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PROLIFERATION OF E-EDUCATION, E-HEALTH, E-WASTE MANAGEMENT IN INDIA

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Abstract--- E-Education refers to the application of Internet technology to the delivery of learning experiences'-education takes place in formal electronic classrooms, on corporate intranets used for just-in-time training, audio and video teleconferencing and in a variety of other technology mediated learning spaces. E-Health can make a world of difference in India, where mobile technologies have been penetrating at rapid rate. E-waste is a popular, informal name for electronic products nearing the end of their useful life. E-wastes are considered dangerous, as certain components of some electronic products contain materials that are hazardous, depending on their condition and density. Many of these products can be reused, refurbished, or recycled in an environmentally sound manner so that they are less harmful to the ecosystem. This paper deals with the proliferation of these technologies E-education, health & waste management within India.

I. INTRODUCTION

E-education is not entirely new concepts but has grown as the WWW has developed in each country. E-educationist taking roots for Indian students as well. But first, it is important to understand exactly what we mean by e-education and quite simply it is education and training delivered and accessed via the Internet. One of the major advantages of e-education is that one can access the best education in the world direct from the persons who wrote the courses for online study. The courses may range from technical, medical, academic to general interest subjects and the levels can be from beginner to higher advances. With over 800 courses to choose from, the individual should find the right course and level without difficulty. In the 21st Century, students may stay at home and take distance education (synchronous and asynchronous) in their homes across the world. Geographic comparative advantage will shrink and shrink and shrink. More importantly, excellent students who could not be accepted as onsite students in prestige universities (due to lack of financing and constraints as to how many can fit into onsite classrooms) face new opportunities to get a prestige degree in their own homes. The three ways in which technology aid the process of education and learning are, Accesses to information - Thousand of pages of information are available on almost every topic on the World Wide Web, Computing power - A range of simulations and personalized tools can be created to aid the learning process of students, Connectivity – Connectivity to experts and peers around the globe, helping the student in problem solving and building exposure and perspective. India is a vast country of 1.4 billion populations occupying an area of 3,287,268sq. Km. It consists of 29 states and 6 Union Territories governed by a federal system. It has been observed that there is a great deal of disparity in quality and access to healthcare between urban and rural regions**. E-health** is a relatively recent term for healthcare practice which is supported by electronic processes and communication. Definition published by e Health researcher Gunther Eysenbach in the article what is e-health? is among the most frequently cited and reads: "e health is an emerging field in the intersection of medical informatics, public health and business, referring to health services and information delivered or enhanced through the Internet and related technologies."India's health care system can be classified into three tiers: Primary level: This includes Primary Healthcare Centres (PHCs) and sub centres at the village level equipped with a practitioner and facilities to provide first-aid or basic medical checkups. However, many centres lack qualified practitioners, adequate medical supplies, speciality solutions, medical beds, or connectivity. Secondary level: This includes district level hospitals, small private clinics, nursing homes with some equipment and facilities limited to providing basic medical diagnosis. Also included are Community Health Centres (CHCs)—30 bed hospitals, one in each community development block, having basic specialties and equipment, providing medical cover geto approximately 100,000 patients. All of these lack speciality treatment facilities, high-end medical equipment, and an adequate number of beds. Tertiary level: This includes medical colleges, big private chains of hospitals and corporate hospitals situated in large urban areas. Facilities include high-end medical equipment, well-qualified medical staff, etc. These institutions, however, service a small segment of the country's vast population. Currently, India has several health care policies such as the Central Government Health Scheme (CGHS) and the Employee's State Insurance Scheme which provide limited social security health plans for its citizens.

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There are public-private partnership health insurance plans, including Aarogyasriin Andhra Pradesh, and Chiranjivi in Gujarat for the population below the poverty line (BPL) .**E-waste** comprises waste electronics/electrical goods thatare not fit for their originally intended use or have reached their end of life. Electronics products like computers and cell phones contain a lot of different toxins. For example, cathode ray tubes (CRTs) of computer monitors contain heavy metals such as lead, barium and cadmium, which can be very harmful health if they enter the water system. These material scan cause damage to the human nervous and respiratory systems. Flame-retardant plastics, used in electronics casings, release particles that can damage human endocrine functions. These are the types of things that can happen when unprocessed wastes put directly in landfill. The Basel Action Network (BAN) which works for prevention of globalisationoftoxicchemicalshasStatedinareportthat50to80percentofe-wasteCollectedbytheUSisexportedtoIndia,China, Pakistan,Taiwan and a number of African countries. This is done because cheaper labour is available for recycling in these countries. And in the US, export of e-waste is legal. E-waste recycling and disposal in China, India and Pakistan are highly polluting. Of late, China has banned import of e-waste. Export of e-waste by the US is seen as lack of responsibility on the part of Federal Government, electronics industry, consumers, recyclers and local governments towards viable and sustainable options for disposal of e-waste. In India, recycling of e-waste is almost entirely left to the informal sector, which does not have adequate means to handle either the increasing quantitiesor certain processes, leading to intolerable risk for human health and the environment.

