

RIGHT TO EDUCATION: SIGNIFICANCE OF INFORMATION AND COMMUNICATION TECHNOLOGIES (ICT) TO REACH OUT TO BROWBEATEN SECTIONS IN INDIA

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Abstract: It is undisputed that most of the enrollment growth in the coming several decades will be in developing countries and India will contribute a significant proportion of that expansion.

India by enacting “Right to Education Act, 2009” has set out on a go-getting path to provide free and compulsory education to all children in the 6 to 14 age group. As a result the number of students enrolled in elementary schools in far flung villages would definitely see a colossal jump. Challenges of funding, availability of qualified teachers, and building a sustainable academic culture and school infrastructure are significant and real.

The primary aim of the paper is to delve into the various revolutionary aspects of ICT in Education in reaching out to the browbeaten sections in India. Providing access to the free education for the children of browbeaten people like tribals, lower castes, and dalits is a complex issue in India wherein the fragmentation in the society along religious, ethnic and linguistic lines is entrenched. In addition, rampant poverty which is the root cause of child labor leaves no time for the affected children to undertake formal schooling.

India has always been an interesting and tractable case study for the actual and potential impact of constitutionalizing the right to education. In a nutshell the enrolment rate in rural areas nationwide was only 71%, with a gender disparity of 0.84, meaning a 16% lower rate for girls. In some states the levels are considerably lower. In Bihar only 59% are enrolled and in Rajasthan the rate is 61% with a gender disparity of 46% for girls.

Henceforth, in this paper we review various facets of and challenges in providing access to universal elementary education for the children from socially

weaker sections in India. The paper also studies social divisions in India which are considered as a primary reason for creating education hindrance even now. The paper gives a critical view on how people in rural areas are still away from their basic right of education and even today the gap between poor and rich is widening by each passing day, since unfortunately education is believed to be a *game of riches*. The paper delves into various aspects of this ambitious aim and suggests measures for mitigating the risks and pitfall in India’s march towards achievement of 100% literacy of over 1 billion people. We also explore the ways in which the strengths of ICT can be leveraged in achievement of the goal.

Keywords: Browbeaten sections; ICT; India; Right to Education.

INTRODUCTION

PRIMARY EDUCATION AS A FUNDAMENTAL RIGHT

The National Commission to Review the Working of the Constitution recommended that all children enjoy the fundamental right to free and compulsory education. In addition, girls and children from scheduled caste and scheduled tribe households would have judicially enforceable right to education until they are 18 years of age. This move was lauded because the right to education became justiciable. Article 45¹ of the Constitution pertaining to primary education being only a directive in nature is not justiciable.

¹ As per Article 45, the “State shall endeavour to provide, within a period of 10 years from the commencement of the Constitution, for free and compulsory education for all children until they complete the age of 14 years”.

The 86th Amendment to the Indian Constitution enacted in December 2002 made free and compulsory education a fundamental right for all children in the age-group 6-14 years.² The Bill specifies that every parent or guardian of a child has to “enroll his child, or, as the case may be, ward in a recognized school, cause the child to attend such school with at least such minimum regularity as may be prescribed; and provide the child full opportunity to complete elementary education”.³

The learning plays central role in sustainable development and it contributes immensely to poverty reduction and income generation, empowerment and consolidation of democracy, disease prevention and sustainable health and to the protection of the environment is by now well known.⁴

The importance of education on affirmative action and upliftment of masses is not lost on Indian policy makers. In fact it is reported that China and India, which together make up one-third of the world’s population and are two of the most rapidly growing economies, are awakening to the significance of education for technological development and for the global knowledge economy. The economic realities of China and India’s rapid growth are affecting the world, from increased demand for natural resources to their roles as exporters of products of all kinds, a pattern that will continue regardless of the current economic slowdown. A growing impact of these countries is in higher education; their higher education systems are already among the world’s largest, and they are major exporters of students to other countries.⁵

² The new Article 21A reads as follows: “*Right to Education – The State shall provide free and compulsory education to all children of the age of six to fourteen years in such manner as the State may, by law, determine.*”

³ The valid reasons for not sending the child to school are: non-availability of an approved or transitional school within the prescribed distance and if the child suffers from a disability or disease preventing him or her from attending school. Section 7 of the Bill clearly states that “No person shall prevent a child from attending an approved school”, and Section 33 of the Bill stipulates a penalty for contravention of Section 7.

