USE OF ICTs FOR INCLUSIVE EDUCATION: POSSIBILITIES AND CHALLENGES

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ABSTRACT
Right to Education is the primary right of every citizen of India, whether a child resides in a high profile society or in a far away not so developed secluded village, according to the Article 45 of Indian Constitution the basic elementary education must be provided to all the children up to the age of fourteen years. Information and Communication Technology (ICT) can be utilized for the education sector. Education includes online, distance and part time education. There are unlimited applications of ICT in the real world. In his paper emphasis is on the education field. ICT can be used for providing education to the people who are not able to come to school due to various constraints. ICT can play great role in formal and non formal forms of education. Inclusive Education proposes all students are provided with equitable access to education within the context of a mainstream educational system and not in a segregated setting. There is now significant international and national legislation and policy in support of this model but for many countries achieving this ideal is proving to be a difficult reality. Accessible ICTs have a major role to play in enabling educational authorities, educators, students and parents to move towards a more inclusive educational system. However its role as a communication aid, pedagogical tool and means of access to previously inaccessible learning materials is still, in many countries, only just beginning to be explored.
KEY WORDS: *ICT, Inclusive Education, Benefits, Challenges, Policy Development*

INCLUSIVE EDUCATION - FROM CONCEPT TO IMPLEMENTATION

''If anybody asks me what the Internet means to me, I will tell him without hesitation: To me (a quadriplegic) the Internet occupies the most important part in my life. It is my feet that can take me to any part of the world; it is my hands which help me to accomplish my work; it is my best friend – it gives my life meaning.''- **Dr Zhang Xu**

UNESCO advocates that where possible, children with disabilities are accommodated in inclusive schools, which it promotes as being more cost-effective and which lead to a more inclusive society. Accessible ICTs are one of many supports that can enable the rea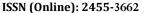lization and implementation of inclusive education. The Convention recognizes that access to education is a fundamental right of persons with disabilities. Education is to be provided, wherever possible, in an "inclusive" manner; that is, within the context of the mainstream educational system and not in a segregated setting. These may include, as appropriate, access to (along with training in, and use of) accessible ICTs, including assistive technology and educational materials in an accessible format. The global Education for All movement, led by UNESCO, aims to meet the learning needs of all children, youth and adults by 2015. UNESCO promotes the ultimate goal of inclusive education which it views as a means to ensuring a quality education for all and to achieving wider social inclusion goals. Many national educational

systems struggle to provide a quality education in mainstream schools and favour the development of special needs schools. Inherent in inclusive education is the notion that reform and improvements should not only focus on children with disabilities but on "whole school improvement in order to remove barriers that prevent learning for all students" (GeSCI, 2007). Inclusive schools can "accommodate all children regardless of their physical, intellectual, emotional, social, linguistic or other conditions" (Salamancha framework, 1994). However inclusive education is not a synonym for special needs education or integration techniques but an "an on-going process in an ever-evolving education system, focusing on those currently excluded from accessing education, as well as those who are in school but not learning" (UNESCO, 2008).

While there has been a lot of contemplation upon education and its recent right based approach, inclusive education is yet to be mainstreamed and made a reality in India. When we talk of education, its parameters must automatically include those from the neglected sections of society. There are ample evidences in reports published by various governmental and nongovernmental agencies on discriminatory treatment given to children on the basis of caste, class and gender identities. The NCPCR organized a Public Hearing in April 2011 to discuss issues of dalit children being asked to mop the floor in many of the government schools in the central and northern part of the country. How much ever infrastructure government may provide, nothing is going to change in schools in particular and society in general till the educational institutes and those in the profession of teaching change their mind sets for attainment of fair, equal and value education and an egalitarian nation. Apart from the India's never ending quest from abolition of caste equations in education sector, there are two other sections of the population whose meaningful integration will certainly help in achieving the ideal of universalisation of education in the country. The first one in this section is the girl child and the second is the differently-abled. Merging the different world of the differently-abled into one inclusive platform National Policy on Education (NPE), 1986 initiates the process of such inclusion with integration of the differently-abled with the general community as equal partners, to prepare them for normal growth and to enable them to face life with courage and confidence. Plan of Action (POA), 1992 states that a child with disability, who can be educated in a general school, should be educated in a general school only and not in a special school. The Rehabilitation Council of India Act (RCI), 1992 provides for training of special educators and resource teachers for children with special needs. The Persons

