

Changing Patterns of Education and Training from Traditional to E-education System: A study with Special Reference to the Persons with Disabilities

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Abstract

India is the second highly populated country of world; its population includes different groups and sections with diverse demographical, economic and social status. Among these sections, a person with disabilities constitutes a huge group, approximately 2.6% of the total Indian population. This section of society is considered as burden on the country being most marginalized, underprivileged and underdeveloped. It is very important for the Indian governance to bring this huge population in the main stream of economic and national development. Education and training can play a significant role in the achievement of this goal. There are certain problems and challenges in the education and training of persons with disabilities because of their unusual circumstances, situations, opportunities and resources. So these people need a different approach, style and method of training and development. There are number of traditional methods available and also as a consequence of technological advancement, some more are emerging to educate and train the persons with disabilities. Now a day, E-education technique is practiced as one of the latest and very effective method of imparting and acquiring knowledge, skills and abilities for the education and training of persons with disabilities. This study explores and discusses the current status of effectiveness of traditional and online learning or e-education in the training and development of persons with disability for their overall personal development and contribution in the national growth.

Keywords: Persons with disability, E-education and Training and Development.

Education

In the present day of frequent change in technology and advancement in the methods doing the household and organizational work, education is the only key to maintain pace with the learning and adapting with the fastest change, growth and development. Education has a significant, positive and constructive role in influencing the life of individuals and society, as well as it is responsible for overall development in different spheres of growth and progress. Educated, developed and skilled human resource is considered as owner of one of the most precious asset of a country called as human capital. An educated, skilled and developed person can explore better opportunities for himself, as well as his nation would certainly get better benefited from his works. Education does not aim on the development of community or nation only but it also helps to develop and grow the healthy human beings full of potential and possibilities. Such educated and healthy human beings can better understand the meaning and process of development of life and consequently tries to live the best life and also supports others to do manage their life. From early age to adulthood, students and youth are constantly sensitized by the teachers, trainers and educationists that the fundamental law of life is learning, understanding, developing, co-operation, and self-actualization. If people of a country are intellectually, skillfully, attitudinally and morally brought up than most of plights of present day would be at an end and life of people would be much better, nobler and richer than ever before (Sanjay Tripathi, 2014). Effective education and development

has capability to strengthen the position of even marginalized section of society, like women, backwards and persons with disabilities.

Education and National Development

Education is a fundamental and essential instrument of all-round human development, including socio-environmental, politico-cultural and economic. Present, twenty first century needs updating of knowledge on daily basis because change, advancement and innovation are the basic features of this century and these features of novelty, creativity, and innovation can be managed by vigilant and intelligent integration and blending of knowledge. Research at local, state, national and global level is need of hour. Frequent changes in the technology, environment and social-economic structure are responsible for uncertainty and complexity. To cope with the present volatile situation of change and advancement, there is need to develop analytical, critical and lateral thinking capabilities among forthcoming generations to address the need of new abilities, knowledge, skills and attitude for dealing with uncertainty and crises. Utmost important need of the time is to redesign teaching style, teaching methodology, course curriculums, text materials, learning methodology, pedagogical styles by deciding the formal and informal educational systems.

Researchers have proved that learners with different type of temperaments, learning styles, availability of time and recourses, need different type of teaching-learning methods. Some of the learners are well adjusted with the formal type of active learning, whereas others are not comfortable with this because of lack of free time and resources, so such people are better adjusted with the distance mode of learning. In present day of technological advancement, distance mode of learning is further supported by the electronic multi-media and has taken a new style of teaching-learning process (Education) which is a virtual in nature and popularly known as the E-education. To make the education system of a country most effective, there is need to exploit all the different form of teaching-learning methods, so whichever approach, i.e. formal, distance or e-education is appropriate, that should be utilized for a typical deserving section of society so that maximum people could be covered up under the continuous and persistent process of knowledge updating.

National Education Policy of India aims to enable the learners (human resource) to acquire knowledge, intellectual skills, conceptual abilities, appropriate attitudes and values necessary for the present day demand of job market and also for their overall development of personality in proportion with the communities' environmental and economic realities at regional, national and international level. There is persistent demand on the human resource development organizations to groom and develop the different sections of upcoming generations in such a way, so that they can find more appropriate solutions to the challenging problems of the

world, make new scientific inventions, adapt to the change, sustain wisdom in this age of advancement, and also who cannot be brainwashed. This creative mammoth challenge of developing appropriate human resource can be effectively managed by the comprehensive and combined effort of various forms of educational system.