⁴ A.W. Khan, Learning for a Better Future: Overcoming Disadvantages (20th ICDE World Conference on Open Learning and Distance Education, Düsseldorf, Germany, 2001).

⁵ Altbach, One-third of the globe: The future of higher education in China and India (Ulrich's Periodicals Directory ©, ProQuest, U.S.A., Springer, 39(1), 2009).

WHAT IS ICT (INFORMATION AND COMMUNICATION TECHNOLOGIES)?

Information and Communication Technology (ICT) has, within a very short span of time, turned out to be one of the basic building blocks of modern society. Many countries now consider understanding ICT and mastering its basic skills and concepts as part of their core education policy.

The term ICT is now also used to refer to the convergence of audio-visual and telephone networks with computer networks through a single cabling or link system. There are large economic incentives (huge cost savings due to elimination of the telephone network) to merge the audio-visual, building management and telephone network with the computer network system using a single unified system of cabling, signal distribution and management.

ICT (information and communications technology - or technologies) is an umbrella term that includes any communication device or application, encompassing: radio, television, cellular phones, computer and network hardware and software, satellite systems and so on, as well as the various services and applications associated with them, such as videoconferencing and distance learning. ICTs are often spoken of in a particular context, such as ICTs in education, health care, or libraries. The term is somewhat more common outside of the United States.⁶

Information communication technologies are influencing all aspects of life including education. They are promoting changes in working conditions, handling and exchanging of information, teaching-learning approaches and so on.

One area in which the impacts of ICT is significant, is education. ICTs are making major differences in the teaching approaches and the ways students are learning. ICT-enhanced learning environment facilitates active, collaborative, creative, integrative, and evaluative learning as an advantage over the traditional method. In other words, ICT is becoming more appropriate in the realization and implementation of the emerging pedagogy of constructivism that gives greater responsibility of learning for students. Several surveys are showing that ICT use in education systems of developed nations has comparatively advanced than ICT use in education systems of developing nations.

In addition, the major promises of ICTs use in education systems of developing countries focus on training teachers in new skills and introducing

⁶ https://www.itschool.gov.in/pdf/icttb8_eng.pdf (Visited on October 2nd 2013).

innovative pedagogies into the classrooms, investing on ICT infrastructure for schools and creating networks among educational institutes, improving overall standard of education by reducing the gap in quality of education between schools in urban and rural areas, initiation of smart school with objectives to foster self-paced, self-assessed, and self-directed learning through the applications of ICTs, and developing ICT policy for education and training. On the other hand, this article discusses the major limitations of ICT use in education as teacher related, student related, and technology related. In addition, the key challenges of ICTs integration into education systems discussed relate to policy, planning, infrastructure, learning content and language, capacity building and financing.⁷

CAN ICT BE BETTER THAN BAD TEACHERS OR NO TEACHERS?

A teacher is just like a captain of a ship, responsible for the passenger's right from the beginning to the end of the voyage. No teacher is good or bad, but the interactive and convincing skill clubbed with the intellect is what makes him so. Sugata Mitra's⁸ experiments with ICT/DLR with children with no access to teachers at all are very interesting in this context. The children seem to learn well all by themselves and we need to get a better understanding of how learning happens in such situations, whether this is superficial or not and so on. But that cannot be an excuse to do away with teachers all together. A good teacher can help improve learning substantially even for children who are learning well with the help of DLR and we need good teachers desperately. More importantly, ICT can help democratize the quality of education for all children⁹ by bringing the best teachers to the screens in the hands of the students in the form of videos of the best teachers teaching in the native languages of the students.

The teachers could make their lecture more attractive and lively by using multi-media and on the other hand the students were able to capture the lessons taught to them easily. As they found the class very interesting, the teachings also retained in their mind for a longer span which supported them during the

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<http://www.ajol.info/index.php/ejesc/article/viewFile/73521/62437>. (Visited on October 2nd 2013)

⁸ Mitra s. & Dangwal R. (2010) "*Limits to self-organising systems of learning—the Kalikuppam experiment_1077 672..688*" (British Journal of Educational Technology, Vol 41 No 5.

