



ISSN: 0976-3376

Available Online at <http://www.journalajst.com>

**ASIAN JOURNAL OF
SCIENCE AND TECHNOLOGY**

Asian Journal of Science and Technology
Vol. 07, Issue, 06, pp.3022-3026, June, 2016

RESEARCH ARTICLE

SCIENCE AND TECHNOLOGY: A BOON FOR SPECIAL PEOPLE

***Annu Singh and Richa Verma**

Department of Home Science, Dayalbagh Educational Institutes (Deemed University), Agra-282005, India

ARTICLE INFO

Article History:

Received 20th March, 2016
Received in revised form
18th April, 2016
Accepted 24th May, 2016
Published online 30th June, 2016

Key words:

Education,
Empowerment,
Training,
Science and Technology.

ABSTRACT

Science and technology is more important for special people than any other because they can perform various tasks which they usually cannot due to their physical limitation which may be in the form of inability to move, hear etc. The role of technology in early detection, deterrence and rehabilitation is unquestionable and there is no doubt that technology helps special people in gaining increased independence, mobility and ambulation, access to employment, improved their quality of life as a whole. Therefore there is a great need for programmes to train special people in information and communication technology. However before starting such initiatives we have to empower educable and trainable special people by providing them education and spreading awareness among them regarding various policies and programmes designed by government to improve their standard of living. Once their basic need of education will be fulfilled then they should be trained in technology in such manner that their life will be free from various hardships. After providing training, opportunities for the use of science and technology should also be given to special people so that they will be able to execute what they have learned.

Copyright©2016, Annu Singh and Richa Verma. This is an open access article distributed under the Creative Commons Attribution License, which permits unrestricted use, distribution, and reproduction in any medium, provided the original work is properly cited.

