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Utilization of Assistive Technologies for Information Support for Differently Abled Persons

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Abstract - Technology is essential to the education of all children, but particularly that of individuals with learning disabilities. Technology both allows and empowers persons with disabilities by providing the option of greater full inclusion in meaningful educational experiences. As a result, technological advancements, especially those based on information and communication technology (ICT), are essential for providing special needs kids with the appropriate learning environment and meeting their educational needs. Technology is "playing a growing role, either directly or indirectly," in how people live their everyday lives. Technology enhances education quality and promotes more student participation by simplifying communication and information exchange. As a result, technology is essential to the preparation of educators. The purpose of the study is to determine how assistive technologies are used to support information for people with disabilities.

Keywords - Utilization, Assistive Technologies, Information Support, Differently Abled, Persons.

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INTRODUCTION

It accelerated research and advancement in this area. In order to be used in both regular education and special education settings, scientists and engineers have started to develop educational software and technologies. As a result, the industry saw the introduction of numerous new types of technology tools. There is a dearth of qualified teacher educators in general and special educators in particular since the rate at which teachers are trained to use these tools has not increased significantly. If special educators are not provided with the resources they require, such as assistive technology, they may lack confidence in their abilities to work with students who have special needs (Bateman, 2018). By attempting to carry out acts that are inappropriate and harmful, they run the risk of going in the wrong direction. This made it obvious that teacher preparation programs for students with special needs needed to be reviewed. Everyone, able-bodied or not, may now access information thanks to the exponential expansion of communications and information technology. People with disabilities have informational needs that are growing at the same rate as the general population. A sizable portion of our population consists of people with disabilities, and it is our responsibility as members of society to guarantee that they have access to the same possibilities as everyone else. The accessibility of information for all users, including those with physical disabilities, has significantly improved in recent years because to technological improvements. Nowadays, sharing information frequently entails a combination of electronic access, networked resources, and other types of information communication technologies (ICT). Information is now readily available in a matter of seconds because to the rapid progress of ICT (Bhardwaj, 2018).

In the educational process, teachers play a crucial role. According to the National Curriculum Framework-2005, a teacher is a person who supports students' learning by giving them the resources they need to come to their own conclusions. In this process, the instructor plays the role of a co-constructor of knowledge. The development of the educational system depends on teachers' technological, pedagogical, and personal talents. The value of a teacher's involvement grows in the setting of special education. Teachers need to have strong pedagogical skills, be familiar with the most modern Assistive Technology (Anis, 2015), and be schooled in it in order to accommodate students with a variety of abilities (AT). Additionally, without the assistance of educators, educational policies cannot be put into practice. It is imperative that educators have a stronger understanding of and appreciation for educational policy in light of this.

Differently abled people

People who, for whatever reason, are unable to perform an action in the manner or within the range that is typical for a human being are referred to as

"differently abled individuals," a term that was first used by the US Democratic National Committee in the early 1980s as a more acceptable substitute for "disabled." Without the aid of numerous assistive equipment, they are unable to carry out their typical daily activities. IGOs, national governments, and NGOs have created creative policy solutions for the underprivileged through a variety of focused programs and activities with the aim of assuring total social growth. The Persons with Disabilities Act of 1995 stipulates that access to information must be available at all levels.

These folks have reason to believe thanks to recent technology advancements, which is where ICT comes in. Information and communication technology, or ICT, is a catch-all term for all communication-related applications. In this sense, IT is similar to IT generally but places a focus on communication technology. Wireless networks, cell phones, and the internet fall under this category (Bhyrappa, 2016).

Use of Assistive technology

The administration is dedicated to ensuring that students with special needs have access to the least restrictive environment possible in accordance with various government programs and regulations. Various adaptations are provided to them to help them operate better and do better in school. School administration took their requirements into account while making plans for their classroom placement. The administration of the school also took into account factors that might improve students' performance while on placements. One of the crucial aspects to think about is the use of assistive technology. A simple definition of assistive technology is any piece of equipment used to help a kid with special needs continue to function at a high level, or perhaps improve upon their current level of functioning. "Assistive Technology is widely defined and encompasses any item that enhances, sustains, or improves the capacities of a person with a disability (Adetoro, 2014).

Low-tech aids like pencil grips sit alongside high-tech aids like AAC on the spectrum of Assistive Technology. 'Assistive Technology is a larger word that covers both Assistive Technology devices and services,' the Connecticut State Department of Education said in 1999. According to the Individuals with Disabilities Education Act, "any item, piece of equipment, or product system acquired commercially off the shelf, modified, or customized that is used to increase, maintain, or improve functional capabilities of individuals with disabilities" is considered assistive technology. Helpful technological aids vary from the quite simple to the highly complex. As a reminder, assistive technology does not include surgically implanted medical devices or their replacement. Assistive technology services are "any service that directly aids a child with a disability in the selection, purchase, or use of an assistive technology equipment," according to the Ohio Assistive Technology Network. It involves helping a kid with a handicap, their family, or a professional assess their requirements, as well as choosing, developing, fitting, customizing, adapting, applying, retaining, and maintaining the appropriate equipment (Ekwelem, 2013).