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<http://prayatna.typepad.com/education/2011/02/demo-cratising-the-quality-of-education.html> (last viewed on October 2nd 2013).

time of examination. More so than any other type of ICT, networked computers with Internet connectivity can increase learner motivation as it combines the media richness and interactivity of other ICTs with the opportunity to connect with real people and to participate in real world events. ICT-enhanced learning is student-directed and diagnostic. Unlike static, text- or print-based educational technologies, ICT-enhanced learning recognizes that there are many different learning pathways and many different articulations of knowledge. ICTs allow learners to explore and discover rather than merely listen and remember. The World Wide Web (WWW) also provides a virtual international gallery for students' work¹⁰. ICT can engage and inspire students, and this has been cited as a factor influencing ready adopters of ICT.¹¹

ICT FOR SPECIAL NEEDS

Education is not confined to race, caste, color, or any such physical element on which society seldom tend to constrain itself in various aspects but education is for one and all equally. There are some Government as well as private initiatives¹² exploring the use of ICT for persons with disabilities (PWD), for example, precisely, (a) IIT Chennai has developed a local language editor with speech recognition capabilities available in 15 Indian languages along with English. (b) IIIT Hyderabad recently developed a software to read web pages written in Hindi or Telugu. (c) The National Association for the Blind, Delhi is developing a library of electronic educational material for PWDs. Some 1500 titles will be stored using a format accessible with a screen reader or for direct embossing of the text in Braille. (d) In 2003, work began on Screen Access For All (SAFA), an open source initiative to develop a screen reading software for vision impaired persons to read and write in their language of choice. (SAFA Homepage)Information about the current status of all

¹⁰ Loveless, A. (2003), "Making a difference? An evaluation of professional knowledge and pedagogy in art and ICT", *Journal of Art and Design Education*, 22(2), 145-154.

¹¹ Long, S. (2001), "Multimedia in the art curriculum: Crossing boundaries". *Journal of Art and Design Education*, 20(3), 255-263; see also Wood, J. (2004), "Open minds and a sense of adventure: How teachers of art & design approach technology". *The International Journal of Art & Design Education*, 23(2), 179-191.

¹² Agarwal, R. (2003) ICT for Persons with Disabilities Website. Retrieved October 2nd 2013 from:http://www.apcdproject.org/trainings/web-based/pant_homepages/agarwal/ict-disabilitiesindia.html

these initiatives is however difficult to find. In 2002, The Spastic Society of Karnataka undertook a study for the *Azim Premji Foundation*, to assess the impact of computer aided learning on children with learning disabilities in rural Karnataka.

Concluding, computer aided instruction offers substantial developments in visual motor coordination, social intelligence and reading skill. There is however, not much information available about any initiatives for children with disabilities launched thereafter.

INFORMATION AND COMMUNICATION TECHNOLOGY: A BOON?

Technology, over the last few decades, has to a large extent completely transformed our lives in all possible ways. India, a successful ICT powered nation, has always laid a lot of accent on the use of ICT, not only for good governance but also in diverse sectors of the economy such as health, agriculture and education etc.¹³

Undoubtedly, education is one of the wise and primary investments in developing human capital in a Country and a medium that not only carves good literate citizens but also makes a nation technologically innovative, thus paving a path to economic growth. Indian government has launched several schemes such as free and compulsory primary education, 'Education for All' Movement (*Sarva Shiksha Abhiyan*), National Literacy Mission etc. to improve the education system.

In the recent years there has been a groundswell of interest in how ICT has been deployed in the education sector. One of the most vital contributions of ICT in the field of education is *easy access to learning* resources. With the help of ICT, students can now browse through e-books, sample examination papers, previous year papers etc. and can also have an easy access to resource persons, mentors, experts, researchers, professionals, and peers-all over the world.

Anytime-anywhere, one of the most distinguished and well applauded feature of ICT is its ability to outdo time and space. Keeping this module in mind, ICT has made asynchronous learning (digital learning) possible. One can now use online course study material, at any hour of the day. ICT-based educational delivery (broadcast of educational programs over radio and television) also dispenses

with the need for all learners and the instructor to be in one physical location.

ICT is indeed a perfect *motivating tool* as well since using it as a media to teach includes usage of videos, television and multimedia computer software that combine text, sound, and colorful. This allows the students to get more engaged in the learning process. Therefore, it is undoubtedly conceived by lot many veterans of education that ICT has come as a blessing in the field of education, which has a lot many results and benefits to be unleashed with the passing time.