Primitive Approach of Education in India

India has the oldest history of acquiring and imparting knowledge, in the prehistoric times, before the invention of writing language and printing recourses, education and knowledge imparting was possible through vocal means only. *Shruti* (listening), *Smriti* (memorization) and *pravachana* (oral speech) had been the mean to acquire, retain and share knowledge for the ancient Indian people, scholars and sagas. In the primeval times, knowledge traveled from generation to generation by using the aids of *shruti, smriti and pravachana* but later, with the invention of written language; as a permanent mean for transfer and storage of knowledge, ink; a non-lasting source to store the knowledge and trees barks/ palm leaves/ paper; as a material to write on, helped in transference, propagation and circulation of knowledge. *Rishies ashrams*, temples, and community centers had been the major centres for transfer of knowledge and later on, the *Gurukuls* system of education propagation came into existence. *Gurukuls* had been the well organized, oldest and traditional Hindu residential schools and these *Gurukuls* had either been part of teacher's (guru's) house or a monastery. Education in these ancient institutions was either free or the students from rich families, after completion of their studies, would pay the *Gurudakshina* as a voluntary donation. Being the oldest institutions of education *Gurukuls* were the most effective systems of knowledge sharing for all the fields of studies for a long time. Later on some of these *Gurukuls* got converted into *Vidhyapeeths* and universities. During the first millennium and some of the next few centuries, universities of ancient India, like: Nalanda, Ujjain, Takshashila and Vikramshila etc. were the renowned and most popular institutions of global level for higher education, where students from different section of society and geographical locations had been taking their education.

Modern Approach of Education in India

In the modern India, education is one of the most organized sectors and it is financed, managed and provided at all the three levels, i.e. national, state and local, by the joint contribution of public and private sector. The ratio of public schools to private schools in India is 7:5 (Barlow, J. Roehrich, J.K. and Wright, S. 2010). Indian Constitution under its different articles has provision for the compulsory and free education for all the children upto the age of 14 years as a basic right. Percentage of literacy and educated people has increased appreciably and resultantly, country has made tremendous growth at all the three levels of primary, secondary and higher education. Enrolment in higher education has increased gradually and reached to the Gross Enrolment of 24% in 2013, but still there is huge gap to fill up with tertiary education enrolment levels of developed nations.

Filling up of this gulf is really a challenge that should necessarily be addressed to continue to gather the demographic share from India's comparatively young population. India's growing and developing education system has become one of the key contributors to its economic development (PTI 2008). Growth and development in higher education has remarkably contributed to the expansion of research and development in all the fields of core sciences, technology, social sciences, medical sciences, agriculture and other disciplines. Even after the joint effort of different sectors and this much of development, there are certain sections of society, like; persons with disability, poor, women and other weaker section, whose educational needs are not being addressed properly.

Systems of Education in India

To develop a comprehensive and well woven network of educational institutions and systems of education, India has adopted a mixed approach for developing the systems of educating people. By identifying the possibilities and limitations of Indian people, state has created different system of education to cater to the needs of people. Some of such systems of education are discussed hereunder:

Formal Education

Formal education can be imparted in a structured environment within classrooms of several students learning collectively from a trained, certified teacher of the subject. Basic purpose of formal education is teaching students on the terms and conditions of the teacher. Generally, formal education takes place in a predesigned institutional environment with an already decided curriculum, teacher-learner interactions, methods of assessment, class size, educational activities etc.

Informal Education

Informal education is also a process of imparting and acquiring knowledge, this type of educational process is possible anywhere and in any situation; such as at home, workplace, during interactions with people, through observations and also in sharing relationships with members of society. Type of knowledge imparting under informal education system can includes; language acquisitions, cultural development, confirmation to the norms and manners of the community and observing traditions and rituals. This type of learning is an ongoing process and it can occur anywhere at any place without use and finalization of pedagogical issues and necessarily it takes place out of the designated educational institution.

