Inclusion

Cross-Cultural Reflections on Policies, Practices and Approaches

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Assistive Technology for Students with Visual Impairment in Inclusive Education

*Hemant Kumar Maurya**

Introduction

Technology has great potential in providing access for all learners, and the ability to access the general education curriculum. Assistive technology is a generic term that includes assistive, adaptive, and rehabilitative devices for individuals with disabilities and includes 'virtually anything that might be used to compensate for lack of certain abilities' (Reed and Bowser, 2005), ranging from low-tech devices like crutches or a special grip for a pen to more advanced items like hearing aids and glasses, to high-tech devices such as computers with specialized software for helping dyslexics to read (WHO, 2009). Assistive technology refers to the devices and services that are used to increase, maintain, or improve the capabilities of a student with a disability (Dell, Newton, &Petroff, 2012).

Inclusive education is broader and wider concept of mainstreaming and integrated education. It includes all the students who are away from the education for any reason like, physical disability, mental deprivation, financial problems, social deprivation, gender biasness etc. Inclusive education is defined by UNESCO (2005) as a process of addressing and responding to the diverse needs of all learners by increasing participation in learning and reducing exclusion within and from education. Inclusive schools provide all students with a regular classroom, thus ensuring adequate and challenging educational opportunities fitted to their abilities and needs, according to the principle of educational inclusion defined in the Salamanca Declaration (Salamanca, 1994).

Voltz, Brazil, and Ford (2001) emphasize that inclusive education involves meaningful participation and interaction between the student with disabilities and the teacher and non-disabled peers. The aim of inclusion is to increase the participation of special needs students in the general education curriculum, which includes increasing the interaction of special needs students with general education teachers and with students without disabilities.

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Visual impairment is an umbrella term which includes two groups with disti characteristics and needs: individuals with low vision and individuals w blindness. Blindness and low vision are described in the legal definitions terms of *visual acuity* and *field of vision*. In simple terms, *visual acuity* indica how clearly a person can view an object from a fixed distance. This is genera measured using Snellen chart. The standard visual acuity of a person is /20 (expressed in feet) or 6/6 (expressed in meters). *Field of vision* is the a that is visible to the eye when looking at a fixed point and it is measured degrees. Standard forward-facing horizontal field of vision is almost 180 degr

The Rights of Person with Disabilities Act, 2016 defines blindness and l vision on the basis of visual acuity and field of vision as follow:

Blindness refers to a condition where a person has any of the followi conditions, after best correction:

a) Total absence of sight; or

b) Visual acuity not exceeding 3/60 or 10/200 (Snellen) in the better e or

c) Limitation of the field of vision subtending an angle of 10 degree worse.

Low-vision refers to a condition where a person has any of the followi conditions, namely:

a) Visual acuity not exceeding 6/18 or 20/60 and less than 6/60 or 20/ (Snellen) in the better eye with correcting lenses; or

b) Limitation of the field of vision subtending an angle of more than degree and up to 40 degree.

Assistive Technologies for Persons with Visual Impairment

Assistive technology can support students who are blind or have low vis in all academic areas as well as in expanded core curriculum (Wiazowski, 20 Individuals with visual impairments also have a long history of the succes use of assistive technology dating back to ancient civilizations that used ty of the long cane for independent travel. The history of blindness shows h specific embodied, individual practices and the relation with objects a technologies play a central role in articulating socialness and humar (Schillmeier, 2008). Since then, a large array of technologies have been develo to aid individuals with visual impairments with their ability to access informat travel independently, and take part in meaningful experiences. Almost every who suffers from blindness or other visual disabilities can benefit from vis rehabilitation that can help in making the most of whatever vision remain help in making the adjustment process more transitional for the individ Since most jobs held by people with visual impairments today require th to use some kind of assistive technologies, inadequate and untimely train on assistive technology (AT), contribute to the persistence of social employment inequities (American Foundation for the Blind, 2013).