RAISING STANDARDS OF EDUCATION: ROLE OF ICT

ICTs have the power to enhance the quality of education in innumerable ways: by increasing learner motivation and engagement by facilitating the acquisition of basic skills, and by enhancing teacher training. ICTs are also transformational tools which, when used appropriately, can promote the shift to a learner-centered environment.

Motivating to learn

ICT by several means act as a motivating factor for students to study, such as videos, television and multimedia computer software that combine text, sound, and colorful, moving images can be used to provide challenging and authentic content that will engage the student in the learning process. Interactive radio likewise makes use of sound effects, songs, dramatizations, comic skits, and other performance conventions to compel the students to listen and become involved in the lessons being delivered. More so than any other type of ICT, networked computers with Internet connectivity can increase learner motivation as it combines the media richness and interactivity of other ICTs with the opportunity to connect with real people and to participate in real world events.

Facilitating the acquisition of basic skills

The transmission of basic skills and concepts that are the foundation of higher order thinking skills and creativity can be facilitated by ICTs through drill and practice. Educational television programs such as *Sesame Street* in America use repetition and reinforcement to teach the alphabet, numbers, colors, shapes and other basic concepts. Most of the early uses of computers were for computer-based learning (also called computer-assisted instruction) that focused on mastery of skills and content through repetition and reinforcement.

Enhancing teacher training

ICTs have also been used to improve access to and the quality of teacher training. For example, At Indira Gandhi National Open University, satellite based one-way video- and two-way audio-conferencing was

¹³ Rashmi Pramanik, "Information and Communication Technology (ICT) among School-going Children: A Technological Intervention" Vol 2 No. 10, *Journal of Education and Practice* (2011).

held in 1996, supplemented by print-materials and recorded video, to train 910 primary school teachers and facilitators from 20 district training institute

ICT: TO BRING REVOLUTION

If there is one axiom that has evolved with practice and implementation, in the relatively brief history of ICT use in education, it is that it is not the brilliant technology but use of technology brilliantly! Put another way: "How one uses technology is more a matter of concern than if you use it at all...[and] unless our thinking about conventional way of schooling changes along with the continuing expansion of ICT's in the classroom then our investment in technology will eventually fail to live up to its potential."

Technology then should not drive education; rather, educational goals and needs, and careful economics, must drive technology use. Only in this way can educational institutions in effectively and equitably address the key needs of the population, to help the population as a whole respond to new challenges and opportunities created by an increasingly global economy. The paper has argued that ICTs have impacted on educational practice in education to date in quite small ways but that the impact will grow considerably in years to come and that ICT will become a strong agent for change among many educational practices.¹⁴

There are questions about the quality¹⁵ and sustainability of random government initiatives, implemented differently by different states and poorly aligned to the needs of Indian industry. This has led to a "de-facto privatization"¹⁶ of ICT education in India with private institutions (such as Apteck and NIIT) flourishing. Today in India, ICT education has become a lottery to success. Not everyone wins the lottery though.

ICT, however, can make a huge difference by expounding the contents and new ways of learning. It needs to be carefully integrated. We should try to bring together the technology with education. There

is a need to amalgamate homogeneously the use of ICT with conventional methods of education. A try is what is crucial now, to enhance blended learning which refers to the learning models that combine traditional classroom practice with e-learning solutions. After having an online mentoring sessions with their teacher through chat this can be followed by a periodic face-to-face instruction. ICTs are tool and not an end in them. Schools should therefore focus on what they need to use the tool for, in the first place. Choosing and deploying ICTs for education must stem from, and be driven by the desired educational objective(s) and outcome. Thus it should be "ICT for education but not education for ICT".¹⁷

CHALLENGES FOR UNIVERSAL ELEMENTARY EDUCATION IN INDIA

The challenges for India in educating its large population have been reported by Datta & Mitra (2010)¹⁸ in their study. They report that about 35% of world's illiterate population is Indian. Despite seemingly optimistic Gross Enrollment Ratios (GER) being recorded and proactive literacy schemes (Sarva Shiksha Abhyan, National Literacy Mission and Mid-day Meal Scheme) being introduced, there is a disparity between these positive indicators and actuality. A high dropout rate of 41.2% is seen at the elementary level. The national literacy rate of girls over seven years is 54% against 75% for boys. In the Northern Hindi-speaking states of India, girls' literacy rates are particularly low, ranging between 33 – 50%. Quality of instruction and learning is poor. Students' understanding and application of written and verbal expression, logic and reasoning, numeric and quantitative knowledge is inadequate. Geographical remoteness and access challenges, regional/ gender/ socio-economic inequity, poor infrastructure, amenities and non-conducive learning environments, academically inclined (often in contrast to practical applicability), corporal punishment, apathetic and untrained teachers and theoretical pedagogy, are key causative factors for poor accomplishments in the education sector.

