

**Workshop on
Information Literacy Competency Development
for Library & Information Science Professionals and Special Educators
(Southern-States)**

6-10, Nov., 2006
Chennai, India

Organised by
Society for the Advancement of Library & Information Science
(SALIS)
Madras School of Social Work (MSSW)
and
UNESCO

**Workshop Proceedings
and
Workshop Report**

Compiled By
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Table of Contents

About the workshop	-	Workshop Conveners
Keynote Address	-	Dr. M.N.G.Mani
Special Address	-	Mr. Anup Kumar Das
Advances in Education and Role of Technology in Serving Persons with Disabilities and Improving their Life Skills	-	Dr. M.N.G.Mani
Reaching the Unreached through the Information Literacy Programmes	-	Dr. Rajyalakshmi & Ms. Chitra Rekha Kuffalikal
Assistive Technologies for the Disabled	-	Dr. J.Vijayalakshmi
Role of Information Literacy for Excellence: An Overview	-	Dr. Harish Chandra
ICT Literacy/Skills, Overview of ICT Technologies, Internet and WWW	-	Mr. S.Raja Samuel
Information Literacy – Learning Assessment	-	Dr. Doreen Gnanam
Information Literacy Competency Standards, Performance Indicators and UNESCO/IFLA School/ Public Library Manifesto	-	Dr. Ramesh Babu
Right to Information Act	-	Ms. Sriharini Narayan
Development of Information Literacy Programs For The Disabled at School and Vocational Institutions & Case Studies of Library & Information Services For Disabled People	-	Mr. S.Swaminathan
Information Literacy Models- Big Six Model, Empowering 8 Problem Solving Model, SCONUL Seven Pillars Model	-	Dr. Devika P.Madalli
Annexure I: Web Accessibility		Mr. Tamru E. Belay
Annexure II: ICTs in the Service of Persons with Disabilities		Ms. Anuradha Mohit
Report of the Workshop		Mr. A. Hariharan

Acknowledgement

We, Society for the Advancement of Library & Information Science (SALIS) and Madras School of Social Work (MSSW), Chennai thank Ms. Minja Yang, Director, UNESCO for her guidance and financial support. Our sincere thanks go to Ms. Jocelyne Josiah, Advisor-CI Sector, UNESCO and Mr. Anup Kumar Das, Specialist, Information for all, CI Sector, UNESCO for their advice and support. We also thank the advisors, organizing committee members, resource persons, participants and other well wishers and friends for their encouragements and inputs for the success of the programme.

Workshop Conveners

About the Workshop

Information Literacy (IL) and lifelong learning have been described as the beacons of the Information Society, illuminating the courses to development, prosperity and freedom. IL empowers people in all walks of life **to seek, evaluate, use and create information effectively to achieve their personal, social, occupational and educational goals.** Information literate people are able to access information about their health, their environment, their education and work, empowering them to make critical decisions about their lives. Information and Communication Technology (ICT) has facilitated information explosion and knowledge boom in all disciplines. (portal.unesco.org)

Library and Information Science (LIS) professionals have the task of handling the information explosion and deliver the right kind of information services to the right kind of users. LIS professionals are expected to guide the users for using the right information to develop the skill of users. IL is the capacity to seek and evaluate right sources of information and acquire it. This workshop is designed for LIS professionals and special educators working in special institutions for the disabled people covering all major aspects of IL Competency Development. Hence this workshop will be very useful for the delegates to provide better services to the disabled persons in their institutions.

Objectives of the Workshop:

- To give awareness and overview about IL, its needs and uses, ICT, IL models and standards to LIS professionals working in special institutions the disabled people.
- To facilitate the special educators and LIS professionals to provide better information services to the disabled people
- To give an overview about the right to information act and freedom of information
- To develop IL programs for the disabled people.

Content of the Workshop:

IL Overview and Lifelong Learning, ICT Literacy and ICT Technologies, IL Models and Competency Standards, LIS Services for the Disabled People, Assistive Technologies for the Disabled People, IL and Learning Assessment, Right to Information Act - Freedom

of Information, Development of IL programmes for the Disabled, UNESCO/IFLA School/Public Library Manifesto and Case Studies

Methodology:

Lecture/Presentation, Practical sessions, Field Visits and Case Studies/Discussion

Resource Persons:

Experts from reputed academic institutions, Govt. and IT field.

Target Participants:

Librarians and Special Educators in charge of library working in special schools/ special institutions/vocational centers and NGOs for physically challenged, visual/hearing impaired or physically challenged (PH) library professionals

No. of Participants:

The number of participants is limited to 30 from the states of Tamil Nadu, Kerala, Karnataka, and Andhra Pradesh.

About the Organisers:

Society for the Advancement of Library and Information Science (SALIS):

SALIS is a registered professional body, actively involved in the development of all spheres of Library and Information Science and Technology by organizing various programmes. It has various chapters located at different parts of the nation to provide services. Some of the objectives of SALIS are:

- To organize various programmes like lectures, seminars, conferences, workshops and training /IL programmes for the benefit of LIS professionals in the country
- To train the LIS professionals to handle the latest ICT and other tools and techniques more effectively and efficiently in order to provide quality based services to the users.
- To serve the society by organizing awareness programmes such as IL, promoting the reading habits of the public , etc.

Madras School of Social Work (MSSW):

MSSW was founded by Mrs.Mary Clubwala Jadhav in the year 1952 under the joint auspices of the Madras State Branch of the Indian Conference of Social Work (renamed the Indian Council of Social Welfare) and the Guild of Service (Central). The College is

now run under the aegis of the Society for Social Education and Research formed in 1960. It is a pioneer institution offering quality higher education in the fields of Social Work, Counselling and Human Resource Management. The institution is NAAC accredited and was recently conferred with autonomy status.

About the Sponsor – UNESCO:

UNESCO - the United Nations Educational, Scientific and Cultural Organization (UNESCO) was founded on 16th November 1945. Today, UNESCO functions as a laboratory of ideas and a standard-setter to forge universal agreements on emerging ethical issues. UNESCO also serves as a clearinghouse – for the dissemination and sharing of information and knowledge – while helping Member States to build their human and institutional goals.

The Information for All programme of UNESCO is the only intergovernmental programme exclusively dedicated to promoting universal access to information and knowledge for development. UNESCO organises and supports many programmes across the world to promote IL to enhance the quality of human life and standard besides its other programmes.

Mrs. V. Sakthi Regha

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Dr. S. Muralidhar

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Mr. A. Hariharan

President, SALIS and
Workshop - Co-ordinator

Key Note Address

IMPROVING THE SKILLS OF DISABLED PERSONS

M.N.G. MANI

Secretary General, ICEVI

When a petal of the rose falls down, we still call it a rose. Though many leaves fall from the tree, we still go to the tree and enjoy its shade. When this is the case, why should we isolate a human being when he loses a faculty of his body. The society should learn a lesson from the nature and try to understand that a person with disability is a human being too. The famous Helen Keller states that the most unfortunate person in the society is one who has sight but no vision. For understanding the abilities of the persons with disabilities one should have a broad vision of humanistic values. Internationally, we are aiming at a rights based, barrier free and inclusive society for persons with disabilities and this can happen only with the support of community members, professionals, teachers, parents etc.

A loss of a faculty certainly results in a limitation in the individual but such limitations can be overcome by developing proper skills in them. For example, the loss of visual experience in a blind person can be compensated by providing more tactile experiences. The communication problem of a hearing impaired person can be reduced by the application of total communication system involving sign language, lip reading and presentation of more visual information. The difficulties of a person with locomotor disability can be minimized by making the environment barrier-free, and the social behaviour of a mentally retarded child can be improved by mainstreaming and repetitive skill development. Therefore, skills can be developed in persons with disabilities to a large extent though the disability by nature is creating some limitations. In addition to skills in education, social and vocational skills should also be developed in disabled persons. Two important measures have to be taken at all levels to improve their social, educational, and vocational skills. They are

- 1) Providing educational, vocational and life experiences to persons with disabilities equal to that of non-disabled persons.
- 2) Overcoming stereotype responses of the society by demonstrating that persons with disabilities are persons first and disabled next.

In order to realize these objectives, there is a need to create awareness among policy makers that any developmental programme aimed at the society should include persons with disabilities too. The tendency that disability is a welfare activity needs to be changed and it should become an integral part of all activities of the society. Among the activities, education, and employment become priority areas. Education is the fundamental requirement for empowering persons with disabilities, and therefore, the vast majority of children who are currently unreached should be brought under the umbrella of education. This can happen only when the general education system accepts education of children with disabilities too and orient all pre-service teachers on disability management so that they become facilitators of inclusive education programmes. Therefore, special education should become a priority of the general education system.

The developing nations at present are facing the daunting task of providing education for all children by the year 2015. Though education for all eluded developing nations for the past many decades, the present human rights approach which is more prominent than ever before is raising education as a fundamental right of the child and urging governments to make sure that every child gets education towards his/her empowerment in the society. Countries are deliberating on workable policies and practices to make education for all a reality in the stipulated time.

Government of India has initiated the Sarva Shiksha Abhiyan with an attempt to achieve education for all. The scheme is an excellent framework and allows a lot of flexibility at the district level to adopt cost-effective and innovative strategies to include all children under the umbrella of education. All facets of comprehensive education such as

community participation, improving teacher skills, provision of learning materials, special emphasis on disadvantaged groups, etc., are covered under the scheme. SSA is an important tool to achieve education for all disabled children in India and develop appropriate skills in them.

Besides education, employment is also vital for persons with disabilities. As employment in organized sectors is a problem for everyone, the possibility of self-employment opportunities needs to be stressed. The recently adopted Biwako Millennium Framework indicates that Governments may give priority to the following policy areas :

- a) Self-help organizations of persons with disabilities
- b) Women with disabilities
- c) Early intervention and education
- d) Training and employment, including self-employment
- e) Access to built environments and public transport
- f) Access to information and communications, including information and communications technology
- g) Poverty alleviation through capacity-building, social security and sustainable livelihood programmes.

Our activities for persons with disabilities should address the above areas. For making persons with disabilities compete in the job market, adequate vocational skills in them have to be developed. The Self-Help Group concept has a great potential to develop skills in disabled persons and make them contributing citizens.

Parents also have a tremendous role to play in developing skills in persons with disabilities. They have to be involved in programme planning too, so that they become stakeholders in the overall development of the children with disabilities.

Awareness is needed at all levels that include legislators, medical professionals, administrative officers, etc., so that the society at large accepts responsibility for persons with disabilities.