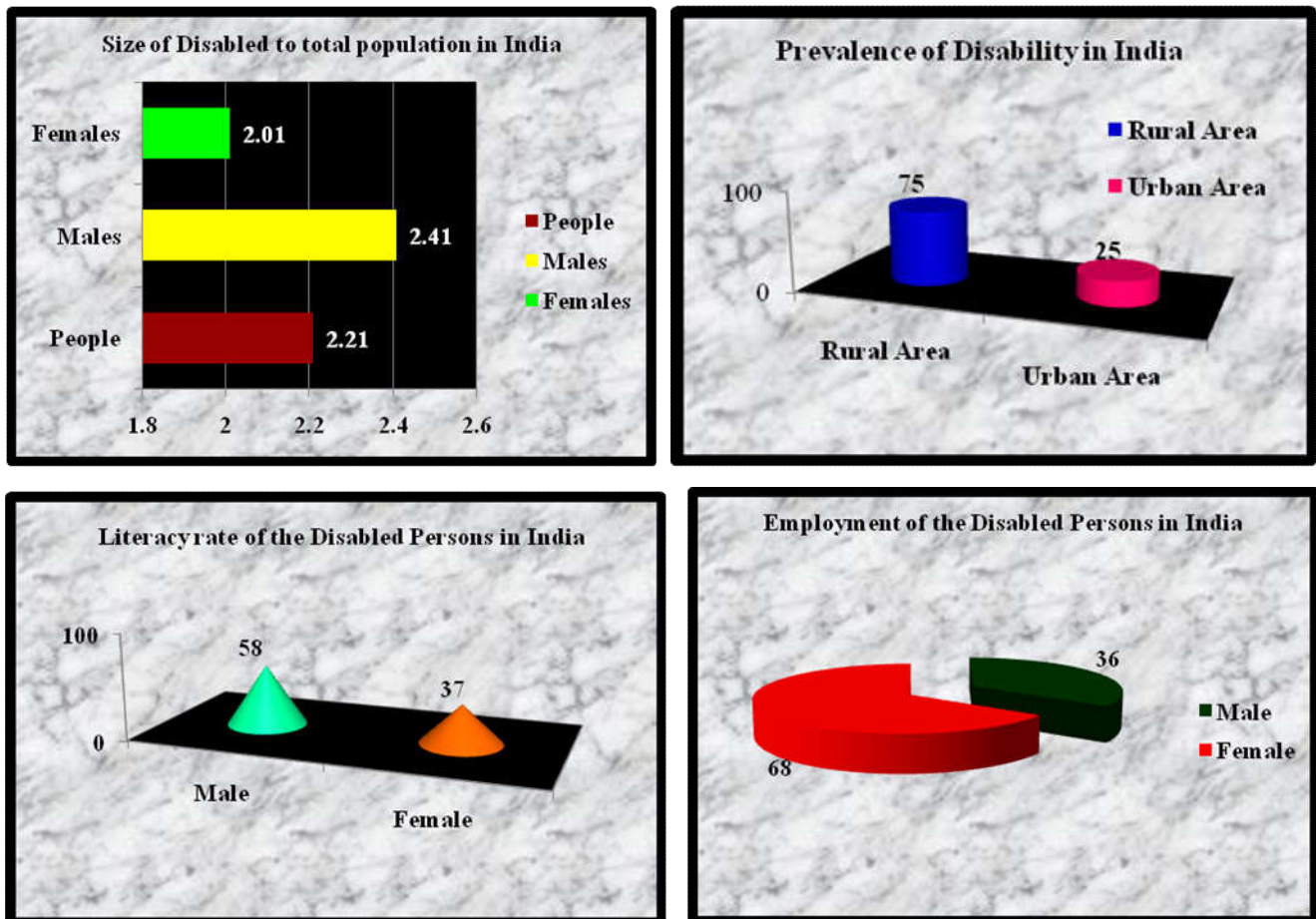
INTRODUCTION

In this era of inclusion, education is the fundamental right for everyone as it has become the means to fulfil our basic needs of food, clothing, and shelter. It is the solution of every problem; it promotes good habits, values and awareness and draw the line between good and bad. Educating all people by today's standards and for tomorrow's living most certainly includes the use of technology as existence of modern era cannot be imagined without science and technology. With the advent of computer and smart phones, almost everyone have access to internet and gradually all and sundry is becoming the part of modernization. But majority of special people, in India are still struggling for fulfilling their basic need of education and do not have any access to science and technology, which can be very beneficial for them. It is an essential way by which the desired change and upliftment in the society can be taken into effect. Today, India is witnessing technology based initiatives like: Digital India, E-learning, M-learning, and ICT etc. Unfortunately most of people with special needs are not the part of these programmes, lack of educational skills and training are the major pull factor for them. According to Census 2011 about 21 million people in India are affected with one or more disabilities at the turn of the new millennium.

***Corresponding author: Annu Singh,**

Department of Home Science, Dayalbagh Educational Institutes
(Deemed University), Agra-282005, India.

These included people with visual, hearing, speech, physical, emotional, learning and intellectual disabilities, who constituted about 2.21 % of the total population of India. Out of the total population of special people in India about 75% belonged to rural areas and only 25% belongs to urban areas. In rural India, the prevalence of disability is much higher (2.21%) as compared to its urban counterpart (1.93%). Prevalence of disability is higher among males (2.37%) as compared to females (1.87%). States with higher prevalence of disability are Jammu and Kashmir (3%), Orissa (2.8%), Kerala (2.7%), Tamil Nadu and Himanchal Pradesh (2.6% each) while states with least prevalence of disability are Maharashtra (1.6%), Jharkhand, Punjab and Delhi (1.7% each), Karnataka and Andhra Pradesh (1.8% each) etc. Majority of people with special needs in India are not literate; only 37% of females and 58% of males with special needs have access to education, and interesting fact is that out of total literate disabled population only 3% reaches at graduate and above level, whereas only 10% reaches upto secondary or higher secondary level. Wide gap in literacy among special people existed in the states from 37% in Bihar to 67% in Kerala with almost half of the states having majority of their special peoples not literate. Special people, 58% of age 6-10 years and 63% of age 11-14 years of are attending schools, as against 69% and 75% respectively in the general population. More than a third (36%) of males with special needs and more than two third (68%) of females with special needs of age 15 to 59 years are non-workers in India.



Source: Population Census report 2001-2011

Fig. 1. Overview of Statistical Evidences of People with Special Needs in India

Majority of people with speech or movement disability and almost three fourth of peoples with mental deficiencies are non-workers.

Challenges faced by People with Special Needs

People with special needs experiences stigma and are not very popular among other people in their environs. They are likely to have poor health, less education, less economic opportunity when they grow up, and are more likely to live in poverty and deal with greater inequalities than their peers without special needs (WHO, 2015). Lack of awareness, difficulties of access, high cost of assistive technology, lack of funding, lack of ongoing support and lack of training are the main problems faced by special needs people and they acts as the stumbling stones in the process of their empowerment.

- **Lack of awareness**

Family plays key role in the process of socialization of children. But due to denial or trust on family members for care and wellbeing of people with special needs, families do not give much importance to education and training of special needs people for facilitating independence. Besides, many people with special needs and their families have limited awareness of assistive technology and services. This makes it more difficult for people with special needs and their families to know what assistive technologies are available or suitable and how they can be reached.