with Disabilities (Equal Opportunities, Protection of Rights & Full Participation) Act, 1995 declares that every child with a disability should has access to free education in an appropriate environment till he attains the age of eighteen years. In spite of these legislations of the GOI (1991), NSSO (2002) records states that 59 percent of the disabled in rural areas and 40 percent of the disabled in urban areas were illiterate. This indicates to the massive gap in the existing education system in encompassing those with different-abilities under one inclusive education system. The zero-rejection policy of SSA enforces enrollment of differently-abled children in regular schools, however this clause can't ensure retainment of these children without creating a poor of trained teachers and empowering infrastructure to cater to the needs of such children. In 2005, The First Joint Review Mission of SSA and, Department of School Education and Literacy in the year 2005 admitted that the required focus has not been given towards education of differently abled children, which mostly remain due to lack of trained professional, mainly in rural areas. The RTE act also confers every differently-abled child with the right of receiving free and compulsory education.

THE BENEFITS OF ICT IN INCLUSIVE EDUCATION

The uses of ICT is making major differences in the learning of students and teaching approaches. Schools in the Western World invested a lot for ICT infrastructures over the last 20 years, and students use computers more often and for a much larger range of applications (Volman, 2005). Kulik's (1994) finding across 75 studies in the United States showed the following. Students who used computer tutorials in mathematics, natural science, and social science score significantly higher on tests in these subjects. Students who used simulation software in science also scored higher. The findings also indicated that primary school students who used tutorial software in reading scored significantly higher on reading scores. Furthermore, the use of ICTs in education also shifts the learning approaches. As put by (Bransford, Brown, and Cocking, 2000) cited in Volman (2005), there is a common belief that the use of ICTs in education contributes to a more constructivist learning and an increase in activity and greater responsibility of students. Emerging pedagogy is the name given to the new view of constructivist learning when compared to the relatively long existing behaviourist view of learning. Tinio (2002) describes each of the pedagogic aspects in terms of implication for ICT use as follows.

Active learning: - ICT-enhanced learning mobilizes tools for examination, calculation and analysis of information in order to provide a platform for student inquiry, analysis and construction of new information. ICT-enhanced learning promotes increased learner engagement. ICT-enhanced learning can also be 'just-intime' learning that the learners choose what to learn when they need.

Collaborative learning: - ICT-supported learning encourages interaction and cooperation among students, teachers, and experts regardless of where they are. Apart from modeling real world interactions, ICT-supported learning provides opportunity to work with students from different cultures, thereby helping to enhance learners teaming and communication skills as well as their global awareness.

Creative learning: - ICT-supported learning promotes the manipulation of existing information and the creation of real-world products rather than the duplication of received information.

Integrative learning: - ICT-enhanced learning promotes a thematic integrative approach to teaching and learning.

Evaluative learning: - ICT-enhanced learning is student-directed and diagnostic. ICT-enhanced learning recognizes the presence of different learning pathways to explore and discover rather than merely listen and remember.
Education prepares students for the use of ICT in education, future occupation, and social life.
- ICT as an 'assisting tool'. ICT is used as a tool. Typically, ICT is used independently from the subject matter.
- ICT as a medium for teaching and learning. This refers to ICT as a tool for teaching and learning itself, the medium through which teachers can teach and learners can learn. It appears in many different forms, such as drill and practice exercises, in simulations and educational networks.
- ICT as a tool for organization and management in schools.