The very famous initiative by the government of India namely Sarva Shiksha Abhyan was launched with a name to attain universal elementary education in India for children between 6- 14 years. In order to assess how far these measures have succeeded, a

¹⁴ Rashmi Pramanik, "Information and Communication Technology (ICT) among School-going Children: A Technological Intervention" Vol 2 No. 10, *Journal of Education and Practice* (2011).

¹⁵ Basu, K. (August 18, 2006). India's faltering education system. BBC News. Retrieved October 2nd 2013

from:http://news.bbc.co.uk/1/hi/world/south_asia/4793311.stm

¹⁶ Kapur, D. & Mehta, P.B.(2004). Indian Higher Education Reform: From Half Baked Socialism to Half Baked Capitalism. Retrieved October 2nd 2013 from:<http://www.cid.harvard.edu/cidwp/pdf/108.pdf>

¹⁷ Rashmi Pramanik, "Information and Communication Technology (ICT) among School-going Children: A Technological Intervention" Vol 2 No. 10, *Journal of Education and Practice* (2011).

¹⁸ http://www.cks.in/html/cks_pdfs/M-LearningMobile-enabled-Educational-Technology.pdf (Visited on October 2nd 2013).

nation-wide independent sample survey of households was conducted in all the States and Union Territories of India in 2009 to provide estimates of the number and percentage of out-of-school children in the age group 6-13 years.

The findings of the survey indicated that the country had about 19.1 crores children in the age group 6-13 (i.e. below 14 years), of whom 4.3% children were out of school, in 2005 this figure was 6.9% . Amongst the out of school children, 3.2% children had never attended school and 1.1% were dropouts. Among boys 3.9% children were out of school and among girls 4.6 % children were out of school.¹⁹

The analysis of the results of the study brought out that flagship educational programmes launched by Government of India have not been able to make significant inroads in the underprivileged sections of the society. These programmes have not achieved the desired results for the children from weaker sections of the society and children living in remote areas. Under the circumstances it would not be out of place to have a look at the efficacy of affirmative action in India.

RIGHT TO EDUCATION- AN OVERVIEW

With an aim and mission to promote universal elementary education in India, the parliament with 86th Amendment Act, 2002 incorporated right to education as fundamental right.

The salient provisions of the Act and the rules made there under are²⁰: (a) The Act makes it mandatory for every child between the ages of 6-14 to be provided free education by the State. This means that such child does not have to pay a single penny as regards books, uniforms etc. (b) Any time of the academic year, a child can go to a school and demand that this right be respected. (c) Section 12(1)(c) of the Act provides that private education institutions and specified category schools shall admit (starting 2011) at least 25% of the strength of class I, children belonging to weaker section and children belonging to disadvantaged group from the neighborhood and provide them free and compulsory education till completion of elementary education. (d) Strict criteria for the qualification of teachers. There is a requirement of a teacher student ratio of 1:30 at each of these schools that ought to be met within a given time frame. (e) The schools need to have certain minimum facilities like adequate teachers, playground and infrastructure. The government will evolve specific mechanisms to help marginalized schools comply with the provisions of the Act. (f)

¹⁹ <http://ssa.nic.in/> (Visited on October 2nd 2013).

²⁰ <http://education.nic.in/> (Visited on October 2nd 2013).

There is a new concept of 'neighborhood schools' that has been devised. This is similar to the model in the United States. This would imply that the state government and local authorities will establish primary schools within walking distance of one km of the neighborhood. In case of children for Class VI to VIII, the school should be within a walking distance of three km of the neighborhood. (g) Unaided and private schools shall ensure that children from weaker sections and disadvantaged groups shall not be segregated from the other children in the classrooms nor shall their classes be held at places and timings different from the classes held for the other children.

RIGHT TO EDUCATION- SETBACKS

Every child of the age of six to 14 years shall have a right to free and compulsory education in a neighbourhood school till completion of elementary education.²¹

One would have expected that after so many rounds of drafting and redrafting the enactment, the final outcome would be an effective instrument for any child in this country to demand her basic entitlement.