- **Difficulty of access**

The lack of awareness about assistive technologies developed to reduce hardships caused by disability and less advertisement about latest researches causes difficulty in reaching to the assistive technologies. According to WHO (2015) people with special needs have lower rates of primary school completion than those without special needs and in many cases their lack of access to assistive technology is a contributing factor. For many people with special needs, meaningful access to assistive technology is critical for them to access and benefit from education (Alquraini and Gut, 2012), and it can help them to further develop their learning capacity (UNICEF, 2013).

- **High cost of assistive technology**

Other main obstacles is the high cost of the technology which is needed to help people with special needs to participate in regular classroom settings, for example computer systems with additional features for people with more special needs. Purchase and maintenance of assistive devices and support services are often too expensive. Financing for devices and services related to mobility, communication and control of a people's environment is an essential prerequisite for their use. In most of cases, the technology exists, but access to it is severely restricted by the economic status of many people with special needs. However, because of limited funding, school are not obligated to purchase a latest computer technology, even if it is identified as potentially beneficial. Majority of Indian

population is still under BPL (Below Poverty Line), so they cannot afford their expensive important services.

- **Lack of ongoing support**

Science and technology support services are student in special institutes. Teachers need resources and personnel to guide special people through the assistive technology network. Students require ongoing support to ensure that they are gaining maximal benefit from appropriate technology resources in their learning environments. But scarcity of funds, untrained or poorly trained teachers cannot meet special needs of people with disability by any means.

- **Lack of training**

Aside from a disparity between people with special need and technology, another major reason why assistive technology is abandoned or not used is insufficient training. Training is key factor to assistive technology use and implementation (McGregor and Pachuski, 1996). It is essential not only for the people with special needs but also for teacher and family member. There are many technologies for special people but when we talk about special people in India, we can say that due to lack of knowledge, accessibility and training, they can not avail the benefits of being the part of great era of science and technology. Lack of adequate teacher training has an especially strong impact on people with special needs because technology is often a critical component in planning and implementing an educational program for these people. According to Mack *et al.*, (1990) to meet the needs of people with special needs within regular classrooms, all teachers, both those in regular education and those in special education programs, need training in how technology can be used, and the technical skills to carry out a plan of action.

Role of Science and Technology in empowerment of special people

We all believe in an information society for all, and this target can be achieved through a series of steps. Technology play an important and significant role in many cases, in helping people with special needs overcome the academic difficulties that they face and helping them to develop their academic skills as well. According to (Wyer, 2001) technology, particularly for people with special needs is often viewed as “the great equalizer”. It is perceived as a means of providing access and opportunity, promoting independence, and encouraging empowerment. Today’s science and technology, which is adapted to everyone’s abilities, means that disabled end users are able to participate in all aspects of social life on more equal terms than ever before. “For most of us, technology makes things easier. For a people with special needs, it makes things possible” (Edyburn, *et al.*, 2005). The importance in special people lives can be justified under following points:

- **Deterrence and Early Detection**

The latest advancement of medical science helps in the deterrence of disability, technological invention have been made to find the preclinical marker of the early detection of disability test like amniocentesis to identify problem at

prenatal period. Likewise various researches in medical science has made the process of screening of children on the basic of their age specific milestones easier. The performance of the child as compared to the developmental milestones for its age helps in identifying the initial sign of disability. Alert parents can observe and consult to medical specialists for early detection and intervention on the basis of these signs.

- **Early Intervention**

Early intervention with the help of modern technology helps in reducing the limitations caused by disability. This includes assessing the child’s ability to understand language, respond to prompts and trials, ability to make choices and the ability for social interaction. The child’s response to stimuli and reinforces, distractibility and attention span need also to be considered.

- **Increase Mobility**

Science and technology offer new opportunities for everyone, but these opportunities are specifically more significant for people with special needs, who can use assistive technology for their daily activities to a higher extent than normal people. It can provide essential support for people with special needs in areas of self-care, education, employment, leisure, and community living. In addition, the use of assistive technology can increase special peoples’ capabilities and independence both in and out of school settings and assist students in the content areas, providing a means to engage in the domains of study which might not otherwise be possible. Technology offers the opportunity to focus on abilities, rather than disabilities of the people with functional limitations.