Many international declarations and national acts have emphasized the need for services to persons with disabilities. These declarations would get life only when the paradigm shifts from 'charity' to 'human rights' takes place in disability welfare. The shift from "child as a student" to "child as a human resource" in the classroom paves way for comprehensive mainstreaming of the child. As Swami Vivekananda observed, "Education is the manifestation of perfection already in man" and the meaning of this statement can be fully realized where every disabled person is treated as an individual and the society recognizes the abilities in him. In order to develop skills in them, we have to look at the similarities between disabled and non-disabled persons. We have to promote inclusion rather than exclusion. We have to make services for persons with disabilities as an integral part of the overall system rather than looking at it as a sub-unit of the overall system.

In summary, the skills of persons with disabilities can be developed only when the society at large looks at the abilities in them.

Thank You

Special Address

Anup Kumar Das
UNESCO, New Delhi

Distinguish Speakers, Participants, Ladies and Gentlemen

On behalf of UNESCO, I am very pleased to welcome all of you today to this national workshop in the Madras School of Social Work. UNESCO is happy to be one of its collaborators along with Society for the Advancement of Library and Information Science (SALIS) a renowned professional society working towards universal access to information and knowledge, and Madras School of Social Work. I would like to take this opportunity to thank executive members of SALIS for all their sincere efforts to organize this important event. As a specialised agency of the United Nations, UNESCO contributes to the construction of peace, human development and intercultural dialogue in the era of globalization through education, the sciences, culture, communication and information.

The theme of this workshop “Information Literacy Competency Development for special educators and library professionals” is of particular interest of a UNESCO’s Information for All Programme (IFAP). IFAP is a framework for advancing concept of knowledge societies and for contributing to achieve United Nations’ millennium development goals. IFAP was established in 2001 as a successor of General Information Programme (PGI) & Intergovernmental Informatics Programme (IIP). This is one of UNESCOs 11 intergovernmental programmes. It has potential influence at national and regional levels using local information networks. IFAP also facilitates universal access to information and knowledge.

Information literacy involves teaching and learning about the whole range of information sources and formats. To be information literate you need to know why, when, and how to use all of these tools and think critically about the information they provide. Information

literacy aims to develop both critical understanding and active participation. It enables people to interpret and make informed judgments as users of information sources, and it also enables them to become producers of information in their own right, and thereby to become more powerful participants in society.

An effective information literacy programme for all is essential and should be developed and delivered in both formal and informal education, within the framework of the United Nations Literacy Decade (2003-2012). The target audience should not only include educators or young students, but also disabled persons, adult basic learners, professionals and decision-makers, because all people need to acquire information skills to make informed decisions.

In this workshop, the concept of information literacy will be expanded upon, through a set of competency standards, performance indicators, assessment methods, models and library manifestos.

In the next five days the participants would be involved in the interactive sessions to develop information literacy programmes for their end users particularly the differently-abled persons and students.

Finally, let me express my thanks to the members of organizing committee who have worked efficiently to select the bright special educators and professionals in this workshop, and also the trainers who will impart different modules of information literacy training. I wish you every success in these five days discussions and learning.

Thank you once again.

**ADVANCES IN EDUCATION AND ROLE OF TECHNOLOGY IN
SERVING PERSONS WITH DISABILITIES AND IMPROVING
THEIR LIFE SKILLS**

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The educational system in the present century is expected to create a rights based, barrier free and inclusive society for persons with disabilities. Though special school concept has been popular among the learners for decades, the fact remains that it has not enabled the vast majority of children with disabilities to have access to education. Integrated education emerged as a system to address the issue of coverage and was also perceived as a better system to create inclusive environment, but the emphasis on “defect and compensation approach” made the integrated education programmes as special school units within the general system. Educators who started looking at factors, which are similar between disabled children and non-disabled children introduced the concept of inclusion where the ability approach replaces the defect approach. The idea of looking at disabled children as more ‘like’ than ‘unlike’ non-disabled children opened avenues for more formal educational opportunities in general schools leading to the growth of inclusion of children with disabilities. However, the concept of inclusion needs to be understood in its true spirit. Inclusive education is an ideology and not a programme. The objective of making education of persons with disabilities as an integral part of the general educational system is called as ‘inclusion.’ This calls for strengthening the pre-service general teacher preparation programmes by including adequate component of education of disabled children in the general curriculum. Assimilation of inclusive education concept in general education normally centres around three aspects – policies, practices, and cultures facilitating inclusion. As far as India is concerned, the Persons with Disabilities Act 1995 is certainly a landmark act aiming at inclusion of persons with

disabilities in the mainstream. Education for all disabled children in India would become a reality when inclusive education concept becomes a national movement. Readiness of the general education system to accept responsibility for education of children with disabilities, encouragement provided by the community for including children with disabilities in schools, readiness of parents of children with disabilities to admit the children in local schools, basic knowledge of general classroom teachers about the education of children with disabilities, openness to admission of all types of disabled children in schools irrespective of the extent of disability, higher enrolment rate of children with disabilities at least on par with that of non-disabled children, better retention of children with disabilities, ability of the general classroom teachers to modify teaching learning strategies to teach children with disabilities, provision of support materials to disabled children in accessible formats, etc., are considered to be the main parameters of success of inclusive education concept. Inclusive education is not a threat to integrated education concept or the special school programmes. Among children with disabilities, every person cannot be benefited by inclusion. Special schools can serve such children and also serve as resource centres for a cluster of general education schools which are involved in inclusive education. These changing trends in the services for persons with disabilities need to be acknowledged by the educational institutions and educators of persons with disabilities.

Higher education for persons with disabilities is also getting international attention. It will help developing leaders among persons with disabilities. The University Grants Commission is supporting higher education institutions through the scheme HEPSN (Higher Education for Persons with Special Needs) to strengthen education of disabled individuals and also to develop awareness among students and teachers of higher education institutes about the educational needs of these persons.

Life help skills in the case of persons with disabilities include a whole gamut of activities such as skills in using assistive devices, skill of communication, skills to cope with disability conditions, developing job skills, etc. Parents and teachers are involved to a large extent in developing these skills in disabled individuals. Technological explosions

have also made education of persons with disabilities promising and contribute to the skill development of these individuals. The following paragraphs deal with the technology aspect as a part of the skill development and how the application of technology can improve education and life of persons with disabilities.

The relevance of technology in education of persons with disabilities is more than that of general education. The capability of technology is that (1) it makes the complex simple; and (2) it addresses the individual needs of the learner. Technology has multifarious applications in education of persons with disabilities. Firstly, use of appropriate technology reduces the handicapping conditions of the individual in the study and work environment and secondly, application of the enabling technology enhances the learning potential of persons with disabilities. Technology can also be used to reach out the large number of persons with disabilities who are currently deprived of any educational and vocational opportunities.

Disability presents different challenges. Loss of a particular sense deprives the access of the individual to the available technology. For example, a blind person cannot use the existing technology as it is. Many adaptations are needed to make it more accessible to blind persons. Technological innovations in the future should aim at dual communication mode to enable all types of persons with disabilities to have access. Research studies abound to substantiate the fact that the quality of learning improves when the dual communication mode is applied.

Technological adaptations can follow a four-stage strategy. Firstly, duplication of the existing technology can be tried to provide the near normal experiences to persons with disabilities. When duplication is not possible, modification of technology in terms of display can be tried. When modification is not possible, the expected outcomes of the learning tasks can be substituted by suitable experiences. Under rare conditions, some activities may be omitted for persons with disabilities. Attempts are needed either to duplicate or modify or substitute most of the existing technology for the benefit of disabled persons. The four-stage strategy is more applicable, especially with regard to

print and audio media in libraries. Librarians can make the libraries disability friendly to enable all types of persons with disabilities to have access. Though facilitating complete accessibility will take considerable time in India, efforts need to be made to address the issues of accessibility in both print and audio media.

Still technology can be used as a vehicle to make education for all disabled children a reality in developing countries. At present, the distance education mode is not fully used by persons with visual impairment due to the absence of proper Braille or audio materials in accessible formats. Therefore, the technology should aim at providing materials in multiple option modes so that many children can get education through the distance mode. Today, the internet has opened up all avenues for education. It has brought education at the doorsteps of the individual. Persons with disabilities can use internet to a large extent to expand knowledge as well as to acquire higher qualifications. These facilities may be made available at an affordable price so that a large number of persons with disabilities can enjoy the benefits of modern technology.

Information technology may not become popular among persons with disabilities unless they become IT literate. IT components should find place in the curriculum of special and inclusive schools. What is next after becoming IT literate is a big question mark among persons with disabilities. Employers are still not open to appointing persons with disabilities for jobs that demand technological expertise. The attitude to disability obscures the efficiency of persons with disabilities. Some specific IT related jobs should be earmarked for persons with disabilities in order to generate interest among them for this upcoming area around the world.

In summary, the following key points may be taken into account for the promotion of information technology among persons with disabilities.

1. Information may be provided in dual communication mode for the benefit of disabled persons.
2. Assistive devices may be adapted for improving access to technology.

3. Indigenous production of devices may be taken up to increase the affordability by persons with disabilities.
4. The existing curriculum for persons with disabilities may be modified to include information technology inputs.
5. Open learning system may be encouraged to offer information technology oriented courses for persons with disabilities.
6. Some IT related jobs in public and private sectors may be earmarked for persons with disabilities.
7. In order to promote information technology among persons with disabilities, the organizations working for them should also inculcate the IT culture in their activities.

The potential for the application of information technology in disability welfare is unlimited. The judicious use of technology may bring light to many unsolved problems in education and rehabilitation of persons with disabilities, which are lingering in the minds of professionals for ages.

Library is the hub of learning in any educational institute and therefore, addressing the accessibility issues through the libraries can certainly create awareness among all about disability issues.

Reaching the Unreached Through Information Literacy Programmes An Overview

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Abstract : The article gives a brief overview of the Information Literacy Programmes for the handicapped / disabled. It defines the exceptional children, and their categories. It stresses on the role of rehabilitation in providing a normal quality life to the disabled. It gives a survey of the literacy activities of the disabled, by providing vital statistics of the current scenario. The article emphasizes the role of libraries vis-à-vis Information Centres in enhancing the life of the unreached disabled. It further highlights the Information Literacy activities, and gives an insight to the various Information Technology assisted Information Literacy programmes for the disabled, the IT companies involved in providing necessary software to meet the special needs of the disabled etc.

It gives a bird's eye view to the key handicap Institutions at various levels with a summary of the activities conducted by the institutions at local level. It put forths certain observations, suggestions and recommendations to strengthen the Information Literacy activities for the disabled.