Yet, a closer look at the provisions of the act continues to reveal disconcerting features, as the following pointers make evident. To begin with, the act further fortifies the multitier and unequal education structure as opposed to a CSS. Of the various categories of schools, a clear distinction is made in how much of the burden of providing free and compulsory education would fall on each kind.²²

While the government-run schools would cover costs associated with all its wards, the government aided schools would be accountable to admitting students proportionate to 25% of their annual grants. Although the act requires that special category schools (i e, Kendriya Vidyalayas, Navodaya Vidyalayas and Sainik Schools) and unaided schools admit 25% children from the weaker sections and disadvantaged groups of the population, it ensures reimbursement by the government to these unaided schools, based on per child expenditure incurred towards admitting these students.²³

²¹ Section 3 (1), Chapter 2, RTE Act, 2009

²² Section 12.1, RTE Act 2009

²³ Section 12.2, RTE Act 2009 states that: "The school specified in sub-clause (iv) of clause (n) of section 2 providing free and compulsory elementary education as specified in clause (c) of subsection (1) shall be reimbursed expenditure so incurred by it to the extent of per-child-expenditure incurred by the state, or the actual amount

One can understand if the government was keen to get the act operational at the earliest and was temporarily subsidizing the costs of private schools for providing education. However, this is certainly not the case, as the government does not specify any time frame up to when it would continue to reimburse the costs of education for private schools.

Jha and Parvati (2010)²⁴ in their study reported following problem areas concerning the Right to Education Act:

(a) Though the act expresses interest in taking necessary steps in providing free pre-school education for children above three years of age, leaving out this critical segment of the child population from the definition is worrisome. Not only does the act fail to cover all children, it does not provide definite timelines for many provisions.

(b) The Act fails to tackle the problem of quality of teachers and infrastructure required for undertaking the task involved.

(c) Quality monitoring is attainable only in a culture of accountability. The act does not effectively address issues with regard to quality and disciplinary proceedings against the erring schools. In addition, the unaided schools have been left out of the purview of accountability with regard to the provisions contained in Section 21.1 of the act.

(d) There is no clarity on who will take lead in financing the Act. Ideally, the central government ought to should do this due to poor fiscal situation in most states. Acknowledging this reality, the Act notes that the states may seek a predetermined percentage of expenditure as grants-in-aid from the central government, based on the recommendations of the finance commission on assessment of additional resource requirements for any state.

WHO IS A CHILD?

Clarity is missing even on the basic understanding of who is a child. The United Nations Convention on Rights of the Child (UNCRC) defines any individual below 18 years of age as a child. While the Juvenile Justice Act in our country considers persons below 14 years of age to be children, the RTE Act 2009 narrows the definition down to persons between six to 14 years.²⁵

charged from the child, whichever is less, in such manner as may be prescribed”

²⁴ Jha and Parvati, Right to Education Act 2009: Critical Gaps and Challenges (Economic and Political Review, Vol XLV No. 13, 2010).

²⁵ Section 2 c, RTE Act 2009: “Child means a male or female child of the age of six to fourteen years.”

Though the act expresses interest in taking necessary steps in providing free pre-school education for children above three years of age,²⁶ leaving out this critical segment of the child population from the definition is worrisome. Not only does the act fail to cover all children, it does not provide definite timelines for many provisions.

APPLICATION OF ICT IN EDUCATION

According to the European Commission, the importance of ICTs lies less in the technology itself than in its ability to create greater access to information and communication in underserved populations. Many countries around the world have established organizations for the promotion of ICTs, because it is feared that unless less technologically advanced areas have a chance to catch up, the increasing technological advances in developed nations will only serve to exacerbate the already-existing economic gap between technological "have" and "have not" areas. Internationally, the United Nations actively promotes ICTs for Development (ICT4D) as a means of bridging the digital divide.