II. PROLIFERATION OF E-EDUCATION

The education system in India has largest networks of institutions. More than 1 million schools and 18,000 higher education institutions are spreading its knowledge in service of the country. Half of the population of country is augmenting the target market for education and related services. 12.5 million Users are adding each year in Internet. Internet accelerates online education that is why with the revolution in information & technology, E-education is overtaking conventional education system. E-Learning has revolutionized the educational sector. It has changed our perspective and it meant for knowledge and skill acquisition altogether. Today, digitalized system has made it more impressive and more effective for millions of learners. Millions of students and office workers are using e-Learning to earn their degree, build upon their knowledge base and develop new skills. Now the highly uneven distribution of education between urban and rural India, and between private and government institutions does not make it very tough for rural students to find admission to good universities. In this way, E- Learning through distance programs/ online programs avails for better education and career enrichment services at higher level. The concept of Meta University where students can pursue their course in three State-run universities and benefit from their expertise and infrastructure simultaneously and the planning of HRD Ministry towards taking active steps to incorporate firmly e-learning within the mainstream educational system, assures for academic advancement .MHRD Ministry is also determined of operationalize Council of Industry-Higher Education Collaboration(CIHEC) to identify initiatives to promote research, mobilize resources, develop market-ready manpower and enhance employability. According to the University Grants Commission, NewDelhi, total enrolment in Science, Medicine, and Agriculture and Engineering crossed 6.5 Million in 2010. The number of women choosing engineering has more than doubled in last one decade. The Open Institutions like IGNOU are contributing to maintain the range of higher education system within and outside the country. A per Ambient Insight report- July 2011, India has the highest projected growth rate (about 57%), followed by China and Malaysia in the worldwide market for self-pacede-learning products and services. The growth rate in the combined Asia region is robust at 28.4%. Total enrolment in higher education in India has been estimated to be 28.56million with 15.87 million boys and 12.69 million girls. Girls constitute 44.4% of the total enrolment. Distance enrolment constitutes 12.5% of the total enrolment in higher education, of which 39.9% are female students. These figures are really propelling and encourage us to expand the web of E-learning in country. The enrolments of students have been growing much faster in last few years in new emerging disciplines such as Management and IT &Computers. Also other traditional disciplines and subjects have shown growth by incorporation online - education in higher education.

III.PROLIFERATION OF E-HEALTH

A. BOOMING MOBILE TECHNOLOGIES

E-Health can broadly be defined as the use of Information and Communication Technology (ICT)in health. It can make a world of difference in India, where mobile technologies have been penetrating at rapid rate. India has a strong presence in IT, whose contribution is approximately 8 percent to the GDP1.

B. NUMEROUS START-UPS

Information Technology has been making strong inroads into the health sector in India over the last decade and the advent of start ups in last three to four years has created an interesting by the market. The Indian market consists of roughly150 companies in health-tech space, with over 60percent of health-tech focused start-ups incorporated since 2010.

C. MARKET SEGMENTATION AND KEY PLAYERS

While administration and management solutions generate almost half of the demand within health-tech companies; mobile health apps, platforms and genomics are emerging as promising areas.

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According to a recent report by Health Information Management Systems Society44 million health care apps were downloaded in 2014 and it is expected that a total of142 million healthcare apps will be downloaded in 2016.E-Health, as defined by the United Nations Foundation, is "using information and communication technology (ICT)—such as computers, mobile phones, and satellite communications—for health services and information." E Health can be understood as a term for collectively describing the use of electronic information and communication technologies in the health care sector. Vijay K. Thadani, Chief Executive Officer, NIIT Limited, described eHealth as "a confluence of multiple technologies on one hand and medicine on the other." eHealth refers to technologies used across the value chain in the health care industry from clinical trials to educational, research, and administrative purposes, both at the local site and across geographies or regions. It has the potential to improve efficiency in health care delivery, extend health care to rural areas, provide better quality of health care at a lower cost, enhance the use of evidence-based medicine, emphasize preventive health care, empower patients and consumers, and support relationships between patients and health professionals.

