



## Role of Educational Technology in Making Normalization Through Digital Inclusion a Reality for Children With Disabilities

### KEYWORDS

Educational Technology, Digital Inclusion, Normalization, Children with Disabilities

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**ABSTRACT** *Technology is a process which has emerged out of scientific applications on the basis of scientific research and is aimed at problem solving. Educational technology refers to the systematic application of this knowledge to the teaching learning condition of the learner in order to improve its effectiveness. It is based on the learning theories and promotes the belief that art and science of teaching go hand in hand. The constant process of research involved in it, benefits teachers and it helps to define objectives in behavioral terms thus creating a suitable learning environment for all learners including children with disabilities. The instructional curriculum in educational technology is divided into discrete packages and it is tailored to meet the diverse needs of the learners, addressing time and distance needs and removing communication barriers, thus trying to make normalization a reality through digital inclusion.*

### Introduction

Special education has advanced a long way and the road was not smooth, neither is it going to be any smoother in the future. It is greatly influenced by changes in society, lifestyle, awareness of social inequality, advancements in technology and all this will help in shaping the field of special education to great extent. Education both general and special should be responsive to the changing needs and demands of the society at large (Harring, 1974).

Technology has played a major role in advancing the state of persons with disabilities, by making education, communication, information and other services needed for independent living accessible to them. We define technology as a method or process or a set of procedures designed for problem solving. These processes have originated from scientific research and are applicable in problem solving which can be either a general or specific problem.

### Changing models of Disability

History has seen the changes in terminologies and definitions of disabilities over the centuries. The charity based model depicted persons with disabilities as victims of circumstance who deserved 'pity'; giving birth to custodial care causing extreme isolation and marginalization of PWDs. It led to the "Era of Institutionalization". The medical model views disability as directly caused by disease, trauma, genetic or other health condition, advocates the need for sustained medical care provided in the form of individual treatment, thus aiming at normalization through medicinal "cure". The functional model states that entitlement to human rights is based on the individual's capacity/ability to exercise his/her right. The current Rights Based Model positions "disability" as an important dimension of human culture, it affirms presence of individual differences and respects individual differences and uniqueness of all humans, it showcases the humane side of societal attitude (Singh, 2010).

### Normalization

Normalization calls for providing all the opportunities to all persons with disabilities which are available to a non-disabled person in society. The Normalization Principle is a

strong advocate of 'equality in education' for persons with disabilities. Ideas of normalization evolved in the Scandinavian countries during 1950s-1960s, originated by Niels Eric Bank Mikkelsen, known as father of Normalization Principle. It was developed and articulated by Benjt Nirje, a Swedish scholar, and given its first formulation in print in 1969, in the report of the President Committee on Mental Retardation. Further, the Normalization Principle was reformulated, developed and being brought to USA by Wolf Wolfensberger.

Goals of normalization are of two kinds (Moss, 1974):

- a) **Client normalization:** To increase the functional independence of disabled persons so that they may be more easily assimilated in the community.
- b) **Environmental normalization:** To modify environmental structures in order that individual differences among retarded persons can be accommodated into the community.

Normalization is thus a belief that focuses on the principle that persons with mental retardation and other disabilities have an equal right to life and functioning in what is considered as the normal environment and patterns of living.

Environmental demands determine and influence the existence of handicap, students with physical impairments become handicapped when they face the tasks requiring mobility, similarly speech impaired candidates face difficulty when required to communicate with other people, esp. in the absence of a communication partner or when the other person does not understand the communication pattern of the speaker/ is not familiar with the speaker's speech pattern, or when a learning disabled person is asked to read, write and calculate, he/ she faces difficulty. Hence the environment needs to be modified apart from meeting the needs of the learner directly (Wisniewski and Sedlak, 1992).

### Factors promoting normalization

There are several factors which help to promote normalization for PWD, these areas as follows:

- o Universal Design
- o Educational Technology
- o Assistive Technology

**Universal Design**

The principle of universal design is very popular and it aims at enhancing the accessibility of devices, services, functions and places for persons with disabilities and all other peoples such as the elderly and aged, girls, women with disabilities, economically and socially marginalized, who face or are at-risk of facing social devalued roles due to deviancy form the so called normal social norms.

The major areas which require adaptation are:

- Physical environment
- Educational environment
- Personal care

**Educational Technology**

According to Gagne, it refers to the development of systematic techniques, practical knowledge of designing, operating, testing the schools educational system.

Currently two trends are popular in Educational Technology for CWSN (Harring, 1974):

1. programmed instructions and CAI
2. cybernetics approach

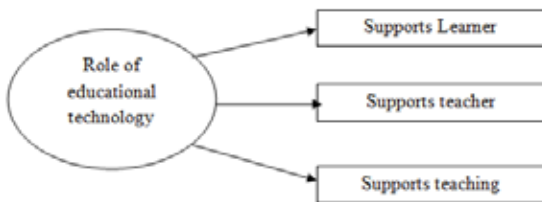


Figure-1: Role of educational technology for learners

**Programmed Instruction**

It is characterized by systematic arrangement of materials to be learned in a series of sequential steps which move the learner from a familiar background to an unfamiliar background, helping in understanding of complex concepts. Advantages of this method is that it promotes active learning and response in the child, immediate feedback and reinforcement, and the program can be accelerated or decelerated as evident by the performance.