Cecchini & Scott (2003) have underlined that the use of ICT applications can enhance poor people's opportunities by improving their access to markets, health, and education. Furthermore, ICT can empower the poor by expanding the use of government services, and reduce risks by widening access to microfinance. Realizing the poverty-reducing potential of ICT is not guaranteed. It requires attentive public policy formulation and careful project design. Insufficient information and communication infrastructure, high access costs, and illiteracy have bestowed the benefits of ICT on the better off, urban segments of the population to the detriment of the poor and rural areas.²⁷

The effectiveness of ICT for reaching out to rural masses and delivery of relevant content including education has been recognized by India long back. In fact, India was amongst the first few countries to explore the use of Satcom for carrying education and

²⁶ Section 11, RTE Act 2009 states that: “With a view to prepare children above the age of three years for elementary education and to provide early childhood care and education for all children until they complete the age of six years, the appropriate government may make necessary arrangement for providing free pre-school education for such children.”

²⁷ Cecchini & Scott (eds.), Can Information and Communications Technology Applications Contribute to Poverty Reduction? Lessons from Rural India. Information Technology for Development, (IOS Press Amsterdam, The Netherlands, 2003).

development- oriented information and services to the rural masses. The applications started with satellite TV broadcasting to schools and rural communities in the mid-seventies. Under the Edusat utilization program two types of satellite-based VSAT networks i.e., interactive networks consisting of Satellite Interactive Terminals (SITs) and receive-only networks using Receive-Only-Terminals – are being set up in various states across the country for promoting universal education. Generally, interactive networks are set up for imparting teacher's training and curriculum-based teaching to students of the arts and science colleges, polytechnics, and management and professional institutes. Similarly, the receive-only networks are being used for imparting curriculum-based education to primary and secondary schools students. To provide these space-based services directly to the rural areas, ISRO has initiated a program to set up Village Resource Centres (VRCs) in association with NGOs and trusts and state and central agencies concerned. VRCs are envisaged as single window delivery mechanism for a variety of space based products and services, such as tele-education; telemedicine; information on natural resources for planning and development at local level; interactive advisories on agriculture, fisheries, land and water resources management, livestock management, etc.; interactive vocational training towards alternative livelihood; e-governance; weather information, etc. VRCs also address a variety of social aspects locally, and can act as help lines (Bhaskaranarayana, Bhatia, Bandyopadhyay & Jain, 2007).²⁸

The formal inclusion of ICT in education commenced in centrally sponsored Scheme "Information and Communication Technology in School" which was launched in December 2004. The Scheme was meant to be a major catalyst to bridge the digital divide amongst students of various socio economic and other geographical barriers.

The broad objectives of the scheme are²⁹ (a) To ensure the availability of quality content on-line and through access devices. (b) Enrichment of existing curriculum and pedagogy by employing ICT tools for teaching and learning. (c) To enable students to acquire skills needed for the Digital world for higher studies and gainful employment. (d) To provide an effective learning environment for children with special needs through ICT tools. (e) Promote critical

thinking and analytical skills by developing self-learning. This shall transform the classroom environment from teacher-centric to student-centric learning. (f) To promote the use of ICT tools in distance education including the employment of audio-visual medium and satellite-based devices.

Datta & Mitra (2010) studied the utilization of technology in education. They reported that national education, especially at the primary and secondary levels, has also failed to adapt the benefits of diverse technologies that are available today for the cause of education.³⁰

RESULTS AND DISCUSSIONS

(a) The Government of India provides funding for the state owned telecom companies to provide services in rural areas which otherwise is financially not viable. (b) The call charges (both local and STD) are one of the lowest in the world which makes mobile calls affordable for the rural populace. (c) The telecommunication sector in India has been witnessing highest growth rates in the world and the trend continues. In fact many mobile handsets have facility for solar charging which augers well for remote areas where electricity supply is erratic. (d) The Government of India has launched many toll free numbers for providing on demand information to the masses through help centres. (e) The literacy rate has been increasing over a period of time with corresponding reduction in the poverty levels.³¹

RECOMMENDATIONS

In the light of aforementioned discussions we recommend the following measures for ensuring achievement of universal elementary education by effective use of ICT: (a) We need to integrate the formal and informal education systems so that a student can switch between them seamlessly at any time, if necessitated due to his/her social/economic compulsions. The teachers appointed under the RTE Act could form the pool of resources at remote locations for providing education on demand using ICT tools. (b) Once a student completes his elementary education, he should be encouraged to study further. This could be achieved by providing him with the opportunity through open/distance learning environments. The institute similar to National Institute of Open Schooling should be

²⁸ Bhaskaranarayana, Bhatia, et al (eds.), Applications of Space Communication. Current Science, 93(12) (Indian Academy Of Sciences, Bangalore, 2007)

