demonstrating how a device is used can be an effective training strategy that simultaneously teaches the use of other types of technology. Trainers should be cautioned, however, not to overload students with too much technology at one time.
- Providing repetition by giving students numerous opportunities to practice what they have learned.
- Modeling, whereby students watch others using the device and then attempt to do the same.
- Having frequent concept reviews, that is, competency checks conducted frequently during each training session, in which students demonstrate what they know. Also, each training session should begin with a review of the previous day's session. This allows the trainer to assess whether the student retained previous information and is ready for additional information; if not previously presented information must be retaught.
- Providing meaningful instruction. Allow students to generate their own words for technical terms, based on what is meaningful to them. Assist the students in developing mnemonics to foster information retention. This strategy includes the use of acronyms, visualization, and rhyme to help students remember functions or steps in operating a device.

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- \* Using concise, clear language in describing features and operations of the technology and presenting only the amount of information needed to complete the task at hand.
- \* Instilling motivation. To be motivated to learn to use technology the student must accept that a disability exists and have an immediate need that can be met by the technology. The instruction should be meaningful. Develop the concept of need and the value of incorporating student experiences in their suggestions for training.

### Conclusion

It is not an overstatement to conclude that students with learning disabilities in our institutions of higher learning are suffering neglect in terms of having access to required technologies to aid their learning. Technology can open doors and break down barriers for students with learning disabilities. Whether in the classroom or workplace, technology can provide a vital difference. It is therefore essential that every teacher know about the potentials of assistive technology and how to access resources that will ensure that students with learning disabilities receive appropriate devices and services for overcoming performance problems. All teachers could benefit from assistive technology, not just special education teachers, since students with special needs are often included in regular education classrooms. The provision of assistive technology for students with disabilities will therefore be of a great assistance and consequently empower them to have an equal chance to demonstrate their intellectual capabilities as well as enable them to express themselves at levels commensurate with their intelligence.

### Recommendations

The followings are giving as recommendation to encourage the use of assistive technology in our institution of higher learning.

- The Federal Government should mandate all institutions receiving Federal funds to provide auxiliary aids to students with learning disabilities.
- The Federal Government should provide more funds to our institutions of higher learning that seek to provide support services to students with disabilities in the interests of equality of educational opportunity. Services may include alternative ways of accessing information and expressing knowledge; support in mobility and aspects of daily living that provide for participation in education, and general support services.
- Universities and other higher institutions should request students with learning disabilities to supply suitable documentation concerning the functional implications of their disability relevant to academic access so that appropriate support provisions can be made available to them.



- It is recommended that the various departments in the universities and other higher institutions of learning should give attention to the resources needed in their department to provide the appropriate environment and support services in form of assistive devices to students with disabilities in their department.
- The National Universities Commission (NUC) should encourage the Universities to pursue cooperative links with other educational institutions abroad and with community service providers in order to enhance access to highly specialize and expensive services.
- Our institutions of higher learning should also develop a policy on students with disabilities which expresses their commitment to provision of opportunities for people with disabilities and which articulates the principles which guide the interaction between institutions, its staff and students including students with disabilities.
- Our higher institutions should ensure that general admission materials make explicit reference to opportunities for people with disabilities to enter higher education, and these materials are available in appropriate accessible formats.
- Universities should encourage prospective students and current students with disabilities to notify them at an early stage of their specific service and facility requirements so that they can attempt to plan and prepare for the special support, which may be required. In order to encourage disclosure, Universities should assure students that the information provided would be treated as confidential.
- Universities should endeavor to make all their academic programs available to prospective students with disabilities. Reasonable modifications should be made to academic programs to accommodate students with disabilities, without compromising the academic standard or essential nature of the program.

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