**Cybernetics**

It is derived from the Greek root kyber, which refers to a helmsman acting as a controlling agent or element in the system. It includes the following elements:

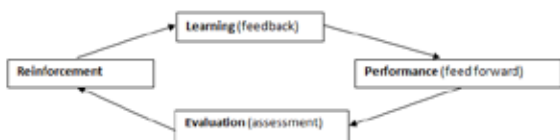


Figure-2: elements of cybernetics

**Characteristics of Educational Technology**

- ❖ Application of science and technology in the field of teaching and training
- ❖ Learning theories- art and science of teaching go hand in hand (overcomes drawbacks of psychology)
- ❖ Defines objectives in behavioral terms
- ❖ Creates a suitable learning environment
- ❖ Controls the educational environment, behavior of students, strategies, contents
- ❖ Systematic application of science and technology to teaching and learning

**Understanding Educational Technology**

Educational technology is thus the study and ethical practice of facilitating learning and improving performance by creating, using, and managing appropriate technological processes and resources.

**Functions of Educational Technology**

1. Identification of educational goals and objectives of the learner, the community and the society and developing appropriate curriculum for the achievement of the goals
2. Analyzing the process of teaching and learning and developing suitable teaching and learning material
3. Developing and selecting appropriate audio-visual aids and effective utilization of hardware and software media
4. Providing essential feedback and providing control of learners, learning material through evaluation
5. Preparing teachers in the use of new technology of teaching
6. Flexible interaction, student paced learning
7. Material to be taught is broken into frame sized portions
8. Instructional curriculum in educational technology is divided into discrete packages
9. Tailored to meet the needs of the learners, addresses time and distance needs and removes communication barriers

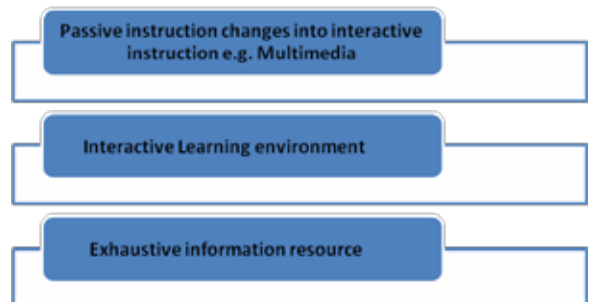


Figure-3: Functions of educational technology

**Technology in Education**

- It refers to the use of technology in the process of education, teaching - learning and educational planning
- Use of sophisticated hardware devices like computers, projectors, audio-video aids and multimedia
- Devices for recording, storage, manipulation, retrieval, transmission and display of data

- Use of computer software for teaching, drill and practice exercises etc.

#### Digital inclusion = social inclusion in the age of IT

- **Total Participation:** Participation of children with disabilities (CWDs) in the global, knowledge-based economy requires the ability to access and manage information even marginalized communities like those below the poverty line, the SC/STs and other backward classes, women with disabilities who experience double disabilities, the working adults who could not gain primary education, have the most to gain and the most to lose
- **Promoting Literacy in Technology:** Technology literacy, like literacy itself, is an essential prerequisite to social inclusion
- **Improve Access/ Connectivity** - Provide broader access to the Internet, lower cost of entry, Wi-Fi access
- **Accessible Content**-Develop content that is accessible, relevant and contextual (W3CG)
- **Increase Technology Literacy**- Help groups and individuals use technology to do what they want to do, address underlying social factors

#### Technology and Disability

1. Technology helps to assist PWD e.g. Assistive Technology
2. Technology helps to achieve highest level of functioning for CWDs
3. Helps to promote rehabilitation and habilitation of CWDs
4. Technology helps to promote independent living among CWDs
5. Technology helps to increase the self concept of CWDs

#### Assistive technology for the disabled

Assistive technology refers to any device, piece of equipment or services which is either customized, manufactured or purchased of the shelf with the aim of providing assistance and maximizing the potential of a person with disability. It assists the individual to attain the highest levels of functioning in home, work, play and other environments like social, educational, communication, mobility and orientation etc. The person with disability has equal rights to live life and participate in all activities of life just as everyone else.

- Children with sensory disability esp. children with hearing impairment and those with speech impairment need educational technology in the form of projectors, slides, films, posters, charts to aid in the learning process
- Persons with visual impairment need multimedia support, computers with screen readers, tactile based teaching learning material
- Persons with intellectual disability need audio-visual aids, multimedia, charts, flash cards etc.

#### Impact of AT

Assistive Technology helps to improve, maintain, and increase the functional capacities of individuals with disabilities in daily life, in multiple environments. It serves PWDs in the following ways:

- Improves the functional independence circumventing environmental barriers, maximizing the personal independence and increasing active participation
- Greater opportunities for societal participation and integration, including the workplace and higher educational centres
- Increasing the quantity of functioning which refers to the users participation in a wide range of activities in multiple environments
- Increasing the quality of functioning which refers to the ease and comfort with which a user accomplishes a task with the assistance of an AT device
- Increasing the chances to gain and maintain employment

#### Conclusion

Hence educational technology plays a very important role in promoting inclusion of children with disabilities in multiple environments, preventing segregation of the learners across all fields. Educational technology has helped children with disabilities to gain access to education, information and participation in all walks of life at par or nearly at par with the non disabled children, thus raising their self concept and self image.

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