Self- learning

Self-learning is a thoughtful knowledge acquiring process in which individual learns without taking help from

anyone, especially from a teacher or trainer. In his/ her life everyone necessarily involves in the process of self-learning as an autodidact. For effective self learning, autodidact needs to spend a great deal of time managing, reviewing the resources of learning like books, libraries and other educational resources websites. There are number of successful people in the history who have developed as a self-learner. Some of such autodidacts are Srinivasa Ramanujan, Charles Darwin, Michael Faraday and Leonardo da Vinci.

Distance Education

Distance education is a style of self-learning in which knowledge is not imparted to the learner (students/ candidates) in the specified classroom. Distance education imparting institutes are considered as the virtual organizations, because students learning through this mode stay away from such organizations. Distance education system helps its students to acquire knowledge, skill or conceptual ability by providing relevant books, study material, skill based trainings and also through personal contact programmes (PCP). Personal contact programmes are attended by the students after properly studying the study material already supplied to them. These PCP gives opportunity to students to interact with the subject specialists or expert trainers for the solution of their problems which they might have encountered while studying the study material. Now a day, study programmes offered through distance mode are designed and developed by hybridization and blending of different teaching-learning methods, teaching-aids, multi-media and education models. As a result, different types of online courses with lot of virtual interactive participation have come into existence. The online courses are recent development in the distance education and these courses can be accessed through internet (www.) or other network systems. E-education, online learning, distributed learning, and e-learning etc. are some of the terms which are used as synonym for E-education.

Blending of Electronic Technology in Distance Education

According to a study, blending of electronic technology in education system has caused a tremendous growth of fourteen times in the rate of traditional learning (Knewton.com 2012). When compared with other system of education, distance education through electronic mode has become the fastest growing media of education and it is dominating rest of all other form of education systems (Lohr, Steve 2009). Since, e-education is in its early stage of development, whereas traditional education system is fully developed, so in some of the cases, expenditure on online courses comes out to be higher than that of campus based courses (Parry, M. 2010). From the primitive times itself, cost of education has been an issue and challenge, specifically for the governing and political systems of all the underdeveloped, developing and developed countries. To face this challenge, many of the large universities and institutions of world are now planning to offer cheapest or almost free online courses. Despite of lot of development, suitability, easy availability and effectiveness, many people may still

want to go for campus style of regular education (Harriet Swain 2012).

Majority of E-education offering institutions/ organizations provide their own form of degrees and diplomas certificates which are not considered at par (by the government, corporate and other job providing agencies) with the certificates awarded for similar courses by the universities/ institutions for their campus based regular courses. But degree and diploma certificates of some of the renowned institutions have started getting popularity as a result of value inculcation in their E-education system (Cloete, Elsabe Â, 2015). And slowly a listening has started emerging in the favour of online distance learning (E-education).

Challenges and Barriers of the Traditional Education System

Traditional systems and methods of education and training have number of challenges and problems to address the educational needs of the persons with disabilities. These barriers may be physical, technological, systemic, financial, or attitudinal. Some of such barriers are discussed below:

Inadequate funding: Lack of funds is one of the most challenging problem providing and acquiring education by the students with disability. There are several heads, like; equipments, aides, therapy, course fee and personal attendants etc. under which funding is required to provide the full range of services needed by the persons with disability. Shortage of financial resources at personal, institutional and national level is also a prime reasons for delayed or denied education to the persons with disability.

Physical Inaccessibility: Even after lot of emphasis by the UNO, UNICEF and other international and National bodies to make the educational environment physical barrier free but still there are physical barriers which are causing challenges in the education acquisition of persons with disability.

Attitudinal Problems from Non-disabled Students and Institutional Staff: Being students, persons with disabilities are still facing discrimination, teasing, social isolation, bullying and/ or harassment from non-disabled students.

Lack of Disabled Friendly Academic Programmes

Persons with disabilities do not have much disabled friendly educational programme options, there is need for a mix and variety of educational services and academic study programmes. Lack of information about procedure of application is also a major challenge.

Insufficiency of Trained Support Staff

There is severe shortage of specially trained teachers to meet the educational need of the people with disabilities.

Shortage of Appropriate Prosthetics and Orthotics Equipments and Technology

Providing and obtaining the appropriate equipment manufactured with latest technology is another challenge in acquiring education by the students with disabilities.

Curriculum Design and Post-qualification Employment

Although, lot of work has been and is being done to develop and design the appropriate educational curriculum for different type and age groups of disabled people by identifying their capacities and abilities, but still it is not addressing the need of all of them.