Technology for people with special needs do allow individuals with special needs to have greater control over their lives, for example of wheelchairs allowing people with physical disabilities to control their mobility (Freitas and Kouroupetroglou, 2008). With the various assistive technologies the mobility of special people from one place to another has been made possible. According to Burgstahler (2003) a student with mobility impairment uses a hands-free keyboard and mouse, graphic calculator and Microsoft reader to operate a computer to take resources and complete paper rather than have an assistant write for his/her. Examples of assistive technology include scooters and wheelchairs, alternative automobile controls, environmental controls, prostheses, communication aids, hand splints, hearing aids, and alternative input and output devices for computers.

- **Education and Training**

Education opens the avenue of success for people with special needs who want to learn, live and finally work in the future. It plays major role in the rehabilitation, employment and ultimately empowerment. Education and training in technology has changed and continues to change the way people manage things in their lives, both in private and in practical life, so the natural extension of that is to see the impact and the integration of technology in education for people with special needs in the same way it has been in other areas of life. Today, computer is a powerful tool to combine approaches and tailor course to meet individual needs. In India National Institute for Mentally Handicapped (1993-1996)

developed Computer Assisted Instruction package for teaching arithmetic and reading skills for children with mental retardation. The project used the latest techniques to develop software packages for making reading, writing and understanding numeric concepts easy and stepwise process for people with intellectual disability. Moore and Calvert (2000) examined the impact of computers on the vocabulary acquisition of young children with autism. Children's attention, motivation, and learning of words were compared in a behavioral program and an educational software program. Thus with the combination of advanced teaching approaches like multisensory approaches etc. and appropriate training and education can become easy and interesting mode of learning for special people.

• Increasing Employment Opportunity

Employment opportunity is for all peoples in working age in a key element towards combating poverty and to achieve social inclusion and participation in society. This applies equally to people with special needs. Special people who are educated and trained can also search for job opportunities in various firms and assistive technology can also help people with special needs to get, keep, and advance in employment and encompasses devices that increase function, independence, participation, and productivity for people with special needs, as well as the services needed for using these devices and the major reason behind it was lack of access to information thus training and exposure to technology can be very beneficial to tackle down this issues of accessibility. Though, the employment rates of the people with special needs have always been lower than those of individuals without special needs.

Ways to Empower Special People through Science and Technology

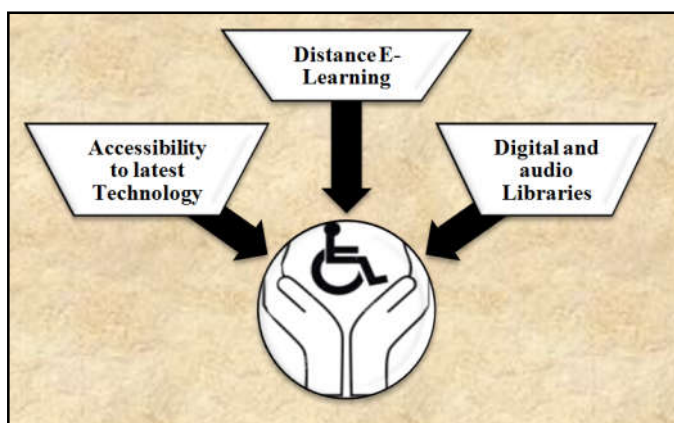


Fig. 2. Empower through Technology

Collins and Halverson, (2009) stated that the world of education is currently undergoing a massive transformation as a result of the digital revolution. The use of technology has become the need of the hour due to different reasons. In the past decade, a sudden resurgent interest was observed in the classroom regarding use of technological innovations, along with the increased use of the internet and other digital technologies (Reiser, 2002). People with special needs can be empowered by improving their educational and mobility with the help of technology and motivation. Access to the reading

stuff as well as the direct transmission of the lectures from classroom to their home makes the process of learning simple. Distance courses allow people with special needs to continue living at home while they are studying, to share documents, lessons, exchange ideas and make presentations. People with different disabilities can have access to educational courses via digital and audio libraries, accessing their material, content and resources via the internet. Internet also builds their capacity to communicate with each other at a distance. As it is the huge source of information in today's time and every information is just one click away. Thus, it is important for all individuals who are involved in policy decisions regarding the placement of special people, teacher training, and the funding of educational technologies to become familiar with the issues surrounding the use of technology for people with special needs. Working together, parents, teachers, administrators, and school board members, as well as both students with special needs and their nondisabled peers, can help create classroom environments in which all students have opportunities to learn. We need to raise awareness about the barriers that people with special needs face and identify the potential of technology to overcome these barriers. Although technology holds great promise, its potential can only be achieved if it is used. It may be true that technology for people with special needs will not solve all the problems faced by them but improve their functional capabilities.