Keywords : Disabled, Handicapped, Institutions Handicap, Information Literacy Programmes, Technology assisted Information Literacy programmes,

Prologue : Major advances in information and communication technologies combined with the rapid growth of global networks have transformed business and markets, revolutionised learning and knowledge sharing, generated global information flows, empowered citizens and communities. The twenty first century will be the ‘century of knowledge’. A society with knowledge power will dominate, and sustain in a dynamic world. The societal transformation will be based on action plans on rural development, with national, and international experiences, focused on education health-care, agriculture and governance. Such transformation is also expected to lead to higher empowerment of the backward and depressed classes, the disabled, the women, creating a transparent society based on equity and justice.

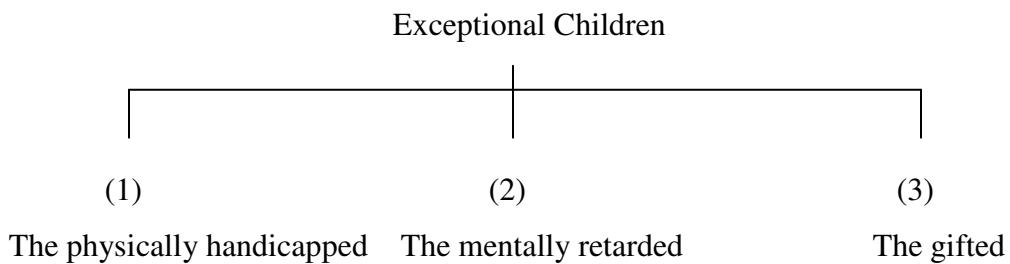
Education has always been considered as an instrument of social change. The University Grants Commission in its ‘Tenth Plan Proposals’ have strongly spelt out, that ‘It will be an ardent task to bring the universities closer to the community, particularly the underserved masses through extension of knowledge and its application for problem solving. (Saha, Pijushkant, UN43 (47) Nov. 21-27, 2005).

The Information centres, which form an integral part of any education system, are also faced with innumerable challenges as they have to reach rapidly, to the changing expectations of the masses, in terms of quality, and efficient services. The information centres today, are busy finding a ‘Cyberspace’ for the masses. In this context, the Health Science Information Centres have additional responsibilities since their main task is to deliver effective health care services, and improve Health Standards of people (Kuffalikal, C. R. IASLIC, 2000)

2. Understanding Disability and Exceptional children : The committee for the ‘National Society for the Study of Education’ has described exceptional children as “those who deviate from what is supposed to be average in physical, mental, emotional or social characteristics to such an extent, that they require educational services in order to develop their maximum capacity”.

H. J. Baker has emphasized, ‘these children need specialized attention which is not provided in regular classrooms. The basic educational aim is similar to that of all other children, but only the means of education differ. Such children require special

educational care, and their adjustment problems have to be tackled in an exceptional manner. These deviated children come under the designation of “Exceptional Children.” According to Barbe, “exceptional” refers to those children who differ from the average to an extent, that their differences warrant some type of special school adjustment, either within the regular classroom, or in special classes. According to psychologists all children are “exceptional” because they are unique in themselves, and are different from one another. According to ‘Crow and Crow,’ the following classification may be made defining the “exceptional children”



The physically handicapped, can be subgrouped under the category of the crippled, the blind, the near blind, the deaf, and those having defective speech and delicate health.

Types of Exceptional children : Psychologists have classified exceptional Children into many broad categories each of them having one or more types.

2.1.1 Visually Handicapped : Blindness is regarded as the most severe and traumatic of the physical handicaps. The visually handicapped have always been the favoured group compared to those with other types of disabilities. Social and educational provisions have been made considering them as the most important group. Special rights and privileges are given to them. This group has attracted more public concern than any other category of the handicapped.

2.1.2 Aurally Handicapped Children : Verbal communication and speech development through hearing are major sensory pathways for a human being. If a child hears imperfectly, there is every possibility that he will speak incorrectly. Hearing also influences learning, and other aspects of maturation. The aurally handicapped children, are subdivided according to the organic hearing loss.

The most important therapy for children suffering from sensori-neural defects is educational. Hearing aids, auditory training, lip-reading, and language training can help children having moderate defects. However, special schooling is needed for children with profound hearing impairments.

2.1.3 Speech Handicapped Children : When the speech of an individual differs significantly from that of others, and it affects communication, it is diagnosed as a speech defect. The number of children suffering from speech defects is much more than the number of those having any other handicap. The other classified disorders are that of

- a) Articulation
- b) Disorders of Voice (Phonation)
- c) Delayed Speech
- d) Stuttering and stammering
- e) Disorders Associated with Cerebral Palsy

2.1.4 Mentally Retarded Children : According to ‘American Association of Mental Deficiency’ (AAMD). “Mental retardation refers to significantly sub-average general intellectual functioning existing concurrently with defects in adaptive behaviour, and manifested during developmental period.”

2.1.5 The various types of disability that can be assisted, can broadly be classified as Physical and Mental disabilities. Spinal Chord Injury, Amputated Limbs, Blindness/Visual impairment

2.1.6 In lieu of the societal transformation, and families becoming more, and more nuclear, in almost every metropolis of the country, a few more groups, have been added to the above Senior citizens above sixties staying alone become homebound due to forced circumstances as aging, and other related factors, cannot be active, and mobile, thus becoming dependent on others. Living alone or in a household separate from children or close relatives, seem to be a preferred arrangement, for the population aged 65 and above.

2.1.6.1 Individuals who have led a perfect normal life until a particular point of time, but have now become handicapped due to disease or accident

2.1.6.2 Disadvantaged Children : This group is referred to by researchers and voluntary organizations as deprived children, vulnerable children, children in difficult situations, children at risk, and such other categories. These can be further

categorized as Street and working children, Migrant children, Delinquent Children, Children of Prisoners, Children of Prostitutes, Bar dancers etc (Govinda, R. IER, 2002)

3. Rehabilitation of Disabled : Rehabilitation basically involves the treatment, and training of a patient in an effort that he may attain his maximal potential for normal living. Rehabilitation involves the co-operative efforts of various specialists, medical and social, and their associates to improve the physical, mental, social and vocational aptitudes of persons who are handicapped, with the objective of preserving their ability.

Vocational rehabilitation pre-supposes a more humane approach to the handicapped. Social acceptance of a disabled person, and his/her family by society could be termed as Social Rehabilitation. Social Rehabilitation services include, counseling, housing, training, day and residential care, transport, access facilities, sports and recreational welfare allowance. People with disabilities are encouraged to live independently in the community.

3.1 The population in India as at 0.00 hours on 1st March 2001, stood at 1,027,015,247 persons. The disabled in India constitute a sizeable section at 21,906,769 persons. As per 2001 census their 74.80% population was based in rural areas 25.19% in urban. 7.16% disabled population lives in Maharashtra State. 21,906,769 persons are disabled in India, out of which categorized as (10,634,881 are) in sight, 1,640,868 in speech, 1,261,722 in hearing, 6,105,477 in movement, and 2,263,821 mentally retarded persons in India.

Table 1 : Distribution of the disabled by Sex and Residence - 2001

Sr. No.	India / State	Sex	Total	Rural	Rural (%)	Urban	Urban (%)
1.	India	Persons	21,906,769	16,388,382	74.80	5,518,387	25.19
		Males	12,605,635	9,410,185	74.65	3,195,450	25.34
		Females	9,301,134	6,978,197	75.02	2,322,937	24.97
2.	Maharashtra	Persons	1,569,582	1,020,371	65.00	549,211	34.99
		Males	933,867	600,603	64.31	333,264	21.23
		Females	635,715	419,768	66.03	215,947	33.96

(Source : <http://www.censusindia.net/disability>. Census of India, 2001)

Table 2 : Distribution of the Disabled by (Type of Disability,) Sex and Residence - 2001
(India and Maharashtra)

India						
Types of Disability	Sex	Total	Rural	Rural (%)	Urban	Urban (%)
Total Disables Population	Persons	21,906,769	16,388,382	74.80	5,518,387	25.19
	Males	12,605,635	9,410,185	74.65	3,195,450	25.34
	Females	9,301,134	6,978,197	75.02	2,322,937	24.97
In Seeing	Persons	10,634,881	7,873,383	74.03	2,761,498	25.96
	Males	5,732,338	4,222,717	73.66	1,509,621	26.33
	Females	4,902,543	3,650,666	74.46	1,251,877	25.53
In Speech	Persons	1,640,868	1,243,854	75.80	397,014	24.19
	Males	942,095	713,966	75.78	228,129	24.21
	Females	698,773	529,888	75.83	168,885	24.16
In Hearing	Persons	1,261,722	1,022,816	81.06	238,906	18.93
	Males	673,797	549,002	81.47	124,795	18.52
	Females	587,925	473,814	80.59	114,111	19.40
Mental	Persons	2,263,821	1,593,777	70.40	670,044	29.59
	Males	4,354,653	949,373	70.08	405,280	29.91
	Females	909,168	644,404	70.87	264,764	29.12
Maharashtra						
Types of Disability	Sex	Total	Rural	Rural (%)	Urban	Urban (%)
Total Disables Population	Persons	1,569,582	1,020,371	65.00	549,211	34.99
	Males	933,867	600,603	64.31	333,264	21.23
	Females	635,715	419,768	66.03	215,947	33.96
In Seeing	Persons	580,930	375,886	64.70	205,044	35.29
	Males	320,466	201,617	62.91	118,849	37.08
	Females	260,464	174,269	66.90	86,195	33.09
In Speech	Persons	113,043	70,809	62.63	42,234	37.36
	Males	63,802	39,729	62.26	24,073	37.73
	Females	49,241	31,080	63.11	18,161	36.88

In Hearing	Persons	92,390	69,205	74.90	23,185	25.09
	Males	51,789	39,007	75.31	12,782	24.68
	Females	40,601	30,198	74.37	10,403	25.62
Mental	Persons	213,274	124,748	58.49	88,626	41.55
	Males	123,139	70,722	57.43	52,417	42.56
	Females	901,135	54,026	59.93	36,109	40.06

(Source : <http://ww.censusindia.net/disability>. Census of India, 2001)

Table 3 : Distribution of the Disabled by (Type of Disability,) Sex and Residence - 2001
(India and Maharashtra)