Insufficiency of Resources and Machinery to Diagnose and Recognize the Disabled

Availability of resources and machinery to diagnose and recognize the disabled is also a major challenge in declaring a disabled person as disabled and consequently there is problem in providing the support meant for such people. Disability denial or minimization/ maximization of the degree of disability, on the part of individual, parents or family, is also a factor affecting the education of the persons with disabilities.

Transportation Barriers

Persons with disability may have mobility limitations as result of physical or medical problems which forces them to use the public transport system which is further a problem for them. Situation becomes more difficult when the school or vocational institutions are far from the place where they live.

As a result of above discussed barriers, all the conventional and traditional systems of education and training have partial success in addressing the educational needs of the persons with disability. So to develop a complete and comprehensive model for the effective teaching and learning e-education system is discussed hereunder:

E-education

E-learning which is considered as synonym to E-education came into existence in one of the seminar of computer based technology in the year 1999. After this, some more terms like “online learning” and “virtual learning” etc. started replacing the concept of e-education, however, e-learning remained the exact terminology for this purpose and this can be verified by the evidence available in the history. Otherwise, early forms of distance learning are existing in the history since 19th century. Before the invention of internet, teaching-

learning through distance education was possible only by providing study material, skills training and problem solving through personal contact programmes. Invention of electronic technology supportive to online learning gave birth to the system of E-education. For E-education, presence of learner and teacher in classroom is not necessary, whereas multimedia is considered as back bone of the E-education. In the system of e-education teaching-learning can be executed with the help of multimedia which includes the computer technology and internet or other type of network system can be executed effectively. Both the teachers and learners may be sitting at any length of distance and at any number of places on the same or different times, process of e-education can be accomplished effectively through virtual relationship (Sodagar, H., Afrasyabi, R., & Asgarzade, H. 2013).

Because of all over the world easy availability of computers and internet technology, e-education solutions for all type of general, medical, technical and other study programmes can be made available for anyone and everywhere. As a result of easy accessibility to computer and internet technology, lots of reasonably priced e-learning solutions are available everywhere. It needs nothing, only a good e-learning tool, for providing e-education from virtually anywhere to anyone if computer and internet facility is available. Technological advancement in e-education has completely bridged the gulf of geographical distance, suitability of time and non-availability of face-to-face interaction among teacher and taught and consequently teaching-learning process has become very easy for all. E-education has utilized the multimedia tools in such a nice manner that one can feel as if s/he is inside the classroom at all the places and time. E-education programmes shares the study material, skills training and problem solving techniques in different styles and formats like; videos, presentation, documents, webinars (live online classes) chat and messages etc. There could be variety of e-education systems and methods, which are popularly known as the Learning Management Systems, by using which study materials and skills for different E- education based online courses can be delivered. With the frequent advancement in the technology of E-education, various e-learning solutions have become learner friendly with respect to affordability, lifestyles, time availability, qualifications and geographical location. Use of smart-phones, text messaging, internet on mobile phone, message boards, social media and various other means of online communication has become an additional tool for the effectiveness of e-education.

E-education and Learning Effectiveness

One of the burning question in the field of e-education is “whether the learner of e-education system can actually learns or not. Last one decade has proved with evidence that we can actually learn from e-learning. As we know that for effective learning, individuals respond to different teaching methods like visual, auditory and kinesthetic. E-education is such a tool of teaching-learning system that it can address the need of all type of

learners. Use of different types of study material and style of teaching in e-education and also presentation of learning contents through audiovisual mode makes the learning interactive and interesting. Lot of options are available to address the needs of each and every learner. E-Learning, when compared with the traditional learning, is much easier to access for resources, study material and other learning materials. Moreover, e-education system is designed to address the needs diverse form of learners, which is otherwise not possible in a traditional education system.

