

Breaking the Barriers of Blindness: The Technology Approach: A Case Study of Nigeria

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Technology and Blindness

Blindness, being the partial or total loss of sight, reduces the ability of a person to carry out some activities. This can manifest in social, economic, academic and recreational areas and in many others as well. Reading ink-print, driving a car, detecting currency denominations and other color-based objects, etc. are the most common impediments imposed by blindness. Technology is mankind's answer to the limitation's nature has placed on us. It includes the range of tools or devices and techniques by which we use these tools to attain our purposes. Although some areas remain beyond the abilities of a blind person, using technology has reduced their numbers and offers potentials for reducing them even more in future.

However, technology is as efficient as the skill level/attitude of the user and as dependable as the maintenance know-how available where it is used. This applies strongly in Nigeria, a developing nation plagued by power outage, brain drain and official corruption.

The Technology Journey so Far

The 1990's, persons who are blind or visually impaired in Nigeria were already exposed to devices like the Perkins Upright and Stainsby Brailleurs, Taylor frame and abacus for arithmetic and mathematics and the thermoform method for mass production of Braille documents. These were complemented by the Braille watches, portable typewriters, talking watches and calculators and cassette recorders used by blind persons in school and at work. The Niger wives Braille Book Production center in Lagos, the University of Jos in Plateau state and the Anglo-Nigerian Welfare Association for the Blind also in Lagos were the pioneer institutions that introduced computer-based Braille production using the Index Everest Braille embosser attached to a standard computer. This addressed the problem of availability of textbooks and other reading materials to a certain extent but the issue of obtaining employment in the mainstream system where computers were replacing typewriters and telephone switchboards.

The Nigerwives Centre introduced computer training for blind persons in 2000, using the Job Access with Speech (JAWS) screen reader for access. This was closely followed by the Anglo-Nigerian Welfare Association for the Blind (ANWAB). Computer knowledge for blind persons moved from only Lagos to the remainder of the country when the United States Agency for International Development (USAID) assisted the Educational Trust Fund (ETF) to set up community resource centers in Abeokuta for Southwest, Calabar for South-south, Enugu for South-east, Kaduna for Northwest, Abuja for North Central and Bauchi for Northeast zones of Nigeria. Each CRC featured a computer-training facility for the blind fully equipped with

computers, screen reading software, Braille embossers and Internet access. Mr. Jan Bloem from the Netherlands was brought in to train a nucleus trainers group of blind persons who were recruited into the centres. This opened the use of the Internet to the Nigerian blind as a new level in technology usage.

Today, many persons living with visual impairment in Nigeria, workers, students and the unemployed, have acquired basic computer operation skills and some have fully accessible computer systems at work, home and school. Computer users can now independently access dictionaries, encyclopedias, Internet resources, Bibles, Qurans and electronic books that have produced more top-grade visually impaired graduates in Nigeria. Other accessible devices such as speech-enabled mobile phones, daisy recorders/players, etc. are also becoming widely used in Nigeria. Most rehabilitation centers all over the country have been upgraded to include computer training as part of the programmes. There is an ongoing scheme of the Net Library, a project of the MTN mobile telephone network to establish libraries that have Assistive Technology facilities in Nigerian tertiary institutions with arrangements to provide basic computer training to the visually impaired students of those institutions.

The advent of Information and Communication-based Assistive Technology in Nigeria has enhanced the ability of blind/visually impaired persons to excel in chosen fields and to integrate better into the mainstream educational and employment systems. Heroes Media Nigeria Enterprises, an outfit founded by a visually impaired ICT/Assistive technology consultant, has introduced specialized courses covering spreadsheets, Microsoft Outlook, Microsoft PowerPoint, Digital Audio production and basic maintenance of related devices to address job-specific skill areas. Do all these indicate a technology-driven utopia for the Nigerian Blind?

How effective is Technology?

Generally-speaking, blindness remains a limiting factor despite the great advances in technology. Technology continues to evolve in such a manner and at such a rate that Assistive Technology keeps trying to catch up with a world predominated by the use of sight. The transition from the Disk Operating System (DOS) and monochrome displays to the Graphical User Interface (GUI) of today placed the first challenge to the actual ability of blind persons to use computers. The cooperation of software manufacturers and writhers of screen readers led to timely solution of this problem for some time.

But we are faced with the arrival of the JAVA platform for creating software that yet again puts screen access beyond the reach of our accessibility software and threatens to curtail our career plans or even take away our jobs. Most banks in Nigeria use the Oracle line of database software for their operations so that the ability of our blind colleagues to work productively in this industry is questioned on a daily basis. Other blind computer users and even those using Talks and other screen readers on mobile devices are experiencing the same dilemma as they come across applications that can enhance their enjoyment of their equipment but for JAVA. The solution to this problem remains somewhere in the clouds. The issue of cost is also as important as most Assistive Technology products are very expensive and way, way beyond the purses of Nigerian families. The situation is worsened by contractors who form

schemes that resemble charity only to exploit corporate donors and international agencies to obtain equipment almost free, and then resell to users at mind-blowing prices.

