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## Computer as Aided Learning Tool for Physically Challenged Pupils in Nigeria Primary Schools

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### Abstract

*The 21<sup>st</sup> century children are tagged the first generation of the “digital age.” They are being raised in a society that is changing rapidly as a result of the influx of new computer-based technologies that provide more pervasive and faster worldwide links. Psychologically, children come in every shape, size, and type hence they learn at different rates too. Therefore, teaching need to be tailored to compensate for the different learning needs of most children inside the regular classroom. Some children with learning disabilities can benefit from machines designed to help them learn! Such "assistive devices" aid their learning, understanding, and participation in the regular classroom environment. This paper has discussed why these physically challenged children urgently need computers to aid their learning. Many nations have adopted this approach, this work unveiled the true position in Nigeria and proffered the way forward.*

**Keywords:** Physically Challenged, Learning, Computers, Technology and Education

Physically challenged is rightly define in Merriam-Webster dictionary (2015) as having a physical or mental problem that makes it difficult to do things as easily as other people do. This could be seen in both adults and children. The word physically

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challenged is synonymous to physical disability where the word disability is refer to as an umbrella term, covering impairments, activity limitations, and participation restrictions. An *impairment* is a problem in body function or structure; an *activity limitation* is a difficulty encountered by an individual in executing a task or action; while a *participation restriction* is a problem experienced by an individual in involvement in life situations. Thus, disability is a complex phenomenon, reflecting an interaction between features of a person's body and features of the society in which one lives World Health Organization (2011).

Overcoming the difficulties faced by the challenged people requires interventions to remove environmental and social barriers. The intervention aspect is what necessitates this write up as every disabled has equal right to health services, economic opportunities, education and any other form of opportunity life can provide. But evidence suggests that people with disabilities face barriers in accessing the health and rehabilitation services, educational services etc they need in many settings.

The WHO director-general message on the International Day of Persons with Disabilities 2014 (IDPD, 2014) made a remark as cited

“ a billion people in the world, 15% of the population, have a disability severe enough that it limits their participation in family, community and political life. Eighty percent of those billion people live in low and middle-income countries, where often access to basic health and social services is limited for all citizens. However, the impact on persons with disabilities is more profound. On this day in which we remind ourselves of the situation of persons with disabilities around the globe, it is important, first of all, to resist the temptation to think in terms of ‘us’ and ‘them’. Instead we must remind ourselves that disability is part of the human condition: all of us either are or will become disabled to one degree or another during the course of our lives” Chan, (2014).

Viewing Chan's remarks, is worth noting that disability may be present from birth, or occur during a person's lifetime. Therefore no one is immune from being disabled.

Although the focus of this paper is on education but these facts are of necessity in building strong reasons why physically challenged children need attention especially with regards to their educational pursue. Education is education, qualification required to meet a certain criteria remains the same for both normal and challenged people, and therefore a need to proffer solution to the needy area is paramount.

As earlier stated, challenged people need intervention in other to overcome barriers. In education there had been various attempts made to assist physically challenged children these attempts ranges from developing new teaching strategies, designing assistive instructional materials, use of modern technology as more attempts are still under way. This paper wishes to focus on the modern technological attempts with emphasis on computer technology which today has become the rallying point of modern science. This statement concurred with Murphy (1997) who states that for the last few decades, scientists and engineers have developed special devices for the

disabled that have greatly advanced the conventional ones that already exist. Almost all of these current devices would not exist without the incorporation of computers and computer technologies.

### **Common Disabilities among Pupils and rights to education**

School children with physical disabilities may have difficulty performing basic functions such as, gripping objects with their hands, moving arms or legs in a full or even limited range of motion. These issues can lead to difficulties in the classroom such as using keyboards, touch screens, computer mice, and scroll wheels which are all used with technology. Children with multiple disabilities will have a combination of various disabilities: speech, physical mobility, learning, mental retardation, visual, hearing, brain injury and possibly others. Along with multiple disabilities, they can also exhibit sensory losses and behavior and or social problems. Children with multiple disabilities - also referred to as multiple exceptionalities will vary in severity and characteristics. These pupils may exhibit weakness in auditory processing and have speech limitations. Physical mobility will often be an area of need. These pupils may have difficulty attaining and remembering skills and or transferring these skills from one situation to another. Support is usually needed beyond the confines of the classroom. There are often medical implications with some of the more severe multiple disabilities which could include children with cerebral palsy and severe autism and brain injuries. There are many educational implications for these pupils (www.CalState.edu, 2009).