E-HEALTH INFRASTRUCTURE

For health care to reach the masses, and to support the growing demand for health care services in India, health's infrastructure needs to undergo drastic changes. The government has taken some initiatives aimed at providing affordable, quality health care services by setting up Primary Health Centres (PHC) all over the country. However, the communication systems at these PHCs are not reliable, and the Internet speed (33.6 kbps) at which these Primary Healthcare Centres are connected to the district-or state-level hospitals is inadequate. Thus, PHCs are unable to provide instant health care solutions to patients in remote villages through basic online information exchange or the more advanced video transmission required for telemedicine. GaneshNarainSaxena, Chief Officer for Telemedicine in Rajasthan, India, added, "Medical records are not just data records. It is much more complex. Hence, there is a need for high-speed broadband and mobility." Other participants Pointed out that is exactly why reliance should be placed on the commercial wireless infrastructure which will provide faster data speeds to far more Indians far sooner than wired Internet. Asustainable, cost-effective infrastructure for delivering m Health and eHealth to most Indians has already been built by the private sector(the wireless industry), and it is expanding rapidly. What is lacking is the information technology layers to take advantage of that transport infrastructure, along with the non-technical elements of an ecosystem for implementing eHealth throughout the country. However, the cost for this information technology such as identity management, access control, and other software applications between eHealth and m Finance, is a big concern because there are not enough funds to provide health care services to the masses. Rahul Bedi, Director-Corporate Affairs, SouthAsia, Intel Technology India, suggested that the cost could be brought down through "shared Software and infrastructure with other sectors like health, governance, etc, so combined funds would be large enough to provide [a]good level of services." Pooling resources from different government sectors to create information technology services that serve multiple verticals such as health care, education, finance, etc. will help in overcoming barriers to eHealth deployment and create a synergy between different verticals while ensuring maximum utilization of existing infrastructure.

IV. PROLIFERATION OFE-WASTE MANAGEMENT

The Ministry of Environment & Forests (MoEF) of the government of India irresponsible for environmental legislation and its control. The Central Pollution Control Board (CPCB),an autonomous body under the MoEF, plays an Important role in drafting guidelines and advising the MoEF on policy matters regarding environmental issues. Historically, in 2001 in cooperation with MoEF, the German Technology Cooperation (GTZ) began work on hazardous waste management in India through the advisory services in environmental management.

Subsequently, Swiss Federal Laboratories for Material Testing And Research (EMPA) started to implement its global programme 'Knowledge Partnerships in e-waste Recycling. 'Combining the knowledge and technical expertise of EMPA on ewaste management, coupled with the field experience of the Indo-German projects in managing hazardous waste in India, the Indo-German-Swiss waste initiative wasbornin2004.Thevisionofthisinitiativeistoestablishacleane-waste channel that is a:

1. Convenient collection and disposal system for large and small consumers to return all their e-waste safely
2. Voluntary system for modern and concerned producers to care for their product beyond its useful life
3. Financially secure system that makes environmentally and socially responsible e-waste recycling viable

The objectives of the initiative are:
1. Reduce the risks to the population and the pollution of the environment resulting from unsafe handling
2. Focus on knowledge transfer to and skills upgrade of all involved stakeholders through trainings and seminars
3. Target mainly the existing informal Recyclers allowing for their maximum But safe participation in future.

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CONCLUSION

The e-learning is emerging as the future trend of learning in India would be dominant in the times ahead. E-Learning has created new dimensions in education, both within and beyond the curriculum and is still looking at further opportunities of becoming more practical. The challenges for an efficient, sustainable eHealth system are numerous like Incentivisation, Cost Containment, Information Exchange, Adoption and Resistance, Staffing at Different Levels, valuation, Power Sharing that are to be addressed. In E-waste management the minimization of hazardous wastes should be at product design stage itself keeping in mind the factors of Rethink the product design, use of renewable materials and energy, use of non renewable materials that are safer. The roles of citizens, government and industries are also vital to manage e-waste.

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