ROLES OF ICT IN INCLUSIVE EDUCATION

In its training guide "*ICTs in Education for People with Special Needs*", UNESCOs Institute for IT in Education outlines 3 mains roles for the use of accessible ICTs in education:

- Compensation uses – technical assistance that enables the active participation in traditional educational activities such as reading or writing.
- Didactic uses – the general process of using ICTs to transform approaches to education. Many ICTs can be used as a didactical tool to enable a more inclusive learning environment.
- Communication uses – technologies that can enable communication – often referred to as alternative and augmentative communication devices and strategies. (ISO, 2000)

ACCESSIBLE ICTS IN SUPPORT OF INCLUSIVE EDUCATION

Accessible ICTs hold the potential to enable persons with disabilities to receive an education and become productive members of the social and economic life of their communities. Applied to education systems, the effective and well planned use of ICTs by students with disabilities can provide equitable learning opportunities through enabling communication with teachers and fellow students, providing access to learning materials and by enabling course work, assignments and examinations to be completed. The wide variety of accessible ICTs currently available that can help overcome reduced functional capacity and enable communication, cognition and access to computers.

A meta-study on research carried out by the (former) British Educational Communications and Technology Agency (BECTA) in 2003 into the use of accessible ICTs showed the following benefits to all stakeholders involved in education, including students, teachers, parents and careers (BECTA, 2003):
In general accessible ICTs:
- Enables greater learner autonomy
- Unlocks hidden potential for those with communication difficulties
- Enables students to demonstrate achievement in ways which might not be possible with traditional methods
- Enables tasks to be tailored to suit individual skills and abilities

Specific benefits for students:
- Computers can improve independent access for students to education
- Students with special educational needs are able to accomplish tasks working at their own pace

- Visually impaired students using the internet can access information alongside their sighted peers
- Students with profound and multiple learning difficulties can communicate more easily
- Students using voice communication aids gain confidence and social credibility at school and in their communities
- Increased ICT confidence amongst students motivates them to use the internet at home for schoolwork and leisure interests.

Benefits for teachers and non-teaching staff:

- Reduces isolation for teachers working in special educational needs by enabling them to communicate electronically with colleagues
- Supports reflection on professional practice via online communication
- Improved skills for staff and a greater understanding of access technology used by students
- Enhances professional development and the effectiveness of the use of ICT with students through collaboration with peers
- Materials already in electronic form (for example, from the internet) are more easily adapted into accessible resources such as large print or Braille.

Benefits for parents and carers:

- Use of voice communication aids encourages parents and carers to have higher expectations of children's sociability and potential level of participation.

POLICY DEVELOPMENT IN SUPPORT OF ACCESSIBLE ICTS IN INCLUSIVE EDUCATION.

In general policy development for the use of ICTs in schools is recognized as a "complex proposition based on the principle that technology is not only a tool [but requires] a shift the focus from technology provision to the design of learning environments" (UNESCO, IITE, 2010). The UNESCO Policy Brief "ICT for Inclusion: Reaching More Students More Effectively" proposes a number of main areas for policy interventions as summarized below.

- Infrastructure,
- Support for practice,
- Needs assessment for persons with disabilities,
- Training for students and teachers,
- Co-operation and research on best practices and
- Evaluation on the benefits and uses of ATs.

Finally, in support of this evidence-based policy, a small number of research studies are likely to significantly impact on the efficacy of any policy interventions. In particular the research should establish:

- National demographics on persons with disabilities and number of students likely to benefit from provision of accessible ICTs;
- Current ICT infrastructure within the school including number of computers and school connectivity to the internet;
- Types and numbers of accessible ICTs required;
- Affordability and availability in country of required accessible ICTs;
- Efficacy and sustainability of current funding strategies for provision and support of ICTs;
- Attitudes, knowledge of students, parents teachers towards accessible ICTs;
- Preparedness of teachers to incorporate accessible ICTs into their pedagogical practices;
- Availability of support dedicated networks for teachers and students; availability of services such as community based rehabilitation services that could potentially support students and teachers in the use of high and low tech ATs for use in learning environment.