Future Prospects of E-Education

In the late 20th and following decades of 21st century, e-education solutions for various study programmes started expanding drastically and consequently, the virtual learning began to flourish, with the easy accessibility of learners to the huge reservoir of online data, information and knowledge which further increased the e-learning opportunities. In the later 90s and beginning of 21st century several institutions, organizations and schools started delivering courses through online mode of e-education system. Speedy technological advancements also supported such educational establishments in minimization of the costs of e-education. Institutions also started sharing the profit with the client students so that the system of e-education can be expended to a wider clientage. In the 2000's, corporate, business, industry and other organizations started using e-education as the mode of training for their employees. Both the fresher entrants and experienced employees started getting opportunity to sharpen their skills and work related knowledge for effectively accomplishing the job. Not only at workplace, employees were capable to access to e-education programmes at their home and other suitable places also to acquire the ability and online degrees/ diploma to enrich their work lives by expanded knowledge. Ownership of the computers, multimedia recourses and internet connectivity is on increase, so the e-learning viability and accessibility will also increase. Besides this, massive improvement in the mobile networks is leading to the increase in telecommuting, which will further pave the way for remarkable features of e-learning with possibility to access even on the road while travelling. Social media are also contributing significantly in the transformation e-education.

Efforts are being made to develop such e-education programmes, which are less expensive and more result oriented. Technologist and educationists involved in the E-learning programmes development are struggling for the years to develop, design and standardize the e-education programmes which are cost effective and measurable in respect to outcomes. The present trends of e-education market can give us an idea about the future trends of how the e-learning tools will be shaped. Micro-learning, Gamification and Personalized Learning are some of the example of future e-learning tools. Micro-learning concentrates on the development and design of by devising micro-steps of e-learning in digital media environment. These activities are included

in the daily schedule of the learner which ultimately reduces the cognitive burden on the learner. Gamification is application of game like techniques and mechanics in a non-game situation to involve users and solve problems. Personalized learning is process of developing tailor made pedagogy, curriculum and learning atmosphere to address the needs of individual learners. Personalization is a comprehensive concept than individualization or differentiation. Personalization provides the learner a certain degree of freedom to decide about what to learn, when to learn and also how to learn. Scientists, technologists and researchers are jointly working to develop an interface (in the form of neural-chip compound) for connecting the human brain with the computer machine or other human beings so that knowledge in the form of learning can be directly transferred (imparted) from the computer machine or one human brain to other human brain. By this way, all the human beings would be able to learn everything as per their needs. It can be better understood with the example of one of the scene of Bollywood movie *PK*. In the scene, when *PK* (character name in the film and Amir Khan as actual name of actor) transferred the complete Rajasthani Hindi language from the brain of a lady to his brain, just by holding the hands of that lady for a while. Similarly, in a scene of another well-known Hollywood movie "*The Matrix*," Neo the character lies down in a high-tech dentist's chair and connected himself through some electrodes to download certain type of martial arts in his brain and just after this he declares himself as master of Kung Fu.

Prerequisites of E-education

Some of very significant prerequisites of E-education, which are supportive in effective e-learning process, are as under:

- Defining the clear-cut training requirement of the e-learner in terms of knowledge, skill and conceptual development needs.
- Proper blending of asynchronous and synchronous activities to make the online training as more interactive and brainstorming type.
- Inculcation of spirit of community in the e-learning tool so that maximum interaction can result among all the online learners and teacher.
- Effective exploitation of all the study material, skill oriented activities and other Resources.

E-education in Corporate and Educational Institutions

E-education provides appropriate ample and opportunity to both the students of educational institutions and business executives of corporate to learn at any place, which have proper accessibility to a computer or mobile device and internet network connection. Individual student/ employee can learn at home, workplace, or

anywhere else by being on duty, leave or at break time. But e-learning is much more than what is mentioned above. There is a fundamental difference between the e-education of the corporate sector and educational institutions.

E-education of corporate training needs to ensure that an employee should get ample knowledge, skills and attitude to perform effectively on the job for which s/he is employed. Basic emphasis of corporate training is oriented for the transfer of knowledge, skill and attitude within affordable limits and also with measurable results. Corporate E-education should have the main characteristics of fast-paced, career-related, beneficial for organization and convergent.

Learning Management System

Learning Management System (LMS) is a process of managing online courses, delivering study materials and developing interactions and collaboration among the online learners and teachers. Learning Management System can support to manage all the functions of an online course, starting from the enrollment of candidates, distribution & acceptance of digital test assignments, keeping touch with students and teachers and also for the finalization, recording and storing of results of participant candidates. In corporate system this type of system is maintained to monitor the staff whether the course is run or not, if yes then for how many learners and long duration. Learning Management System makes the life of corporate people easier and helps the course to run with effectiveness (Abdi, J., & Khodadadi, G. 2014).