India											
Types of Disability	Sex	Literate					Illiterate				
		Total	Rural	% of Rural	Urban	% of Urban	Total	Rural	% of Rural	Urban	% of Urban
Total Disabled Population	Persons	10,801,232	7,276,755	67.36	3,524,477	32.63	11,105,537	9,111,627	82.04	1,993,910	17.95
	Males	7,330,091	5,091,686	69.46	2,238,405	30.53	5,275,544	4,318,499	81.85	957,045	18.14
	Females	3,471,141	2,185,069	62.94	1,286,072	37.05	5,829,993	4,793,128	82.21	1,036,865	17.78
In Seeing	Persons	5,301,316	3,429,812	64.69	1,871,504	35.30	5,333,565	4,443,571	83.31	889,994	16.68
	Males	3,414,027	2,287,732	67.00	1,126,295	32.99	2,318,311	1,934,985	83.46	383,326	16.53
	Females	1,887,289	1,142,080	60.51	745,209	39.48	3,015,254	2,508,586	83.19	506,668	16.80
In Speech	Persons	594,431	390,344	65.66	204,087	34.33	1,046,437	853,610	81.57	192,927	18.43
	Males	394,825	266,313	67.45	128,512	32.54	547,270	447,653	81.79	99,617	18.20
	Females	199,606	124,031	62.13	75,575	37.86	499,167	405,857	81.30	93,310	18.69
In Hearing	Persons	544,748	402,083	73.81	142,665	26.18	716,974	620,733	86.57	96,241	13.42
	Males	375,492	286,586	76.32	88,906	23.67	298,305	262,416	87.96	35,889	12.03
	Females	169,256	115,497	68.23	53,759	31.76	418,669	368,317	87.97	60,352	14.41
Mental	Persons	857,813	553,338	64.50	304,475	35.49	1,406,008	1,040,439	73.99	365,569	26.00
	Males	591,694	390,862	66.05	200,832	33.94	782,959	558,511	73.20	204,448	26.79
	Females	266,119	162,476	61.05	103,643	38.94	643,049	481,928	74.94	161,121	25.05

Maharashtra											
Types of Disability	Sex	Literate					Illiterate				
		Total	Rural	% of Rural	Urban	% of Urban	Total	Rural	% of Rural	Urban	% of Urban
Total Disabled Population	Persons	905,910	539,768	59.58	366,142	40.41	663,672	480,603	72.41	183,069	27.58
	Males	622,561	379,896	61.02	242,665	38.97	311,306	220,707	70.89	90,599	29.10
	Females	283,349	159,872	56.42	123,477	43.57	352,366	259,896	73.75	92,470	26.24
In Seeing	Persons	334,939	188,159	56.17	146,780	43.82	245,991	187,727	76.31	58,264	23.68
	Males	218,064	124,989	57.31	93,075	42.68	102,402	76,628	74.83	25,774	25.16
	Females	116,875	63,170	54.04	53,705	45.95	143,589	111,099	77.37	32,490	22.62
In Speech	Persons	49,206	25,879	52.59	23,327	47.40	63,837	44,930	70.38	18,907	29.61
	Males	30,966	16,690	53.89	14,276	46.10	32,836	23,039	70.16	9,797	29.83
	Females	18,240	9,189	50.37	9,051	49.62	31,001	21,891	70.61	9,110	29.38
In Hearing	Persons	47,200	31,933	67.65	15,267	32.34	45,190	37,272	82.47	7,918	17.52
	Males	33,269	23,511	70.66	9,758	29.33	18,520	15,496	83.67	3,024	16.32
	Females	13,931	8,422	60.45	5,509	39.54	26,670	21,776	81.64	4,894	18.35
Mental	Persons	89,099	50,118	56.24	38,981	43.75	124,175	74,630	60.10	49,545	39.89
	Males	59,535	33,844	56.84	25,691	43.15	63,604	36,878	57.98	26,726	42.01
	Females	29,564	16,274	55.04	13,290	44.95	60,571	37,752	62.32	22,819	37.67

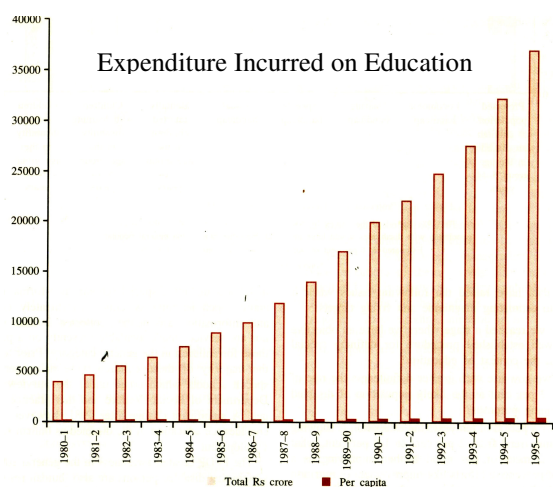
3.2 Rehabilitation Through Institutions : The term “Institution for persons with disabilities” is indicative of an institution, that receives, cares, protects, educates, trains, rehabilitates or provides any other service, for persons who are disabled.”

3.3 Since long the rehabilitation institute administrators have understood the significance of the library, and its program in an institution, and the need for every institution to have a well stocked library with books, and other media for the benefit of the inmates with trained librarians in charge.

It is a well-known fact, that the utilisation of books and other materials serve as adjunct to therapy. The importance of an institutional library, and the awareness of its conspicuous place in the overall program of institutions have been underscored by the many articles that have appeared in print on the subject.

Various therapies are used for the treatment of the disabled, some of them are Art Therapy, Bibliotherapy, Dance Therapy, Drama Therapy, Music Therapy, Occupational Therapy, Recreational Therapy, Reinforcement Therapy, Speech Therapy, Sports Therapy

4. Literacy for disabled : The 1989 UN convention on the Rights of the Child "states that disabled children have the right to 'achieve participation in the community and their education should lead to the fullest possible social integration and educational

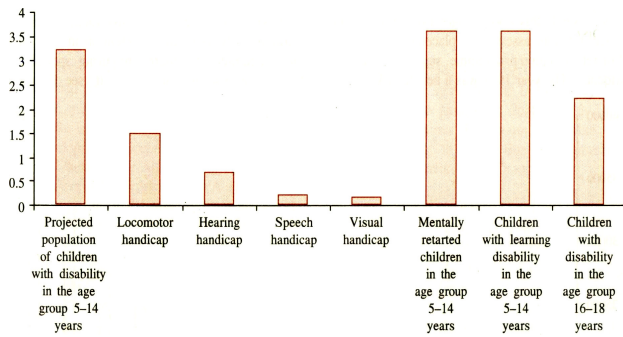


development'. The World Conference on 'Education for All: Meeting Basic Learning Needs' (World Conference on EFA 1990) states, that the learning needs of the disabled demand special attention.

The year 1981 was a benchmark year as being the International Year for Disabled Persons (IYDP), but 1990 was the year, when disabled children, and persons were assured of rights and services at par with all other children and persons.

As per the information brought out by Central Statistical Organisation per capita expenditure on education has doubled since 1989-90 and similar trend is observed for health and welfare services. But in the absence of data for the significant age groups, and disabled children and persons, one really cannot comment with confidence, that the assurances given are being fulfilled. This issue merits attention in view of the fact that magnitude of children requiring special education facilities is also an issue by itself.

4.1 Magnitude and Target : As in several other countries, India is still in the process of



refining the procedures through which children with special needs can be identified. The first effort to really make some sort of

estimation was done for the National Policy on Education (NPE) and revised Programme of Action (POA) 1992 which estimated 12.59 million disabled children of school-going age for whom provision had to be made.

4.2 The IYDP created awareness in the general education system, that disabled persons are also ‘human resources’. This shift in approach also resulted in the establishment of many premier institutes responsible for developing programmes for the education of children with special needs. In 1983, the National Council for Educational Research and Training (NCERT) included education of children with special needs as an area under its teacher education programme.

4.3 Special Schools : Presently there are about 3000 special schools addressing persons with different disabilities. It is estimated, that there are 900 schools for the hearing impaired, 400 schools for the visually impaired, 1000 for the mentally retarded, and 700 for physically disabled children. There are many NGOs that run such schools that are not yet included in the lists available. The programmes vary from early childhood preparation to primary-level education, with rehabilitation inputs, and in some cases, schools also cover secondary classes.

Details of Integrated Education for the Disabled Children (IEDC)

S. no.	Name of the state/UT	(as per State/UTs information)												
		No. of disabled children					No. of schools (IEDC)		No. of special teachers		No. of special schools		No. of districts	
		VI	HH	MH	OH	Others	State	NGO	Trained	Untrained	State	NGO		
01	Andhra Pradesh	274	500	-	-	-	45	-	-	-	-	-	-	23
02	Arunachal Pradesh	-	-	60	-	-	-	1	-	-	-	-	-	1
03	Gujarat	1214	31	67	210	-	898	-	82	34	11	114	11	
04	Haryana													
	IEDC	495	616	26	1197	98	-	-	27	-	-	5	4	4
	PIED	92	105	54	546	15	99	-	-	-	-	-	-	1
05	Karnataka													
	(Govt.)	1610	1446	1511	3305	210	1782	-	634	-	-	-	-	20
	(NGO's)	233	481	320	74	-	-	168	87	-	-	-	-	20
06	Kerala	4751	3849	3433	13723	-	6748	-	10	-	-	-	-	34
07	Madhya Pradesh	439	391	206	3783	93	2075	90	62	-	-	-	-	19
08	Manipur	94	158	163	267	-	269	-	39	-	-	2	3	5
09	Maharashtra													
	IEDC	241	570	102	62	-	39	-	65	-	17	-	-	11
	PIED	58	72	46	128	-	-	-	-	-	-	-	-	1
10	Nagaland	64	206	38	398	48	316	82	10	-	-	1	7	
11	Orissa													
	(Govt.)	158	810	993	305	-	139	-	32	61	-	-	-	29
	(NGO's)	133	81	76	30	-	-	-	24	-	-	-	-	
12	Rajasthan													
	IEDC	78	76	200	1101	146	41	-	66	12	3	19	24	
	PIED	123	210	210	412	-	14	-	12	-	-	-	1	
13	Tamil Nadu	422	235	60	836	-	681	-	61	-	-	-	-	6
14	Tripura	8	55	-	346	-	2	-	-	-	-	-	-	4
Total		10,541	9892	7505	26,723	610	13,109	341	401	107	38	142	220	

4.4 Integrated Education Provision : Integrated education emerged out of compulsion, rather than choice. In the process of bringing more disabled children under the umbrella of educational service integration emerged as the cost-effective approach and therefore, the general education system started accepting special needs children in general schools. The implementation of the integrated education programme also addressed the needs of high-risk children who were suspected to be potential dropouts and, therefore, retention of such children improved. Integration of disabled children has actually reinforced better educational practices in the general school system. The centrally sponsored scheme of integrated education which was initiated in 1974 is being implemented in various states of the country. From data available with the Ministry of Human Resource and Development (MHRD 1999), approximately 55,000 disabled children are benefited by this approach through 17,040 general schools in seventeen states/UTs. Details are available for fourteen states and UTs.