Types of assistive technology

Most of these descriptions imply that Assistive Technology is any tool that helps a kid with special needs do more of the things they like doing. Therefore, "such item or equipment that is capable of increasing, maintaining, and improving the functioning of children with special needs and helps them in participating fully in academic activities by reducing the hindrances of academic environment and life style" is a definition of assistive technology. As a result, it is a fundamental component of inclusive education. Considering its significance, countries all around the globe have pushed for further study, development, and instruction in the correct use of assistive technology equipment and services. The government of India actively encouraged this as well. Many of its features may be found in the 1995 Americans with Disabilities Act. Article 28 of the law focused on R&D efforts to provide assistive technology devices necessary for children with special needs so that they would have access to schooling on par with typically developing youngsters. Section 48 of this Act mandates the inclusion of language to encourage the "psychosocial component of assistive technology devices."

Experts in the area, have previously classified assistive technology into three groups. Here are the three classes (Khan, 2019):

- **Low-tech devices -** It includes non-electrical, simple, and inexpensive aids.
- **Medium-tech devices –** It includes such devices which might use electricity but these are not based on computer.
- **High-tech devices–** It includes microcomputers and certain augmentative communication devices.

In addition, Blackhurst (1997) proposed an additional class of ATIs, dubbed "no-tech solutions." He elaborated on how these tools can only be effectively used in a methodical classroom setting. "technology aided education for persons with impairments," provides another another categorization of assistive technology. There are four distinct sorts of auxiliary aids that may be identified using this framework. The following are the four categories:

- **Computer and software –** Interactive gadgets are a part of this category. Methods that use simulations and video games as a means of instruction are two examples. It helps kids with special needs solve problems using their talents and makes it simpler for them to move about. In addition, it boosts their enthusiasm.
- **Peripheral Services –** Services considered to be "peripheral" are those that are used with computers and other devices. These

aids facilitate data entry and retrieval for children with special needs. The screen magnifier, enlarged keyboard, mouth stick, and modified joysticks are all examples of assistive technology.

- **Switches –** The term "switch" is used to describe gadgets that enable children with special needs to operate a computer or other electronic device with a single, easy action. To operate it, just move your head or tense your muscles.
- **Electronic communication devices -** These assistive technologies help kids with special disabilities communicate more effectively. Examples include the electronic communication board and the voice synthesizer.

Benefits of using assistive technology

- This gives them the freedom to study and go about their day without assistance.
- As a result, one may set his or her own schedule, working conditions, and other factors.
- The inclusion of students with special needs into a typical classroom setting is facilitated by the use of assistive technologies.
- This gives them more confidence when they encounter difficulties in the real world.
- They learn more and become more capable as a result of this.
- A person's independence and freedom may be enhanced by using assistive devices.
- It's great for improving memory and recall.
- It gives kids with special needs the skills they need to protect themselves against hazards in their everyday lives.

Availability of information sources

Different abilities should have the same right to information as other regular people. Different sorts of disabilities call for various data sources that are specialized in braille libraries, daisy books, video subtitles, assistance software and hardware, etc. The purpose of this investigation was to examine the many information sources available to the institutions these people go to for assistance (Puri, 2016). Since daisy books and audio books are readily available in the institutions, all visually impaired people reported that they were approached for information assistance. The various institutions under investigation provide a variety of traditional to cutting-edge information sources for all categories under investigation. The accessibility of braille books was mentioned by the visually impaired (60%) as well as the accessibility of voice-scripted videos in their institutions (52,77%).

Computer Literacy and ICT Skills

ICT's phenomenal expansion has improved opportunities for a wide range of people. ICT efficiently strengthens the various technologies and strategies that support information help. This section has provided information about computer literacy and the skills of ICT-diverse individuals, which are crucial components in determining how well-versed a person is in IT (Rebecca, 2013). The researcher's goal in this study was to assess various computer users' levels of knowledge as well as how they acquired it and how they used ICT tools to engage in web- and ICT-based activities.

Computing literacy: Overall tests reveal that most diverse individuals have a medium degree of understanding (90.97%) followed by 9.03% of those who have a strong knowledge of their computer. Data on the wise-category reveal that computer knowledge is good, followed by 87.66% with visually impaired people and 95.44% with moderate-leaved knowledge of speech and hearing impairments, only 12.34%, with 5.56%, with a vision impairment. Nobody exhibits bad knowledge of the computer. Mode of computer knowledge acquisition: progress in the area of ICT constantly allows and efficiently enables the people who differ. For a while now, therefore, it is necessary for differently capable people to have strong ICT knowledge to deal with the current situation, and so the researchers sought to gather their answers on the way these otherwise skilled individuals acquire computer expertise.

ICT skills: Here the investigation experts attempted to analyze the ICT capabilities of different users when using ICT-based tools / devices such as computers, mobile phones, printing, scanning, etc and ICT activities such as data entry, pen drive copying, scanning, computer games playback, audio / video, etc.