For the inclusive national development, there should be emphasis to begin focused initiatives for the welfare, development and exploitation of marginalized sections of society. Major subaltern groups of society like; poor, women, lower classes and disabled can play a key role in the national development, if these groups are developed and exploited effectively. Among these vulnerable groups, persons with disability are considered as a burden on the society, because of their inability to use the competencies and capabilities like a normal human being. But this does not mean that the handicapped people are worthless and cannot contribute to their personal and national development. If identified, evaluated and recognized appropriately, with an approach suitable for handicapped and different than normal man's approach, persons with disability will certainly be found differently abled with potential competencies and capabilities.

Demographical Status of Persons with Disabilities in India

According to Census 2011, out of total 121 Cr Indian populations, about 2.68 Cr people (approximately 2.21%) are disabled. This huge strength of persons with disability demands to strengthen the statistics about persons

with disability for framing the policies and programmes of development and also to include them in the main stream of national development. There is urgent need for the national disability statistics related to socio-demographic and functional status which is helpful in the welfare of disabled persons. Information related to functional status of persons with disability is essential for determining the social needs, like; provision of assistive technology for employment, education, broader policy and laws. The National Policy for Persons with Disabilities (2006) declares that person with disabilities is a huge and valuable human resource for the national and their personal development. Such a large number of people demands for the creation of an environment to provide equal opportunities and protection for their rights. People with disabilities are vulnerable because of the attitudinal, physical, and financial barriers. Addressing to these barriers will unlock the potential, competencies, capabilities and abilities of so many people with so much to contribute to self and the Nation. In the present situation Government of India cannot ignore millions of people with disabilities for access to the basic needs of health, rehabilitation, education, employment and development. Government of India has also to implement the number of international commitments and guidelines in respect of the welfare of the disabled persons. India is a signatory to the 'Declaration on the Full Participation and Equality of People with Disabilities in the Asia Pacific Region' (2000). India has ratified the 'UN Convention on the rights of Persons with Disabilities' (2008). India is also a signatory to the 'Biwako Millennium Framework '(2002) for action towards an inclusive, barrier free and rights based society. The 'Biwako Plus Five (2007): further efforts towards an inclusive, barrier-free and rights-based society for persons with disabilities in Asia and the Pacific' added the emphasis. The Incheon Strategy to "Make the Right Real" for Persons with Disabilities in Asia and the Pacific (2012) provides the Asian and Pacific region and the world with the first set of regionally agreed disability inclusive development Goals. The "Sustainable Development Goals (2015)," pledges for, 'leaving no one behind'. Recognizing that the dignity of the human being is fundamental, the SDGs wish to see the Goals and targets met for all nations and peoples and for all segments of society and to endeavour to reach the furthest behind first. The implementation and monitoring of these international commitments demand sound database of disabled persons.

Out of the 121 Cr population of India, 2.68 Cr persons are disabled which is 2.21% of the total population. In the total population, the male and female population are 51% and 49% respectively. Among the disabled population of 2.68 Cr, 56% (1.5 Cr) are males and 44% (1.18 Cr) are females. Majority (69%) of the disabled population resided in rural areas, 1.86 Cr disabled persons in rural areas and 0.81 Cr in urban areas. Same is the case with total population also, 69% of Indian people are from rural areas while the remaining 31% resided in urban areas. The percentage of disabled population among males and females are 2.41% and 2.01% respectively. The share of disabled persons in the total population, as well as in the male and female population

also increased during this period. The percentage of disabled to the total population increased from 2.13% in 2001 to 2.21% in 2011. In rural areas, the increase was from 2.21% in 2001 to 2.24% in 2011 whereas, in urban areas, it increased from 1.93% to 2.17% during this period. The percentage decadal change in disabled population during 2001 -2011 is 22.4, whereas for the total population, the percentage decadal change is 17.7.