4.5 The NSSO data for urban and rural population of disabled persons (1991) has brought

for Each Social Group and Sex

Age group (years)	Urban									
	Male					Female				
	ST	SC	Others	nr	All	ST	SC	Others	nr	All
0-4	27	64	36	126	41	75	39	35	-	37
5-9	102	119	99	-	103	100	121	100	-	103
10-14	116	124	113	309	115	81	97	93	-	93
Age group (years)	Rural									
	Male					Female				
	ST	SC	Others	nr	All	ST	SC	Others	nr	All
0-4	28	40	35	-	36	23	41	35	101	35
5-9	113	105	103	241	105	105	94	90	-	93
10-14	96	94	101	-	99	76	84	78	208	80

nr: not recorded

out certain attention-catching data (Table). This survey has tried to give estimations of disabled children in the 0-4, 5-9 and 10-14 age groups across ST, SC,

and others groups covering rural and urban locations. It indicates that more male children, than female are disabled and more children (male and female) are located in urban areas. For the first time attention is also drawn to ST and SC children. The number of SC/ST disabled children is significant as it comes to about 1.3 to 1.8 per cent of population in the specific age groups.

4.6 Sectoral Scheme : In India there have been specific schemes, and projects for the disabled, and there are certain general schemes which are equally applicable to all, disabled or otherwise.

4.6.1 Voluntary Organizations : The Ministry of Welfare funds NGOs to work for the education and rehabilitation of the disabled. The voluntary organizations have

played a major role in providing services for the disabled, at times greater than the governmental effort. Over the years, the number of such NGOs has been growing, and they are becoming more organized, with their role extending to formulating policies, providing support to government efforts, and initiating action. A survey of organizations working for the disabled in the entire country was recently carried out by the government. There are more than 2456 voluntary organizations in the disability area and 1200 special schools, of which 450 receive grants from the government towards their operational costs. The majority of them are autonomous.

4.7 Role of Premier Institutes/Organizations : The University grants Commission (UGC) has also initiated a number of programmes since 1985, notable among which are 100 per cent assistance to university education departments for teacher preparation (1985 onwards) and teacher preparation in special education (1999 onwards). A number of national institutes for the handicapped under the Ministry of Social Welfare have also significantly contributed to the cause viz. the national Institute for the Orthopedically Handicapped, Kolkata; the Ali Yaver Jung National Institute for the Hearing Impaired, Dehradun; the Institute for the Physically Handicapped, New Delhi; the National Institute for Rehabilitation, Training and Research, Cuttack.

4.8 National Policy on Education : Part IV education for equality. The National Policy of 1968 and their further revisions in 1986 and 1992 laid stress on the need for a radical reconstruction of the educational system, to improve its quality at all stages, and gave much greater attention to science and technology.

4.9 Media and Educational Technology : Educational technology will be employed in the spread of useful information, the training and retraining of teachers, to improve quality, sharpen awareness of art and culture, inculcate abiding values, etc., both in the formal and non-formal sectors. Maximum use will be made of the available infrastructure. In villages without electricity, batteries or solar packs will be used to run the programme. The generation of relevant and culturally compatible educational programmes will form an important component of educational

technology, and all available resources in the country will be utilized for this purpose.

5. Libraries vis-à-vis Information Centres : Their role in the literacy of the Handicapped. Individuals with disability have varying degrees of need. Their information needs are just like those who are not disabled, and often strive hard for a high quality of life as other normal individuals. A disabled who is in the prime of his youth, demands an equal opportunity and must therefore be offered a range of assistance such as examination support, specialized equipments, library assistance, note taking in class, reader sign interpreters and parking provisions etc. Only when they have a strong support such as the ones mentioned above they can hope to lead normal lives.

India's first library started functioning in 1985 with the aim of circulating literature to blind readers free of cost throughout the country. In a commendable operation, which met with considerable success. The library trained local residents in Braille, with a request to transcribe them to Braille books for the blind in their spare time. Today's school libraries have seen a virtual transformation, as compared to its earlier days. Variety of instructional materials have brought a sea change. The change in times and technology has proved, that the printed word is not the only, or best way of presenting information. Certain facts like the song of a bird; the blossoming of flower or the approach of a storm can be understood more effectively through a recording, audio or video. Libraries situated at health care centers play a more meaningful role by contributing to the quality of life and the maintenance of human dignity, besides being a pathway to information.

Library services play an important role in achievement of literacy of disabled individuals. The International Federation of Library Associations (IFLA) meeting discussion in 1977 covered two major areas (i) Establishment of a Working Group devoted to the coordination of library services for blind and physical handicapped individuals; and (ii) Services and technical concerns given as (a) the development of an international inventory of library resources; (b) the need or identification of existing production formats; (c) the need for standardization of production formats;

(d) the development of an effective international interlibrary loan mechanism; and (e) the need for a coordinated application of existing and future technologies to production requirements.

5.1 In order to create an efficient, and effective library programme for the disabled, libraries need managers who are upto date, and are aware of the latest developments that are likely to have profound effect on their services. It is their collective responsibility to promote quality services by gaining a good insight into the problems faced by the disabled. Library staff must recognise that some disabled persons have no control over their behaviour, and must be competent enough to handle difficult situations. They must be prepared to give individual attention so as to understand their strongest communication mode. Therefore, the following aspects are essential to develop a model library programme for them by way of: a) Training of Library staff, b) Developing User Assistance Schemes, c) Offering Special Services.

a) Training of Library Staff

Professional library services depends largely on the continuous upgrading of staff through training on a regular basis. It could be fortnightly, monthly, or seasonal training. Special training requirements can be determined by the Library management and training Officers depending upon the skills, and training needs of the individuals. The practical training could be held in small groups giving each group an opportunity to work with all types of disabled users. A resource package of the training manual should incorporate

Contents: like

- ⇒ Concepts on disability: (visits to hospitals, centres for the blind, and other kinds of handicapped persons).
- ⇒ Developing communication and counselling skills.
- ⇒ Professional library services., single line of command, concentration of effort, time bound work, field orientation and linkage with research.
- ⇒ Case studies.

5.2 Developing User Assistance Schemes : Once the Library worker gets trained, they will feel, that it is their collective responsibility to provide quality services to the disabled. Some of the efficient user assistance scheme are

- ⇒ Providing the disabled users with reading lists and catalogues, high demand materials and lecture tapes that are held in open reservation.
- ⇒ Extending loan periods or modifying other lending rules on an individual basis.
- ⇒ Accepting telephone requests, and providing reference service.
- ⇒ Conducting orientation tours and information skills sessions.
- ⇒ Providing audio visual equipments.
- ⇒ Assisting in the use of computer aided learning equipments such as CD-ROMS, optical disks etc.

5.3 Offering Special Services : Different types of disability require different types of specialised services. The trained library personnel can take into consideration the following points Library services for the blind must enable them to have access to equipments such as Braille printers, Braille embosser and tape duplicators, Kuzweil reader (a text-to speed reading machine with synthesised speech output), closed circuit TVs for magnifying regular text, PCs with CD-ROMS, Powermacs with CD ROMS, large print tape writers, special track tape recorders, computers that are having adaptable equipments such as voice eyes.

Services for speech and hearing impaired users must include TTD communications (a device also known as TTY-text type telephone) for those needing library questions answered on telephone. Librarians must also familiarise themselves with sign language which is considered to be the common language of the deaf community. For the physically challenged the library facility must be barrier free to wheel chairs and other mobility devices, ensuring that all devices including door handles are designed for easy manipulation.

Persons suffering from mental disability can be served by helping to locate, and retrieve materials. Because reading is a common problem for them they may enquire assistance in identifying the materials of both the print and electronic types of documents. They also need help in turning catalogue cards or keying in commands on the computer. People suffering from mental illness such as Schizophrenia must be motivated to read books on self-development and may require constant counseling to use library resources to overcome their depression. This is termed as “Bibliotherapy”, that is, using books for therapy.

One kind of special library service, that of catering to the needs of handicapped individuals confined to their homes, is relatively new compared with the more traditional type of general and special services. And although comparatively young and few in number, public library services for the homebound handicapped are being gradually, but steadily increased in-most sections-of-the country, Irwin defines Homebound as “those who are mostly dependent upon the kindness or generosity of relatives, and friends for making even the shortest journey away from home. The inability to go forth alone at will, without accommodating oneself”.

5.4 Services to the Homebound Handicapped : The program enables all agencies to use a pooled collection of special materials; for example, the Talking Book Department has access to large print books. Initial contact with the homebound reader is made by a librarian who visits the home, investigates the nature of the handicap, and provides reading guidance. Future visits are made by the librarian at regular intervals to deliver books and continue giving reading guidance. It also provide special equipment on loan, for users who need it for nonprint material.

5.4.1 Home Delivery Library Programs : A librarian selects books for each of the homebound readers, which are delivered on a regular basis. A bookmobile makes regular stops at day centers, nursing homes, and housing projects where elderly people live. Over 60 Services are publicized in newspapers and by radio, so that readers can make contact with the service themselves.

5.4.2 Mail-Order Library Service : Handicapped homebound individuals may be the beneficiaries of a mail-order service designed specifically for them. The federal program of the Library of Congress Division for the Blind and Physically Handicapped has historically been a service conducted by mail. For many years, the materials-brailled books, talking books, cassette books, and selected equipment to use the material-made available through the Library of Congress actually have reached readers through a network of regional libraries that serve the nation as a whole.

5.4.3 Library Radio Service : A library program started by the Minnesota State Services for the Blind deserves mention as a noteworthy innovation in reaching the visually and physically handicapped with reading material. It is a daily radio

service called the Radio Talking Book, which makes available readings from books and magazines, and a varied selection of current information of interest to its selected audience. The first of its kind known to have been developed in the nation.

6. International Information Literacy Programmes : In order to keep pace with knowledge, and technological expertise necessary for finding, applying and evaluating information, it is of utmost importance to master the Information Literacy skills. Information literacy skills transform the students, to vibrant, active, participant from just a passive listener in the teaching learning process. There is a paradigm shift from a parent-child relationship, between information provider and user to an “adult-adult” relationship. While new formats, and mechanisms, are being developed to cope with this rapidly changing environment, the existing gap between the generation, and use of information is further widening in the present situation.