Use of ICT-based tools/devices: Most people with varied capacities use them to cope with the current situation Desktop computers are used 'always' by those with visual problems, with a 50.64% answer followed 'often' with a 48.51% response by laptop computers. It demonstrates that almost equal consumers utilize PCs and laptop computers to obtain information. Persons with 60.42 percent speech & hearing impairment and 56.98 percent locomotive impairment are 'always' using desktop computers. Laptop computers are 'frequently' utilized with 48.5% responsiveness and 56.25% speech and hearing, and 58.14% with visually impaired vision. Whereas laptop and tablet computers utilized 'occasionally' for those three categories that respond more frequently with 62.50% and 75.69%, respectively, and are hearing challenged. The replies about the usage of mobile devices, that is 91.06% visually impaired, 90% speech impaired and 89.53% locomotive disabled, all three groups are 'ever' used for daily information by mobile telephones. Among the three categories, printers and scanners are not highly used, but the answer demonstrates that they

are used when necessary (Sanaman, 2014).

The impact of ICT on differently abled persons

For people with disabilities, the rise of information and communication technologies has been a boon in many ways. One device that helps people reach their full potential is assistive technology. Assistive technology is "any item, piece of equipment or product system, whether acquired commercially, off the shelf, modified, or customized that is used to increase or improve functional capabilities of individuals with disabilities," according to the Technology Related Assistance to Individuals with Disabilities Act of 1988. Because of this, these people are able to increase their access and independence to the fullest extent possible.

ACTS, Policies, and Guidelines exist at the international, national, and state levels to help move these issues ahead in society. The American Library Association, the International Federation of Library Associations and Institutions, etc., have done considerably more to advance the discipline on a global scale (Alkahtani, 2013). There is a significant gap until India catches up. India's persons with disabilities legislation of 1995 expands protections for those in this category. Rights of Persons with Disabilities Act, 2016 now provides all provisions of the United Nations Convention on the Rights of Persons with Disabilities. Some of the organizations in India that help people with disabilities are:

- National Institute for the Visually Handicapped
- National Institute for the Hearing Handicapped.
- National Institute for the Orthopaedically Handicapped
- National Institute for the Mentally Handicapped
- The Institute for the Physically handicapped.

Assistive technologies and the differently abled

For individuals who require it, a wide range of assistive equipment is available. devices that are advanced, simple, and intermediate. This study focuses on the individuals with disabilities who receive information and communication technology (ICT) support from institutions and organizations in the Jabalpur area of Madhya Pradesh. According to the 2011 census, there were 2,68,10,557 disabled individuals throughout India, but in the Madhya Pradesh district of Jabalpur, there were 7,61,843 of them, or 2.2% of the total population. They require specialized assistance and equipment to carry out their daily tasks and provide them the agency to achieve their goals. A number of government-level programs and rules support them. According to the 2015 Disability Census, there are 22 different categories of disabilities in the Madhya Pradesh state of Jabalpur district. In the Madhya Pradesh district of Jabalpur, numerous schools and other organizations work toward this objective. People with a variety of disabilities, such as those who are deaf, hard of hearing, or unable to walk, are included as research participants (Arshad, 2010).

Another sort of disability being studied among persons with various types of impairments is locomotor impairment, or the inability to perform a specific movement-related task. Books in Braille, audiobooks, and Daisy books Only a handful of the numerous assistive technologies available to the blind include the Digital Accessible Information System and screen reader software (such as JAWS, NVDA, Orca, etc.). Scanners, readers, voice recorders, braille printers, braille slates, Angel players, Daisy players, and other devices are examples of assistive technology for the blind. Braille, a more traditional type of assistive technology for those with vision impairment, is a tactile code that enables the blind to read and write using a combination of rectangular six-dot symbols. In 1829, Louis Braille invented the system (Ataabadi, 2014).

utilizing a TTY emulator such as Dragon Dictate (Convert speech to text). Big Mac (picture software), video captioning software, and Skype are among the most widely used categories of assistive technology for people with speech and hearing impairments. Text telephone devices (TTY/TDY), portable speech synthesizers, alerting devices/signal systems, assistive listening systems, closed caption decoders, and hearing aids are the most popular forms of assistive technology for people with speech and hearing impairments. The majority of assistive software for people with mobility issues consists of items like speech recognition software, on-screen whiteboards, and Dragon Naturally Speaking. For those with mobility problems, manual and electric wheelchairs, walking frames, ramps, adapted keyboards, and other similar equipment are the most popular types of mobility aids (Bishop, 2012).

CONCLUSION

To keep up with the steady flood of fresh data, everyone needs cutting-edge information technology. Disabled persons need equal opportunity to properly integrate into society. Today's technology will let disabled people engage fully in society and come out of their shells. Libraries and other information centers can help disabled persons learn and improve academically. We must remember that people with disabilities are people like everyone else and have information requirements like everyone else. To ensure that everyone has access to the same resources, "inclusive schooling" and "inclusive libraries" must replace "separate." Thus, educational institutions, non-governmental organizations, and specialized centers that provide information services to these folks must provide up-to-date assistive technology.

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