Types of disability The Census 2011 revealed that, in India, 20% of the disabled persons are having disability in movement, 19% are with disability in seeing, and another 19 % are with disability in hearing. 8% has multiple disabilities. Males are more in number among the affected for all the types of disability. Among the male disabled, 22% are having disability in movement, 18% each has disability in seeing/ in hearing while 8% of them suffered from multiple disability. In the case of the female disabled, 20% each has disability in seeing / in hearing, 18% has disability in movement and 8% of them are having multiple disability. Number of disabled persons is highest (46.2 lakhs, or 17%) among age group 10-19 years. Among the disabled males, 18% are elderly (above 60 years of age) whereas 23% of female disabled are elderly. Out of the total disabled in the age group 0-19 years, 20% are having disability in hearing followed by 18% with disability in seeing. 9% has multiple disabilities. Among the disabled in the age group 20-39 years, 22% are having disability in movement and 18% has disability in hearing. 6% has multiple disabilities. Among the disabled in the age group 40-59 years, 23% are having disability in movement and 19% has disability in seeing. 5% has multiple disabilities. Among the elderly disabled persons, the disabilities in movement (25%), in seeing (25%) and hearing (12%) are prominent. 12% has multiple disabilities.

Total Male Female Educational attendance of disabled children is 61% in the age group of 5-19 years. Among the disabled children aged 5-19 years who were attending educational institutions, 57% are male children. The rate of school attendance of disabled children (5-19 years) is higher in urban areas (65%) compared to rural areas (60%). Among all the female disabled children (5-19 years), 60% are attending institutions, while among the male disabled children the 62% are attending educational institutions.

Out of the total households disabled persons, about 99.34% households are normal households, 0.42% is institutional and 0.24% is houseless households. According to Census 2011, out of the total disabled population, nearly 55% (1.46 Cr.) are literates. Out of the male disabled population, 62% are literates and among the female disabled 45% are literates. In the rural areas, 49% of the disabled are literates while in urban areas, the percentage of literates among disabled population is 67%. The Census 2011 showed that, at all India level, among the total disabled persons, 45% are illiterates. 13% of the disabled population has matric/secondary education but are not graduates and 5% are graduates and above. Nearly 8.5% among the disabled literates are graduates. Among the male disabled persons, 38% are illiterates. 16% of the disabled male

population has matric/ secondary education but are not graduates and 6% are graduates and above. About 9% among the male disabled literates are graduates. Among the female disabled persons, 55% are illiterates. 9% of the disabled female population has matric/ secondary education but are not graduates and 3% are graduates and above. About 7.7% among the female disabled literates, are graduates. Illiteracy is high among female disabled in rural areas. The educational level of disabled persons is better in urban areas compared to rural areas, both for males and females. In urban areas, 67% of the total disabled persons are literate vis –a –vis 49% in rural areas. In urban areas 20% has matric/ secondary level education but below graduate and 10% are graduate and above, while in rural areas, the corresponding figures are 10% and 2% respectively. In urban areas, among the disabled who are literates, 15% of them are graduates, while in rural areas only 5% of them are graduates.

Employment status of disabled population for the empowerment of disabled population, the attainment of education and participation in economic activity are extremely important. The work status of disabled persons, by sex, by residence and by type of disability and the attributes of disabled non-workers is important to discuss to understand their participation in the national economic activities. The Census 2011 highlighted that, nearly one third of the total disabled persons are working. At all India level, 36% of the total disabled persons are workers. Among the male disabled persons, 47% are working and among female disabled, only 23% are working. In rural India, 25% of the female disabled are working, while in urban India, the corresponding figure is 16%. Among the disabled persons who were workers, 31% were agricultural labourers. One in every 25 disabled children in the age group 0-14 years is working, while 50% of the disabled population in the age group 15 -59 years is working. As per Census 2011, there are 1.7 Cr. disabled non –workers, among them 46% were males and 54% females. Among the total disabled non –workers, about 46% are in the age group 15 -59 years, 31% in the age group 0-14 years and 23% are 60+ years. Among the male disabled non – workers, 42% belonged to the age group 15-59 years, while 49% of the female disabled non-workers belonged to this age group. While the share of disabled non –workers are higher in 0-14 age group compared to 60+ years age group, for both male and female disabled non –workers, for females the difference is less. One in every two disabled non-workers is dependent on their respective families. Among the male disabled non –workers, nearly 33% are students, while the same among the corresponding category of females is 22%.