6.1 Information Literacy : A Popular Definition : Information literacy is an intellectual framework, for recognising the need, for understanding, finding, evaluating, and using information. These are activities which may be supported in part by fluency with information technology, in part by sound investigative methods, but most importantly through critical discernment and reasoning. Information literacy initiates, sustains, and extends lifelong learning through abilities that may use technologies, but are ultimately independent of them. (ANZIIL, 2004).

6.2 Upon a recommendation from the Prague Conference of Information Literacy Experts held during September 20-23, 2003, the following organizations are committing to creating an International Alliance for Information Literacy. The evolving purpose for the Alliance is to facilitate the sharing of information, and expertise on information literacy across regions and nations of the world. The ultimate goal of the Alliance is to facilitate peoples participating effectively in the Information Society, as part of the basic human right of life long learning.

6.2.1 NAVA - Networking Alliance for Voluntary Actions is a corporate expression of NGOs of India. It serves the NGOs to empower themselves to interact more effectively on social empowerment and is staffed by skilled NGO executives. NAVA is a non-profit voluntary organisation initiated by a group of experienced

social activists in India. NAVA is a Journey in search of development alternatives, a common expression for development action of 13 Voluntary Organisations and 10 Associate Service Groups, across the country, who in a spirit of participation help in materialising the programmes. NAVA is Registered under Societies Registration Act and FCRA (Foreign Contribution Regulation Act).

6.3 Braille Bug : An Assistive Technology For the Disabled. The Braille Bug www.afb.org/braillebug, sponsored by the American Foundation for the Blind, is an interactive web site created to teach sighted children about Braille, and to encourage literacy among all children, disabled, and nondisabled alike. The Braille Bug combines full accessibility with sophisticated functionality, and a playful environment that features colorful animated graphics, including the Braille Bug itself, a ladybug with the six dots of a braille cell on its back, that helps kids understand the "secret code" of Braille, and invites them to participate in a variety of fun, and educational online games, and activities.

The Reading Club, a new channel of the Braille Bug site, features books that sighted and visually impaired children around the country can discuss on fully accessible, kid-friendly, supervised message boards. 'The Braille Trail: An Activity Guide' and its companion Parent/Teacher Guide, also on the site, introduce braille to students, parents, and teachers. These guides, designed by AFB's National Literacy Center, feature games, activities, and a wealth of information on braille, assistive technology used by braille readers, and biographies of Helen Keller and Louis Braille.

6.3.1 Knitters' Internet group shares information. VIP-SHEEP-TALK is an Internet group for blind and visually impaired individuals who enjoy yarn-related crafts, typically--but not limited to--knitting and crocheting. The group use the list to share, and learn patterns, exchange information on yarns and supplies, find help with difficult patterns or stitches, and make new friends. Emerging technologies are helping the disabled people gain not only physical independence but also the requisite skills to become an important part of the society and economy.

6.4 Assistive Technology for Mild Disabilities : Lahm and Morrissette (1994) outlined seven areas of instruction where assistive technology could assist students with mild

disabilities. These areas include (i) organisation, (ii) note-taking, (iii) writing assistance, (iv) productivity, (v) access to reference materials, (vi) cognitive assistance and (vii) materials modification.

6.4.1 Becoming Bond Free : The net also provides emotional support and bonding to the fraternity. Talkcity-it has over 900 chats a week. Most of them have disability related topics. Whether it's sclerosis or visual impairment, there is something for every one to discuss and combat emotional challenges stemming from their impairments.

6.5 Global IT giants including Microsoft, Sun, IBM and Apple are committed to advances in assistive technology. They are striving to make better IT products and software for the disabled. The Redmond Giant released the latest version of Active Accessibility – the technology software that developers use to make programmes more accessible to people with special needs and use accessibility aids like screen readers. IBM is not far behind in its efforts. It recently launched a Homepage reader for spoken web access for the blind and visually impaired. The new talking browser orally communicates all the content and information presented on the computer screen including graphics descriptions, tables and columns.

6.5.1 Digital equipment corporation – a leading player in text to speech technology, has special DEC talk software which lets developers create, and employ applications that speak electronically to users. The software can transform ordinary text into natural sounding speech. Intel too has special products for the disabled people. For those people who have difficulty pressing two keys simultaneously, intell keys allows the user to press the SHIFT KEY followed by a letter key to type capital letter – two keys in succession, not two keys at one time.

6.5.2 The Government of Egypt has developed a national strategy to introduce and encourage the use of such technology, by developing special technology centre for the disabled. In Italy, Handimpresa is an online initiative that aims at bringing together public institutions, businesses and employment agencies in helping the handicapped find employment and respectability. Similarly in the UK, the Royal National Institute for the deaf has rolled out a nationwide video telephone system

- ‘Type talk’ that assists people with Learning Disability. ‘Bet Sie’ which has made BBS site work well for the visually impaired people.
- 6.5.3** Germans have developed a technology and associated software wherein computers will sense the signals from the head of a paralysed person, through two attached electrodes and thereby, allow him to surf the net like a normal person.
- 6.5.4** Assistive technology is gaining ground in India too. NIIT Ltd., a leading IT training and software company, has developed an interactive software called I-learn. The DOS-based software, developed under the leadership of Prof. Isasc, is targeted at the children who cannot use computer key boards. Spastic students can access the computer either by touching a disk shaped pad or interrupting light through a slight hand movement or by making a sound. Similarly, Delhi’s Blind Relief Association is running a computer centre for the disabled to make them IT savvy and increase their market value in the ‘must be computer literate’ corporate jungle. The association uses a simple text to Braille which can be printed on a Braille printer. India charities and help organizations have setup their own sites like www.cry.com or www.silence India.com and www.IndiaworldCo.in home/sahayata to reach out to disabled people.
- 6.5.5** Webel Mediatronics Ltd. Kolkata and IIT Kharagpur have jointly developed hardware and software specially designed for the visually challenged. They have developed a Programme that can change a text to Braille transcription in seven Indian Languages and printed on indigenously developed computerised Braille embosser, and Braille to text conversion using customised Key Board. India's first specialised cybercafe for the visually challenged empowers them to surf the Internet using JAWA (Job Access With Speech) software, which enables both input and output commands through voice. The latest JAWA 4.02 version, includes a multilingual speech synthesizer which reads aloud the contents of a screen, and is also compatible with standard versions of Braille which means those familiar with Braille can read the text with a suitable refreshable reader. (Shah, Beena, year) Microsoft’s latest version of its PC Operating System Software, Windows XP turned out to be something of a watershed product for ‘assistive technologies’. For the first time a mainstream product came with speech recognition built into it. Office-XP tools like Word and Excel accept dictated text, while the main windows-XP system accepts a variety of spoken commands. Another comprehensive aid

called Mercury helps persons suffering from Cerebral palsy to use a single device like a wheel chair mounted joystick for all tasks connected with using a PC and accessing the Internet. (Venkateshwarlu, D)

7. Institutions for the Handicapped /Disabled vis-à-vis Information Centres : An online review of literature, on the details of Institutes for handicapped has resulted into a long list of Institutions, but only a select list of the same has been presented in this part. (Annexure for details.)

7.1 University of Georgia and Roosevelt Warm Springs Institute for Rehabilitation : The research, and training, for and about adolescents, and adults with Specific Learning Disabilities. This Center and its research are funded by the National Institute on Disability and Rehabilitation Research (NIDRR). The LDR&TC follows a Constituency-Oriented Research and Dissemination (CORD) policy to incorporate consumer reports and expertise throughout the planning and realization of both research and training goals. Implementation of all activities involve collaboration with national, state and local organizations. The LDR&TC focuses upon four comprehensive research strands by integrating the resources of six major institutions: the University of Georgia, Roosevelt Warm Springs Institute for Rehabilitation, Georgia University Affiliated Program, Auburn University, James Madison University and the Center for Learning Potential. These four strands follow the conceptual, regulatory, and consumer frameworks surrounding needs of adults with Specific Learning Disabilities.

Research strand 1, **Policy and Funding**, Research strand 2, **Functional Assessment**, Research strand 3, **Employment and Transition**, Research strand 4, **Consumer Empowerment**.

7.1.1 National Adult Literacy and Learning Disabilities Center (NALLD Center), Academy for Educational Development, 1875 Connecticut Avenue, NW, Suite 800, Washington, DC 20009-1202, (202) 884-8185, (202) 884-8422 (Fax) [Internet: http://www.aed.org](http://www.aed.org) : The Center, established in October 1993, is a national resource for information exchange regarding learning disabilities and their impact on the provision of literacy services. Funded by the National Institute for Literacy, the Center provides technical assistance in current best practices in learning disabilities to literacy providers and practitioners. In addition to sharing

information, the Center develops and refines knowledge on effective practices for serving adults with learning disabilities.

- 7.1.2** President's Committee on Employment of People with Disabilities, 1331 F. Street NW, Suite 300, Washington, D.C. 20004, (202) 376-6200 (voice), (202) 376-6205 (TDD), (202) 376-6859 (Fax) Internet: <http://www.pcepd.gov> : The committee's mission is to facilitate the communication, coordination, and promotion of public and private efforts to empower Americans with disabilities through employment. Provides technical assistance on employment provisions of ADA directly and through its Governors' Committees on Employment of People with Disabilities. The committee offers several publications that address aspects of employment for LD adults including Pathways to Employment for People with Learning Disabilities and Employment Considerations for Learning Disabled Adults. Both are free. The President's Committee on the Employment of People with Disabilities is an independent federal agency.

Provides information about organizations which develop and provide specialized equipment and technology-based access to persons with a variety of adaptive needs, and which educate about technology based tools.

- 7.1.3** Alliance for Technology Access (ATA), 2175 E. Francisco Blvd., Suite L, San Rafael, CA 94901, (415) 455-4575, (800) 455-7470 Internet: <http://marin.org/ata/> : The Alliance for Technology Access is a national organization dedicated to providing access to technology for people with disabilities through its coalition of 41 community-based resource centers in 28 states and the Virgin Islands. Each center provides information, awareness, and training for professionals, and provides guided problem solving and technical assistance for individuals with disabilities and family members.

- 7.1.4** Apple Computer Inc., Worldwide Disability Solutions Group (WDSG), 1 Infinite Loop M/S 38-DS, Cupertino, CA 95014, (800) 767-2775, (800) 600-7808, (800) 833-6223 (fax) Internet: <http://www2.apple.com/disability/default.html> : The Worldwide Disability Solutions Group at Apple works with key education, rehabilitation, and advocacy organizations nationwide to identify the computer-related needs of individuals with disabilities and to assist in the development of responsive programs. WDSG is involved with Apple's research and development to ensure that Apple computers have built in accessibility features.