In the earlier part of the 20th century in America, students with physical and mental challenges were placed in special classrooms and in some cases special schools apart from general education students. With the advent of the Individuals with Disabilities Education Act (IDEA) in 1975, students with special needs can in most cases can be served in the same educational classrooms as general education students with appropriate accommodations and modifications Garrett-Hatfield, (2014).

According to Garrett-Hatfield, the National Dissemination Center for Children with Disabilities (NICHCY), IDEA was first enacted to give students with disabilities a chance at an education in the nation's public schools. IDEA sets up guidelines for education of students with mental and physical disabilities. First, that all children must be given a "free, appropriate education" in a public school. Second, the child with a disability's right to privacy is protected. Third, that state, federal and local governments must work with local agencies and schools to ensure that a disabled child receives an education. Fourth, that children who are disabled be assessed to ensure that educational programs put in place for them are working.

NICHCY further unveiled that there are eight categories of physical disability recognized by the federal government: deaf-blindness, deafness, hearing impairment, orthopedic impairment, other health impairment, speech or language impairment, traumatic brain injury, and visual impairment. For many of these children, successful educational programs are possible with the right accommodations and modifications.

These may include: elevators, bigger doorways, large print textbooks, sign language interpreters, and speech therapists. Some children may also need longer time to finish assignments and tests, fewer problems, and computer aided assignments. In addition, students with physical disabilities may benefit from computer assisted technology--such as computer programs that aid students with reading, writing, and Internet use.

This policy clearly shows that the America society has made adequate arrangement of ensuring equal right to education for the disabled child. Taking Nigeria into consideration, Nigeria is a signatory to the UN Convention on the Rights of Persons with Disabilities, which under Article 4 mandates member states to pass national legislation on disability. Even though Nigeria is yet to sign into law the bill on people living with disability but is worth noting that Nigeria has signed both International Instruments and had ratified them in 1991 and 2000 respectively. Both international instruments contain universal set of standards and principles for survival, development, protection and participation of children. It reflects children as human beings and as subjects of their own rights. The Convention on the Rights of the Child (CRC) outlines the human rights to be respected and protected for every child under the age of 18 years and requires that these rights are implemented. Against this background, a draft Child's Rights Bill aimed at principally enacting into Law in Nigeria the principles enshrined in the Convention on the Rights of the Child and the AU Charter on the Rights and Welfare of the Child was prepared in the early 90's. But it is only after about ten years with several Heads of Government and heated debates by the Parliamentarians that the Bill was eventually passed into Law by the National Assembly in July 2003. It was assented to by the President of the Federal Republic of Nigeria, Chief Olusegun Obasanjo in September 2003, and promulgated as the Child's Rights Act 2003 UNICEF (2007). It is obvious to conclude that our Nigeria children with physical disabilities are covered under this law.

### **Computers and Physically Challenged Pupils**

A physical disability can affect how a student performs in the classroom. Because of laws such as Individuals with Disabilities Education Act and advances in technology software, students with physical disabilities can succeed in the classroom. Technology can be a powerful "equalizer" for people with disabilities, allowing them to "get around" a limitation in any number of areas (www.believability.com, 2009).

A few years ago it was unimaginable for a physically challenged person to use a computer. However, with the world slowly getting dependent on computers and the Internet, computer technology has advanced to allow the physically challenged to also use computers with the help of computer devices.

Today, computer technology has advanced a lot and manufacturers of hardware and software realize that all people need to get access to computers and Internet. Also, physically challenged people can use these computer devices to lead an independent life without having to depend on others. They can access millions of websites to find

out what is happening around the world, what progress is made with regard to their disabilities, and they can even order their groceries, clothes and personal care items online without depending on someone else to do their shopping Nick,(2011).

### **Computer as Aided Tool for Pupils Classroom Performance**

In this section the writer enumerated kinds of tools that can impact positively on a challenged child in the classroom. Hence improving the pupils' classroom performance. Studies have gone far, innovation and inventions are still ongoing in other to ensure that physically challenged children are educated equally with their unchallenged peers in schools. The Nigerian child cannot be an exception, hence the need to educate our physically challenged children, parents and guardians is quite timely. There are very useful computer tools our Nigeria schools need to adapt as discussed by the writers.