Among the disabled non –workers with disability in seeing, 42.7% are dependents and 28% are students; among those with disability in hearing 38.7% are dependents and 32.5% are students. In the case of disabled non –workers, with disability in speech, 33.5% are dependents while 37.2% are students, while among those with disability in movement 49.8% are dependents and 19.7% are students. Among disabled non-workers with mental retardation, 57.7% are dependents and 24.5% are students while those among the disabled with mental illness 66.6% are dependents and 9.3% are students. For persons with multiple disabilities in this category,

65.9% are dependents and 15% are students. According to Census 2011, 46.87% of the total disabled persons are currently married, whereas 41.72% are never married and 10.29% of them are widowed. Among the total disabled persons in the age group 15+ years, 59% are currently married and 13% are widowed. Among the male disabled, 62% are currently married and 6% are widowed while for female disabled, the corresponding figures are 54% and 13% respectively.

E-education as Intervention for disabled Persons

The social model of disability argues that disability is located in social practice rather than an individual body. A person may have a particular impairment, but it is the impact of decisions made by society that causes it to be a disability (Oliver 1996; Finkelstein 1980). A person who uses a wheelchair may have a specific mobility impairment, but it is the lack of wheelchair ramps on a university campus that causes disability. However impairment may encounter significant disabling environments in the analogue world, such as for a wheelchair user, may have less impact when using the internet. Other impairments such as print impairments related to vision, cognition, and manual dexterity and, increasingly, with the use of video and audio through the internet, people with hearing impairments may find different online environments can be significantly disabling (Ellis & Kent 2011; Goggin & Newell 2003).

E-education for Persons with Learning Disabilities

Disabled may be classified in different categories on the basis of medical impairment, mental illness, mobility impairment, hearing impairment, learning disability, vision impairment, acquired brain impairment, and intellectual disabilities. Academic and professional development of disabled people has been a great challenge in the past but as a result of technological advancement, especially with the advent of eLearning, these problems have been addressed effectively. Physical, mental, and other disabilities can no longer hamper the academic and professional performance of persons with disabilities. Disabled students studying through e-learning mode find learning more easy, useful, fulfilling and interesting. Taking admission in the conventional educational institution has always been a great difficulty for the disabled persons. To overcome this problem many of the colleges and universities have already started running various academic programmes through e-education mode. Virtual campuses are evolving and developing rapidly to enroll maximum number of disabled and normal persons. Technological advancement is also playing a pivotal role in identifying, designing, developing and providing the perfect tailor designed learning solutions to the disabled people. Present day students have lot of freedom to choose their convenient location for schoolwork and study. This freedom of choice helps disabled students to study in the environment which gives them ample time to complete assignments as well as allow them to rest, sit and walk as per their convenience and suitability. E-learning has

given lot of benefits to different type of disabled students some of such benefits to different type of persons with disabilities are discussed hereunder.

With the effective use of different IT systems and soft-wares, disabled students, who have dyslexia or visual stimulus processing disorders; can review materials and watch videos lectures as many times as they need. Different information can also be manipulated by changing their font style or size which help them in processing the information effectively.

E-education for Persons with Physical Disabilities

The basic benefit for the physically-disabled students is that they can stay in their comfort zone without involving in the hassles of rushing to a campus or running between classes to classes. There are integrated technologies for the students who cannot type such as voice-to-text and voice-activated programs.

E-education for Persons with Visual Impairments

Traveling and reaching to the institutional campus is difficult for the visually impaired students in comparison to access their computer to attend the lecture through virtual classes. Latest adaptive electronic and computer technologies like braille keyboards or voice-to-text software and audio recordings are becoming very helpful in teaching and learning process.

E-education for Persons with Hearing Impairments

Modern digital technology has made the life and learning process very easy for the students with hearing impairment. E-learning can help the hearing impaired students to view the video lectures with subtitles, which otherwise is not possible in the traditional schools.

E-education for Persons with Psychiatric Disabilities

Disabled students with mental disorders can study as per their convenience which will help them to better learn through eLearning in comparison to the traditional system of learning.

The major advantage through e-learning is better convince and flexibility. E-learning gives opportunity to the disabled learner for convenient access with better flexibility than traditional schooling methods.

In the e-learning method, hassle of traveling by the disabled students is not there because classroom is available at home. Disabled students can set up the classroom at home as per their personal choices. E-learning study programmes involves interactive study materials like visuals, graphics, and closed-captioned videos. These

programs and studies do not disclose the identity specially about the disability of a person. In this method all the learners work together towards a common goal of learning and pursuing careers in different fields.

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