- 7.1.5** Association for the Advancement of Rehabilitation Technology (RESNA), Technical Assistance Project, 1700 North Moore Street, Suite 1540, Arlington, VA 22209-1903, (703) 524-6686, (703) 524-6630 (Fax), (703) 524-6639 (TTY) Internet: <http://www.resna.org/resna/reshome.htm> : Provides technical assistance to states on the development and implementation of consumer-responsive statewide programs of technology related assistance under the Technology-Related Assistance for Individuals with Disabilities Act of 1988.
- 7.1.6** IBM Independence Series Information Referral Center, 11400 Burnet Road, Building 904, Internal Zip 9448, Austin, TX 78758, (407) 982-9099, (800) 426-4832, (800) 426-4833 TDD Internet: <http://www.austin.ibm.com/psp/info/snshome.html> : The Center responds to requests for information on how IBM products can help people with a wide range of disabilities use personal computers.
- 7.1.7** International Society for Technology in Education (ISTE), 1787 Agate St., Eugene, OR 97403-1923, (541) 346-4414, (541) 346-5890 (fax) Internet: <http://isteonline.uoregon.edu>
A nonprofit professional organization dedicated to the improvement of education through computer-based technology.
- 7.1.8** National Rehabilitation Information Center (NARIC), 8455 Colesville Road, Suite 935, Silver Spring, MD 20910, (301) 588-9284, (301) 587-1967 (fax), (800) 346-2742, (800) 34NARIC, (800) 227-0216 Abledata Product Database Internet: <http://www.naric.com> [.naric](http://www.naric.com) : The ABLEDATA-REHAB DATA database contains descriptions of more than 20,000 commercially available products for rehabilitation and independent living.
- 7.1.9** **Assistive Technology On-Line** : This World Wide Web database on Assistive Technology (AT) is presented by the Applied Science and Engineering Laboratories through their programs Rehabilitation Engineering Research Center (RERC), Delaware Assistive Technology Initiative (DATI), and Science, Engineering and Math Project (SEM).
- 7.1.10** **EASI (Equal Access to Software and Information)** Internet: <http://www.isc.rit.edu/~easi/> : An affiliate of the American Association for Higher Education (AAHE), EASI's mission is to make information technology accessible to person with disabilities with the use of adaptive technology. EASI provides informative publications, on-site seminars and a series of e-mail delivered workshops to assist colleges, schools and businesses in making their information technology resources more accessible.
- 7.1.11** **WebABLE** Internet: <http://www.adobe.com/Acrobat/Access.html> : WebABLE describes itself as an "information repository for people with disabilities and accessibility solution

providers". It's dedicated to promoting the interests of adaptive, assistive, and access technology researchers, users, and manufacturers.

7.1.12 Globe All Program, Hadley School for the Blind, 700 Elm Street, Winnetka, IL 60093-2254, USA : The (International Council for Education of People with visual Impairment) ICEVI-Hadley “Globe All” (Growth and Learning Opportunities in Blindness Education) was launched in March, 2003 there has been much interest expressed by educators throughout the world. The program is open to any individual associated with ICEVI. The Hadley Catalog will provide you with descriptions of the four programmes that serve specific audiences. There are more than 90 courses to choose from in such diverse areas such as “communication skills”, “technology”, “early childhood”, “parenting”, “Braille instruction”, “low vision” and many more. Courses can be taken by e-mail, or surface mail. All courses are available to you free of cost. Persons who successfully complete courses through the ICEVI-Hadley “Globe All” program receive a certificate signed by the president of ICEVI and President of the Hadley School for the Blind. For details visit www.hadley-school.org or mail to <infor@hadley-school.org>

7.2 Indian Initiatives

7.2.1 ABILITY Foundation : New No;28, Second Cross Street, Gandhi Nagar, Adyar Chennai 600020 India <http://www.abilityfoundation.org/contact.htm> : Ability Foundation is a strong advocate of inclusive education at all levels and acts as a catalyst in promoting inclusive education. Offering disabled people choices in higher education, access to change and mainstream employment has been an important part of their work. This, is a crucial step towards bringing to the fore their latent talents, and changing the stereotypic images generally associated with them.

National Centre for Information and Communication Technology (NCICT) seeks to impart state-of-the-art computer education and life skills that prepare graduates with disability to strike out on their own in today’s demanding corporate workplace. NCICT – initially set up as a pilot project in the country in association with UNESCO. Today, NCICT offers holistic and comprehensive job-oriented education to graduates with hearing / visual / orthopaedic impairments.

Ability Foundation also has a Placement Wing, arranges Radio Programme : Thiramaiyin Thisayil (Chennai, 'A' Sunday 8.30am). Their facilities include a cyber café where all visually impaired persons in and around Chennai can browse the web loaded with JAWS for Windows (the speech enabled software that converts every cursor or mouse movement into clear speech), which is another step towards independence, empowering visually impaired persons with the power of the Internet. Talking Book Library : Talking book Library is a storehouse of valuable books for any disabled person who prefers to listen to books rather than to read. More than 500 titles are available in audio-cassette and CD form – textbooks, fiction, non-fiction, literature, etc.

7.2.2 Ali Yavar Jung National Institute for the Hearing Handicapped : (AYJNIHH)

was established on 9th August 1983. It is an autonomous organization under the Ministry of Social Justice and Empowerment, Government of India, New Delhi. The Institute is located at Bandra (West), Mumbai-400050. The Objectives of the Institute are Manpower Development, Research, Educational Programmes, Service Facilities, Material Development, Community Programme, Information and Documentation.

7.2.3 The National Association for the Blind (NAB) :

The National Association for the Blind (NAB) a non-Government organisation was established on 19th January, 1952 with its headquarters at Bombay. Today NAB has established branches in almost all states and major districts of the country. In cooperation with the National Christian Council of India NAB established India's first Teacher Training Programme for school teachers of the blind in Palayamkottai (Tamilnadu). NAB also established the 'Home Teaching Service' and appointed the first Home Teacher whose duties included locating Blind persons, getting them acquainted with the existing facilities, rehabilitating newly blind adults, teaching Braille etc. NAB set up a 'Rural activities Committee' in 1981 with the objective of promoting the welfare of blind in rural areas. NAB provides a common platform for all institutions and associations for the blind and provides multifarious activities for the education, training, recreation and social integration. NAB conducts conferences of the blind and publishes Braille literature. It is the

pioneer organization, which started sending blind children to normal schools where they are taught through specialised equipments, and with the help of resource teachers. NAB also has a full-fledged employment department for the placement of trained and educated blind. NAB regularly gives grants to all affiliated institutions and has also given scholarships to the blind studying in colleges. NAB publishes 'Blind Welfare Magazine' 1959 onwards and its 1st News Letters 1973 onwards, which is now published quarterly. The Committee for Advancement of the Status of Blind Women was constituted in 1981 for promoting their rehabilitation, education, training, employment, economic resettlement and welfare. In 1996, the NAB set up a centre to provide service to people with Low Vision.

7.2.4 Blind Men's Association : The Blind Men's Association (BMA), Ahmedabad-today has flourished into a National level major voluntary organization for the blind and disabled. from 1954. The library is set up in the memory of his Seth Dayabhai Maniklal Shah. It has more than 15000 volumes stocked in the library range from educational text books, novels in Gujarati literature to books on general reading. In 1989, a section in the library known as the Lion's Club of Ahmedabad (Main) Children's Library for the blind children was supported by the Lions Club of Ahmedabad. The Children's library has 600 volumes in Braille.

7.2.5 The Federation for the Welfare of the Mentally Retarded (India) FWMR (I) : In the year 1966 the Federation for the Welfare of the Mentally Retarded (India) FWMR (I) instituted at Delhi with the sole aim to provide various services and facilities to Mentally Retarded Persons all over the country and bring them into the mainstream. The Central Library set up by the federation has publications of eminent Indian and foreign experts. A quarterly journal 'The Mental Retardation Digest' giving technical information on various aspects of retardation and a monthly newsletter are published by the federation.

7.2.6 Rehabilitation Center of the Bhagwan Mahaveer Viklang Sahayata Samiti (Jaipur) : Rehabilitation Centre of the Bhagwan Mahaveer Viklang Sahayata Samiti, Jaipur manufacturers of the well-known 'Jaipur Foot' is run solely on

donations raised by the members of the Samiti. The centre does not charge any patients for fitting or treatment of the limbs.

7.2.7 Rehabilitation Council India : The Rehabilitation Council of India (RCI) enacted by the Government of India has come in force from July, 1993 to enforce uniform standards in training of professionals in the field of rehabilitation. The Council launched the National Programme of "Bridge Course" which is a path-breaking initiative, targeted towards upgrading the knowledge and skill of existing rehabilitation workers to enable them to bridge the gap between qualified and unqualified professionals. The programme is currently being run in over 139 institutions across the country. In order to share the new programme developments and latest technologies emerging day by day, the RCI remains in regular touch with various National and International agencies. It also helps in collaboration, updating knowledge concerning disability and exchange of literature. RCI also maintains an Intra-Country link with organisations such as National Institutes of disability, Universities Grants Commission (UGC), National Council of Education Research and Training (NCERT), National Council of Teacher Education (NCTE), Indira Gandhi National Open University (IGNOU), Polytechnics, Engineering Colleges, and Non-Government Organisations and Inter-Country through Ministry of External affairs.

7.3 National Federation of The Blind : The "National Federation of the Blind" (NFB) is a registered Social Service Organisation engaged in the Welfare of the 25,000 Blind People living in India, Since 1970. Providing Braille Books to the Blind Schools, Orientation and Mobility Service of the Blind, Guiding Counselling and Placement Service for the Blind, are some of its key services.

8. Renowned Rehabilitation Centres of Vidarbha : A glimpse

8.1 ANANDWAN – THE FOREST OF JOY

Anandwan (The forest of Joy) has grown over the last 50 years to become what is perhaps the largest community of leprosy afflicted and physically challenged people in the world. Anandwan is the home of those who had been rejected by society. They were the lonely, vulnerable, wounded and abandoned; they were the lost, the last, the least. At Anandwan, every one of them is welcomed with open arms, to stay

as long as they wish. Anandwan is the realization of the dream of one man- **Muralidhar Devidas “Baba” Amte** and the enduring efforts of the institution set up by him as a vehicle for this endeavour, the *Maharogi Sewa Samiti*. What has given them sustenance, what has nourished them and kept them going against all odds, are certain fundamental values that they have consistently upheld as an uncompromising charter through these years.