Pupils have various areas of disabilities and various computer innovations are designed to address these areas, therefore no need to panic whatever the aspect and level of challenge the child might have.

Computer programs like Speech recognition is assistive software that allows people to control a computer by talking to it. Instead of using a keyboard and a mouse to control the computer, a student speaks instructions into a microphone that is connected to a computer. When the pupil talks into the microphone, the pupil can perform two functions. First, he/she can instruct the computer to perform commands such as opening a document, saving documents, deleting, and more. Secondly, the pupil can write text into a document such as Microsoft Word just by speaking into the microphone. When the pupil speaks into the microphone, his/her words will appear on a computer screen in a word processing format, allowing the pupil to revise or edit. Speech-to-text allows pupils to get their ideas onto documents faster because they do not forget it due to how slow they type. A meta-analysis study done by Forgive, (2002) found that five pupils who wrote stories by using a speech to text software were longer in length than when they had handwritten a story. Forgive (2002)found that when children with learning disabilities improved the legibility of their work and they decreased the number of errors and improved their scores. Several companies which develop and market speech-to-text are Dragon Systems, ViaVoice, Voice Express, and Free Speech.

For those pupils who cannot use any of the AT devices listed above due to verbal and/or physical skills required to operate the computers, there are alternative devices available for them to succeed academically. Children who have difficulty using a keyboard or operating a mouse, a device called IntelliKeys can be used. IntelliKeys is a keyboard and overlay combination that takes the place of a keyboard. The overlays consist of alphabet, numbers, and enlarged arrows (Hadley & Logwood, 1996). Research conducted by the National Institute of Child Health and Human Development(2007) has shown that students with disabilities who use IntelliKeys

increase performance by 50% to 60% over a six month period allowing them to almost equal their peers in the regular education classes ([www.intellitools.com](http://www.intellitools.com)).

For children who have severe physical disabilities and cannot use a keyboard, mouse or IntelliKeys, there are devices such as the SmartNav 4. This AT device allows a student to move the mouse by moving his head slightly. A virtual keyboard is on the screen that allows the student to enter text or navigate on the Internet. This device is ideal for students with spinal cord injuries, muscular dystrophy, and other special needs (naturalpoint.com 2009). Another device is the gooseneck switch. It is a switch that allows the child to use a computer with the use of his head. The switch can be used in conjunction with a software program such as Kenax that allows the pupil to type by simply hitting the switch with his/her head (gokeytech.com, 2007).

### **Summary and Conclusion**

Computer aided technology can be very effective in helping pupils improve their functional ability in the classroom. With the advancement of new technology, students with physical disabilities now have the opportunity to participate and be educated in the regular education setting. While each pupil need is different, an assessment must be completed to determine which device is best suited for that pupil. Educators and staff should be aware of the types of software devices available since technology is changing at a rapid pace.

It is obvious to conclude by saying use of computers in assisting the physically challenged pupils in Nigeria schools is not just a welcome idea but an acceptable one. The paper has drawn a line without any reservation that Nigeria schools should take necessary steps into addressing child education with regard to computer usage.

### **Recommendations**

In view of all reviews on use of computers to enhance physically challenged child in Nigeria schools, the writers agreed that computers should be employed in our schools to assist the challenged children; therefore the following recommendations are drawn.

Teachers and parents should not be inhibited about their expectations of a child with physical challenges. In fact, they should capitalize on every opportunity that gives the child a sense of accomplishment.

Teachers, parents, and outside experts all have the same goal — to enable the child to become a creative, assertive, warm, friendly and social young person.

As matter of policy, the national assembly should pass into law the bill on people living with disabilities. This will duly protect their rights and hence assist the children greatly.

Parents of disabled children should have it in mind that they are the first constituency these children have. Therefore, encouragement towards self- identity, and

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acceptability must first come from them. This will help the child in school hence making learning much easier.

Teachers and parents must acquaint themselves with Computers (and software) and relate seamlessly so that they can both assist the pupils. Parents should not live the responsibility of physically challenged pupils on teachers only

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