Ganschow and colleagues grouped assistive technology devices into three categories: (a) low-tech, (b) mid-tech, and (c) high-tech (Ganschow, Philips, and Schneider, 2001). Low-tech devices are usually non-electronic and easy to use as involve little or no training. Low-tech devices are widely available with low cost and little maintenance (e.g., pencil grips, highlighter tape or pens, and adapted furniture). Mid-tech devices are easy to operate electronically with minimal training and require basic maintenance. Mid-tech devices are commercially available and generally moderately priced (e.g., adapted keyboards, electronic dictionaries, and tape or digital recorders). High-tech devices involve complex electronics and usually contain microcomputer components for storage and retrieval of information. High-tech devices are expensive and require ongoing maintenance and extensive training (e.g., word prediction software, talking calculators, and hearing aid and/or assistive listening device). Cook and Hussey stated that "yesterday's high tech is tomorrow's low tech" and also acknowledged that "as the field advances, there will be new considerations that will further stretch our concepts and force new ways of categorizing and describing assistive technology" (Cook and Hussey, 2002,).

Implementation of Assistive Technologies in Inclusive Education

Assistive technology can be utilised in inclusive settings for the students with disabilities. Some important steps for the implementation of assistive technology in inclusive education are as:

- Understanding the Assistive technology
- Identifying the need of students
- Selecting the right Assistive technology
- Planning for the effective use of Assistive technology
- Training for the use of Assistive technology

Understanding the Assistive Technology

It is very important to have proper knowledge and understanding about various assistive technologies. Every teacher who is involved in teaching students with disabilities in special setting or inclusive setting, at least has basic concept, knowledge and skills of some common Assistive technology. Teachers should aware of some basic questions, such as;

- What technologies are easily available?
- What are the technologies that can be used by students with visual impairment?
- What are the recent developments in the field of assistive technology for person with visual impairment?

A better understanding of assistive technology means satisfactory answers for all these above questions. Teachers, special educators or specialised resource persons should have proper information regarding assistive technologies.

Identifying the Needs of Students

In a class students have individual differences. These differences should be considered by the teacher for effective teaching learning. It is important for a teacher to identify a student's learning needs as earlier as possible. Many students will have an indentified need before they enter school. In these cases, it is helpful for the parents to share any information they have with the school when they register their child. In other cases, a student with special needs will be identified only after his/her difficulties become apparent in school In this circumstance, the teacher should consult with the parentsto begin an assessment and identification process. These assessment and identification process should continue at regular time interval because an individual who needed assistance in the past does not necessarily mean that he/she will need it in the future. An appropriate technology solution may dramatically decrease a person's need for help or eliminate it all together.

Selecting the Right Assistive Technology

There are thousands of technologies available. Technology users only need what will help in accomplishing the task, in the simplest and most effective manner. Selecting a right assistive technology device is often a difficult task. It is always depending on abilities and needs of person with disabilities. Some basic points should be considered at the time of choosing right assistive technology. These are follows:

- Does it help him/herto do what he/she want/need to do?
- Are there any limitations or risks?
- Is it comfortable to use?
- What skills should be learned?
- Is there any training facility available?
- What kinds of maintenance devices are needed?
- What are the life time/average use and guarantee/warranty?
- Is it reliable?

Planning for the Effective Use of Assistive Technology

A plan helps a person to organize resources and activities efficiently and effectively to achieve goals. Planning is preparing a sequence of action steps to achieve some specific goal in a time frame.Today many people with disabilities are breaking barriers through the use of technology with effective planning. For some individuals with disabilities, assistive technology is a necessary tool that enables them to engage in or perform many tasks. If people do not focus on making a plan for the effective use of Assistive technology they may face difficulties in successful achievement of desired goal. The effective use of assistive technology for person with disabilities is necessary to prepare a proper plan step by step.

Training for the use of Assistive technology

Some assistive technologies are simple in operation but not all. Once an appropriate assistive technology is selected, it is important for the user to understand what it does and know how to operate the same. In addition to the student user, training should be provided for those who will work with the student with disabilities. This may include teachers, tutors, and parents. Training may be in the form of one to one, hands-on workshops for groups or professional development for school staff.Assistive technology is most successful when both the user and their providers understand the purpose of the technology, are proficient operating its relevant features, and have confidence in their ability to use it.

Conclusion

Assistive technology is a boon for all the section of learners and especially for the students with special needs. The r ıodern advancement in Science and Technology has added many innovative features in the development and use of assistive technology; but in a developing country like India, we still have miles to cover in order to match the international standards. Bringing adequate awareness among the students, parents and teachers for the use of assistive technology may lead us into an era of development where the normal as well as the differently abled people can make significantly equal contribution for the service of the humanity.

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