²⁹ <http://www.indg.in> (Visited on October 2nd 2013)

³⁰ [http://www.cks.in/html/cks_pdfs/M-LearningMobile-enabled Educational Technology.pdf](http://www.cks.in/html/cks_pdfs/M-LearningMobile-enabled_EducationalTechnology.pdf). (Visited on October 2nd 2013)

³¹ Comparison of Literacy Rates in India since Independence (Source: <http://www.censusindia.gov.in/> ((Visited on October 2nd 2013))

opened in each state/UT. The education could be imparted through EIS utilizing VSC/CSC. We need to strengthen these institutions of open/distance learning and improve the quality of education imparted through them. (c) The need for education of the parents needs no emphasis. Imparting lessons on basic education and financial management to the people of weaker sections (through adult literacy centres in the form of evening classes/EIS) would go a long way in their upliftment. (d) Gram Panchayats and NGOs can be used for influencing people in enhancing GER and in reducing drop-out rates. In addition, we could enlist support of industry. We could encourage the corporate houses to adopt divisions/villages for overall upliftment including achievement of 100% literacy. The expenditure incurred towards the welfare could be reported towards CSR. Similarly, leading and reputed private schools could be encouraged to patronize the EIS of a district/village. (e) The shortage of qualified teachers is a major constraint in remote areas. The problem could be solved by two pronged approach. Firstly, services of retired teachers can be taken to ride over the immediate crisis. Secondly, rural stint may be made mandatory for government teachers. The teachers could be encouraged to take up postings in rural remote areas by improving their working conditions and suitably compensating them. (f) It should be made mandatory for the District Education Officer to carry out survey of population in his / her jurisdiction about the effectiveness of various educational programmes and report the results to state education department and National Literacy Mission. The help of Gram Panchayats should be enlisted for the smooth conduct of survey. These surveys could form the basis for fine-tuning of the education delivery system. (g) The reduction of digital divide and diffusion of ICT technology to the downtrodden and remote masses is precursor to universalisation of the education. A right step in this direction is the development of Sakshat (Sanskrit: "Embodiment") tablet PC for bridging the digital divide between the rich and the poor. The Rs.1,500/- (\$30) Tablet PC is currently not available for sale in the market as government has decided to launch it for students in 2011. The device has been developed as part of the National Mission on Education through Information and Communication Technology that aims to link 25,000 colleges and 504 universities on the subcontinent in an e-learning program via an existing Sakshat portal.³²

CONCLUSION

Almost after 100 years, finally the much wanted dream is in our hands; all we need is its sincere application for the benefit of the mass. United Kingdom introduced free and compulsory education in the year 1870. No doubt, India has dithered and lagged behind in introducing such legislation, with grave consequences.

The proposal of right to education has majorly evolved from the old days, "approach-courts-for your rights method". Nevertheless, now Government is more concerned about the social overhead capital development. But once again, many social evils such as corruption, red-tapism and bribery cause a huge loss to the exchequer annually. As economist views stock market to know country's economic development, it imperative to look for the dropout-rates and higher education enrolment list for country's social development. Drop-out rates have been a serious matter of concern for every veteran personality involved in this field of education. In this scenario, there is no particular need to stress more and more upon the importance of giving free education. A worthy and quality educational culture needs to be setup. That 'Culture' should motivate masses to actually understand the significance of education and know their rights. It is no wonder that a majority of the excluded and non-achievers come from the most deprived sections of society -- Dalits, Other Backward Classes, tribals, women, Muslims and financially backward – precisely those who are supposed to be empowered through education. The reasons for the same are better untold as it is not hidden from anyone.

Concluding, India is a vast country, developing at a fast pace. It has many issues to address along its journey to all inclusive growth. For education knows no boundaries, it is our collective duty to ensure that the benefit of RTE reaches the poorest of the poor living in remote areas by breaking the boundaries of cast, religion and access. We need to address the issue of poverty and stark digital divide before the benefits of ICT could be reaped for dissemination of knowledge. We should direct our efforts towards bringing education and schools at the doorstep of the needy children rather pushing them to schools. Ensuring of 100% literacy of over one billion population is though thorny and arduous but not something impossible to achieve. At the end, all we need is an un-ending trust, sincerity, and commitment and right policy measures.

³² <http://sakshatablet.org> (Visited on October 2nd 2013)