CHALLENGES OF ICT FOR INCLUSIVE EDUCATION

Certain challenges also exist for the ICT based teaching learning. One of the great challenges for quality control in education is lack of standards for parameters to measure the quality of education. For the solution of this all the accreditation bodies like NAAC, NBA, AICTE, CBSE and other authorities must sit together and circulate a standard list of parameters to decide the quality of education. Development of ICT has changed the epic centre of knowledge and hence in many of the cases student is more informed than the teacher. Teachers lack adequate qualification and training and their lesson plans are most often outdated or irrelevant. Setting up the ICT devices can be very troublesome. It is expensive to afford it is hard for teachers to use with a lack of experience using ICT tools. These reasons destroy the available quality of education. ICT enabled distance education, to a great extent, can combat this problem. One of the important barriers is lack of trained teachers to exploit ICT proficiently. Most of the teachers are not willing to introduce new technologies to themselves first and subsequently to their students. There is resistant from

teachers, basically from older teachers as compared to younger ones, to apply ICT in their subject. Hence teachers need to update their knowledge and skills as per change in the curriculum and technologies. At present, ICT in school education is strictly limited to a handful of elite schools. Beyond that, it's just a computer lab that's held apart from the conventional educational process. Though computers came to Indian classrooms in the year 1984-85, the level of adoption of modern technology in the teaching and learning process has been limited and uneven (Bharadwaj, 2007). Various ICT tools must be available and it must be accessible at demand. Many schools have limited resources for buying books, stationery, furniture and other classroom materials. Role of private sector providing services in such sectors may be taken into account. Rural population may not be able to pay hefty amount to utilize such ICT resources for education. One of the major challenges in the implementation of ICT in education is the initial thinking that is based on the technology. ICT hardware and software are not designed as per educational purposes rather they are designed for general purpose. One first thinks about the available technology and then a try is being made to apply it into education field, but if we look at in reverse way then possible outcomes may be more useful and may give good results. As per latest tradition only special subject like IT or ICT is available and that is also optional one there is need for to have basic knowledge of computers and IT to utilize various ICT tools to be used for teaching learning. Only computer teachers would not be able to carry this important mission of being agents of change. To sort out infrastructure problems for providing ICT education in schools one can split the screen in half vertically and at two sets of an application can be displayed and used by two users (students) simultaneously. Because one student may use the keyboard and another may use mouse, each student can work independently of the other (Linden, 2008). The survey (Bharadwaj, 2007) done in 2007 in two highly ICT enabled states Gujrat and Karnatka says that Access to government school students to ICT tools outside schools is in general low. The access of private school students to such devices is comparably better. It also shows that one of the challenges to be met is also of digital divide in private and Government schools and moreover in rural and urban schools also. Major challenge for educators and trainers is how to develop learning materials for delivery on available ICT tools including mobile devices. The learning materials should be in manageable learning chunks and should make use of multimedia. There are many advantages of using learning objects in mobile delivery including: they can
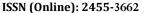
be re-used and changed without affecting other learning objects, and they can be stored in an electronic repository for remote access at any time (Mohamed, 2009). Barriers include costly supportive infrastructure, developing online material can be expensive and time consuming, quality, validity of online material, lack of flexibility in already prepared study material. A lot of information available online may dissuade student learning. Students can feel isolated in absence of classroom like environment. Computer Programmes at various levels of quality parameters can be used to control, manage and put strict discipline in the campuses through use of computer application for Curriculum development, Teaching and learning, Research and extension, Governance and leadership, infrastructural facilities and use of expert system in suggesting intelligent decisions to top management in policy making and other important areas in higher education (Chavan et. Al, 2012).

Key challenges of ICTs are to prepare student teachers for:

- Autonomous planning and incorporation of ICT in lesson planning and performance;
- Inquiry and research approach when identifying ICT tools and systems and their application in teaching and learning;
- Creativity and innovation for teaching with ICT, designing learning material and learning environment, which foster creativity of all students assisting variety of individual approaches in creative communication and participation

CONCLUSION

Quality in education through ICT and its awareness among stakeholders will have positive impact on the society. ICT can be helpful in quality and standards of education by implementing it in various phases of education. ICT can be employed in formal and Non-formal types of education and would eventually make the learners employable and socially useful part of the society. By employing ICT in teacher training can save a lot of money of the Government. Moreover a lot of qualitative improvement can be seen as resource persons for the training can be best of the world. By employing ICT in administration can help in solving the problem of Absenteeism of students and teachers. Good quality content is one of the major issues and directly affects the standards of education and quality. By overcoming the certain challenges involved in the process of education can help a lot in this side. Conclusively a lot of quality improvement is

possible after careful and planned implementation of ICT in education by various stakeholders.

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