Conclusion

Acquaintance with technology is not only necessary at school age indeed it is lifelong tools for employment, accessibility, maintaining and improving performance in a particular time. According to Emily (2010) assistive technology are tools promoting success in school by helping special students to access material, environment and learning as well as promoting independence at home, work and the community. Many technological tools could increase, as much as possible, the possibilities for people with special needs to overcome these challenges with fewer difficulties. "Science and technology should not only be viewed by within rehabilitative context, but as a tool for accessing curriculum and exploring out means to help students achieve positive outcomes" (Warger, 1998). Beyond the clear potential socialization and communication benefits, the Internet offers an enormous array of new ways to pursue education and employment. An educated people with special needs supported by assistive technology will have greater opportunities for employment (Netherton and Deal, 2006).

The Future Prospects

Education is made possible for people with special needs who want to learn, develop, live and finally work in the future. The use of information communication technology and other assistive technology in education for people with special needs to be looked at in great depth by policymakers, researchers, developers and information providers. Science and Technology of tomorrow can solve the problem of today. The following steps will help address this:

- Befriending children with technologies since the very beginning
- Technology based Vocational Training and programmes.

- Increase awareness of technological advancements with the help of proper channel among people with special needs and their families.
- Appropriate training of professionals from a range of disciplines on the uses of technology for people with special needs.
- Provide access to adequate assessment, prescription and follow-up services for individuals with special needs who need technological aids.

REFERENCES

- Alquraini, T., and Gut, D. 2012. Critical components of successful inclusion of students with severe disabilities: Literature review. *International Journal of Special Education*, 27(1), 42-59.
- Burgstahler, S. 2003. The role of technology in preparing youth with disabilities for postsecondary education and employment. *Journal of Special Education Technology*, 18, 7-19.
- Collins, A., and Halverson, R. 2009. *Rethinking education in the age of technology: The digital revolution and the schools*. New York, NY: Teachers College Press. Retrieved from http://ocw.mit.edu/courses/mediaarts-and-sciences/mas-714j-technologies-for-creative-learning-fall2009/readings/MITMAS_714JF09_read03_coll.pdf.
- Edyburn, D. L., Higgins, K., and Boone, R. Eds. 2005a. *Handbook of special education technology research and practice*. Whitefish Bay, WI: Knowledge by Design.
- Emily, C. B. 2010. Current issue and trend in special education: Research, Technology and preparation in Special education. *Emerald group publishing limited*, 20, 91-104.
- Freitas, D., and Kouroupetroglou, G. 2008. Speech technologies for blind and low vision persons. *Technology and Disability*, 20, 135-156.
- Mack, C. G., Koenig, A. J., and Ashcroft, S. C. 1990. Micro computers and access technology in programs for teachers of visually impaired students. *Journal of Visual impairments and Blindness*, 84, 526-30.
- McGregor, G., and Pachuski, P. 1996. Assistive Technology in schools: Are teachers ready, able and supported. *Journal of special Education Technology*, 13, 4-15.
- Moore, M., Calvert, S. 2000. Vocabulary acquisition for children with autism: teacher or computer instruction, Department of Psychology, Georgetown University, Washington, *Journal of Autism Development Disorder*, 30(4), 359-62.
- National Institute for the Mentally Handicapped Development of Computer Assisted Instruction (CAI) for teaching arithmetic and reading skills for children with mental retardation, 1993-1996.
- Netherton, D. L., Deal, W. F. 2006. Assistive Technology in the Classroom. *Technology Teacher*. 66(1):10-5.
- Reiser, R. A. 2002. A history of instructional design and technology. In: Reiser RA, Dempsey JV. Eds), Trends and Issues in Instructional Design and Technology. NJ: Merrill Prentice-Hall.
- UNICEF, 2013. The state of the world's children 2013: Children with disabilities. New York: United Nations Children's Fund. World Health Organization WHO, 2001. International Classification of Functioning, Disability and Health. Geneva, Switzerland: WHO. Available from <http://www.who.int/classifications/icf/en/>
- Warger, C. 1998. Integrating Assistive Technology into the Standard Curriculum. ERIC/OSEP Digest E568.
- World Health Organization WHO, 2015. Assistive Technology for Children with Disabilities: Creating Opportunities for Education, Inclusion and Participation. ISBN 978 92 4 150910 7
- Wyer, K. 2001. The Great equalizer: Assistive technology launches a new era in inclusion. *Teaching Tolerance*, 19, 1-5.