Unfortunately, government intervention, which remedies this situation somewhat in the developed countries, is not available owing to the ignorance of policy-makers on this subject as well as their reluctance to commit resources to a group culturally relegated to dependency and mendicancy. After struggling and scraping to acquire such equipment, power outage and power fluctuations reduce usage time or damage the equipment without there being any way of getting them repaired. Many institutions in Nigeria have equipment that are only slightly damaged and, for lack of maintenance know-how, such equipment lie unused and the beneficiaries remain deprived. But of all the problems, the attitude problem is the greatest. This a two-pronged phenomenon—on one side are blind persons who are reluctant to explore the possibilities available to them and on the other side are employers, school administrators and others who want to resist any change of their obsolete belief systems that blind persons *cannot do certain things, even in the face of overwhelming evidence to the contrary.*

How to Erase Existing Problems

It is often said that desperate situations breed desperate remedies. It applies very much in technology as well. In a bid to address technological needs most blind persons patronize hackers and software pirates who offer prices much cheaper than the authorized dealers. This gives a semblance of having the use of the desired technology but its effects and disadvantages are many.

Firstly, pirated products cut the user off from technical support from the manufacturer because they cannot be duly registered.

Secondly, constant pirating of a product can force the manufacturer to discontinue the product, putting their production machinery into less troublesome and more profitable areas. This affects the end user ultimately. I still read the regrets of those blind persons who were fond of the Optical to Tactile Converter (OPTACON) but I imagine that the manufacturers had to survive by finding more viable product alternatives.

Thirdly, in some cases, pirates package viruses and other malware into those products, thereby damaging the devices onto which they are installed. This would result in a penny-wise Pound-foolish experience for their patrons.

My position on technology in general and solving its problems in particular is that an open mind is more effective than any technology and that a visionary mind sees clearer than the best human eye. The possible manifestations of these are listed below:

1. Not all technology is for you. Try to find out exactly what will meet your own needs, thereby cutting cost on purchases you don't actually need.
2. Blind persons and Blind Persons' Organizations should step up on awareness campaigns to enlighten the public on what their capabilities as blind persons really are and invite other thinkers to help them work out newer areas of competence.

3. Blind persons can form consumer groups that can negotiate good bargains with software manufacturers to enable more blind persons afford them. This happened in Nigeria when Freedom Scientific provided fifty ILM (Internet License Manager) activation codes for JAWS version 10 to the Nigerian Computer Association of the Blind
4. Trainers and others involved with imparting skills to the blind should become more creative in their approach to technology. Devices can do much more than are written in user manuals if only the user knows how to make them function. For example, Remote control systems for electronic devices were invented to enable wheelchair-bound patients operate electronics in the hospital and they are now part of our everyday gadgets. The first typewriter was invented by Pellegrino Turri to enable the Countess Carolina Fantoni da Fivizzono a blind woman, carry on correspondence in print with her sighted friends. We all know that typewriters grew to be the must-have in the corporate world and are the ancestors of today's computer keyboards. The manufacturer usually designs a product to solve one problem but oftentimes the product will address other areas of need.
5. Blind persons should explore the use of interface platforms in addressing screen reader limitations. Naturally, this takes time and some financial resources, but in the end, it is cheaper than the results of unemployment.
6. An Italian maxim states: *Chi va piano va sano e va lontano* (The cautious one goes carefully and gets far". Seek advice on how to meet your own needs within a reasonable budget. I have met many blind persons who spend up to ten times the money they should only to acquire devices they do not need. Knowledge is the first ingredient of success and where you do not possess the requisite knowledge, seek out someone who has it and learn from them. Establish user groups in which ideas can be swapped for the benefit of all. Also get on the Internet and learn there. Blind persons have about as much opportunity as everyone else to exploit the information resources in cyberspace. Furthermore, there are many alternatives to some of the applications and devices that are very expensive although these alternatives may be less robust in output. For example, many blind persons use Thunder and Non-Visual Desktop Access (NVDA) as free screen readers for basic computer access while there are websites with built-in speech facility for visually impaired browsers.
7. Don't be too rigid in your set ambitions. The greatest problem-solving trick is identifying the problems that you just cannot solve and letting them alone while solving those you can. Discover the things you can do and training yourself to do them extremely well rather than wasting your days straining to roll a boulder up a cliff wall.
8. BPOs should identify donor corporate bodies and other blind-friendly individuals/organizations with a view to establishing direct relationships with them, thereby cutting off unscrupulous go-betweens and recommending genuine, authorized vendors of technology products and services. This approach is currently being utilized by the Nigeria Association of the blind partnering with MTN to make such products and services available to blind users on a needs-based criterion.

In conclusion, I want to reiterate the fact that technology can work for you only to the extent to which you can make it work. Try to be informed as much as possible about what is available and how best your needs can be met. Then develop the skills that will enable you achieve your goals with the things you can get. Breaking the barriers of life require this, breaking the barriers of blindness require this even more. Thank you.

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