Lifetime motto of Baba Amte – **Work Builds, Charity Destroys** – the Maharogi Sewa Samiti has not only ensured the physical rehabilitation of leprosy afflicted and physically challenged people, it has sought to build on their inner resources, to make Anandwan a unique example of a self-sufficient community. Along with his wife, **Sadhana Tai Amte, Baba has built Anandwan, the labour of love** of the entire Amte family, a family that includes all the inmates of Anandwan. In a world torn by intolerance, the residents of Anandwan, have for the past fifty years, evolved a way of life based on the beliefs of sharing and harmony.

Baba Amte draws a parallel between a soldier, a tree and a leprosy patient – all three serve, give and live for others and all three are “unsung, unmourned and unwept.”

The story of the last 50 years of Anandwan has also been a story of exponential growth. Started initially with a total of seven rupees, the annual budget of the Maharogi Sewa Samiti has today grown to a phenomenal Rs. 70 million, much of which is generated through the efforts of the members of the Anandwan community themselves.

8.1.1 ANANDWAN HOSPITAL

Established in 1951, the Anandwan Hospital now comprises 10 blocks, 2 dressing rooms, 2 patient wards, 2 dispensaries, 2 dining halls and an office.

Today nearly 650 patients are treated here on an annual basis. Over the last 50 years, nearly 35,000 leprosy patients have been treated or cured at this hospital.

8.1.2 Sandhi Niketan is a Beehive of Industrial Activity

“A person can live without fingers but not without self-respect” Baba Amte. Yuvagram Industrial Training Centre for Youth

Gokul is a home for destitute children, orphans and the children of leprosy patients. The photo shows Baba with the children of Gokul.

In 1995, to commemorate 40 years of the release of the **Schweitzer stamp**, the **Principality of Monaco** issued a stamp in honour of Prakash and Mandakini Amte.

8.2 APANGA MAHILA –BAL VIKAS SANSTHA

Mrs. Ushatai Sant decided to start a Rehabilitation centre for the handicapped girls and ladies. Some ladies with same thinking came together with Mrs. Sant, and established an organization Apang Mahila Bal Vikas Sansth on 3rd July 1993.

There are hundreds of problems relating to the physical handicapped in our country. Notable few, illiteracy among people, economical problems, and many more. Apang Mahila Bal Vikas Sanstha. Its motto is to help the handicapped people to gain employment, and help them to settle well. The organization feels, these people can do miracles by sheer hard work, and determination to achieve great heights.

Help rendered by Apang Mahila Bal Vikas Sanstha

- 1) Ujjwala Salve a handicapped member of the organization is presently working in Forest department. She is in contact with Apang Mahila Bal Vikas Sanstha regularly from Chandrapur through phone.
- 2) Bharat completed his B. Tech. From LIT. The organization had helped him economically to start his own teaching classes for Engineering Drawing and Engg. Mechanics.
- 3) Organisation has help Ranjita gain employment in a C. A. firm. She helps the organization in Accounts. Presently, she is doing her B. Ed.

8.3 NARCAOOD: ‘A Mission With a Vision’

NARCAOOD helps the disabled to find “patience to accept what they cannot change, courage to change what they can, and wisdom to know the difference.”

Health care centers in general, and Rehabilitation centers in particular are posing a great challenge in the recent times. Rehabilitation of the disabled is acquiring a great dimension due to growing complexities in the family system, and ever rising nuclear families. Health hazards, accidents, problems of the infants, and senior citizens have forced us to sit back and think about these rehabilitation centres as they have an extremely important role in helping the disabled in becoming useful members of the main stream. Rehabilitation services are available in a number of cities and towns,

the needy public are too often hardly aware of the facilities; the best services are the least known, and receive little, or no assistance in their most worthy activities. Institutes like “NARCAOOD” at local level are doing a yeoman’s service for the mankind.

NARCAOOD : Brief Perspective

Past : The “Nagpur Association for the Rehabilitation of children and Adults with Orthopaedic and other disabilities (NARCAOOD), Nagpur was founded in the year 1958 (in November as NARCOD). ‘Rotary club of Nagpur’, “Indian Medical Association” (IMA) actively supported in the establishment of NARCAOOD. Registered under the Registration of Societies Act, Bombay”(Mumbai) vide Reg. No. B-56 (1959) on the 18th of July.

In September 1959, NARCOD started a school for ‘Cerebral Palsy Cases’ in a small rented building. In 1960 a new school programme was started for children undergoing long periods of treatment at Government Medical College Hospital, Nagpur.

The Vocational Rehabilitation Administration (VRA), Department of Health, Education and Welfare, Washington 25, D.C., U.S.A. financed the VRA-NARCAOOD project NO OVR – INDI – Q24-62 under PL – 480 from 15th July 1962 – 31st July 1967, at NARCOD House, Ramdaspath, Nagpur. Conducted periodic assessment and rehabilitation of the permanently disabled and surveys of “paraplegics under social and rehabilitation services (SRS) – NARCAOOD.

The “Directory of Facilities” in Nagpur and its ‘Survey report’ published by NARCOD in 1967 and the final report published in 1972 speaks volumes of the work done by the Ex-Director Late Mrs. Kamala V. Nimbkar, Project Liaison Officer during 1965-70’s.

Recent Past : The small cerebral palsy’ school of (1959) shifted to Shankar Nagar in its own building in 1970, Late Mrs. Kamala V. Nimbkar, started these facilities for the first time in Bombay (Mumbai) and Nagpur. The horizon of activities of the centre restricted to infants and children were widened to accommodate adults and hence NARCOD became NARCAOOD (Nagpur Association for the Rehabilitation of children and Adults with Orthopaedic and other disabilities). 1980’s onwards.

Ms. Sushma Mahajan (presently, Director of NARCAOOD) who joined in 1979-80 along with a very strong untiring and dedicated team of 'Physiotherapists' and other staff in unison with the valuable support of the Management gave a new meaning and direction to NARCAOOD.

NARCAOOD : Present

NARCAOOD has a carpet area with a clinical therapy hall (4000 Sq. ft.) a separate wing for the office, Library and waiting hall; open space (1200 sq. ft.) etc. In 1995, the foundation of the new NARCAOOD building was laid. NARCAOOD moved to its new building in June 1998. The work of the first floor was completed in 2004, and separate units for CP and Administrative block with its Learning Resources Centre / Information Centre, conference Hall, staff area etc. were added.

NARCAOOD is also a very well recognized 'Research Institute' affiliated to Nagpur University and CIIMS, Nagpur which offers M.Ph.T. degree by 'Theses' only of its kind in Central India, since 1990.

NARCAOOD

Objectives of the Association Vis-à-vis Information Centre :

- ⇒ To aid children and adults with orthopaedic and other disabilities to overcome their handicaps and to become useful and self supporting members of the Community.
- ⇒ To assist other institutions by providing their services (Act as Referral centers).
- ⇒ To provide facilities for vocational assessment and training to suitable candidates and make them fit for gainful employment within the limits imposed by their disability.
- ⇒ To assist the disabled to find suitable employment on permanent basis.
- ⇒ To awaken public opinion and to enlist the general support for these objectives.
- ⇒ To encourage the local manufacture of splints and appliances for the disabled.
- ⇒ To encourage the disabled themselves to get together and help each other.
- ⇒ To arrange an Information Centre to help the disabled with their problems and to facilitate research in different fields of medicine specially physiotherapy / occupational therapy and act as Job placement center through its Library / Information Centre within the institution and outside.

⇒ To collect funds and establish organizations for the above purposes and objectives.

Services Rendered : The following services and facilities are available at NARCAOOD.

⇒ Medical Examination : Investigations are carried out by a team of experts to decide the line of treatment.

⇒ Physiotherapy : It is one of the most important services rendered to various patients with the help of Physiotherapy appliances to different exercises under expert guidance.

⇒ Referral : Patients who are referred from other institutes are provided all the facilities saving duplication of work and expenses. Orthotic and prosthetic services are also provided through their allied institutions outside the center.

⇒ Follow up : Every possible effort is made to keep in touch with the patients to know the post discharged conditions.

Information Centre : The NARCAOOD Library and Information Centre plays a key role in almost all the activities of the Association. It is an inseparable link and hub of all academic activities. Though, the need for an Information centre was felt right from the inception of the association, it took real shape only after coming to the present premises in 1970's. The progress has been very slow and steady upto 1990's, as there was no qualified librarian upto 1995. It is the only institute of its kind, to have an independent library building and 'Reading Room' facilities for the users. Though, the post of the Librarian is yet to be filled in (because of the staff strength and other technical problems).

Working Hours of the Centre : The Information centre is kept open from Morning 8 A.M. to 8P.M. which is looked after by the staff of the unit. The Honourary Librarian visits during the evening hours (Thrice a week) and looks into all the technical aspects.

Budget Allocation : Physiotherapy and Occupational Therapy being highly specialized fields, depend mostly on the Core journals and the highly Professional articles published therein. Hence, a major part of the 'Budget allocation' approved by the 'committee' is spent towards subscription to foreign journals on the above fields.

About Twenty Five thousand rupees are spent yearly towards renewal of 'Journals' and around Rs. 10,000/- for purchase of Books.

Collection Development : The Information Centre has about 350 Books and 105 Bound volumes and three extremely important Journals. A number of Journals (Indian) and Books are received on gratis regularly. About five News papers and some general magazines also form a part of collection which is mainly used by the patients. Xerox copies of certain rare and reference books are also kept for the benefit of the users.

Technical Processing : All the Books purchased through local vendors and otherwise and those received on gratis are Accessioned, Classified and Catalogued (Card cata). 'Journal subscriptions' are renewed very year in Nov-December and bound in March, Receipts and nonreceipts are also monitored very carefully and regularly. Indexing of Journals is done on regular basis. Stock is checked every year in summer months and report submitted to the Committee.

Lending Transaction : All the books except rare and reference books are issued to its users regularly. Loose issues of journals are issued to staff members only for a very limited period.

Information Services : Providing Information Services to its users forms the key function of the centre. Even the facilities/services being user (customer) oriented best customer care is the motto of the association as well as the Information Centre. – Xerox facilities (paid) is provided to the needy from the institute as well as other institutions (coming from different parts of India).

Expert vocational guidance is available through the centre which also acts as a job placement centre. Young needy disabled are given concessions in all the professional courses of their choice (specially Medicine oriented and other allied fields). Close network with the other institutes like, Govt. Medical College (IGMC), Lata Mangeshkar Medical College, National Medical Support Staff Training Institute and placement Bureau, Vell's College Chennai and a number of other institutes ease the work of the association. A number of Short term courses are conducted regularly and opportunities are provided to recruit the disabled.

Research material of high quality is made available through the centre, outside and, through 'Internet' for their research scholars at concessional rates,. 'National Information Centre' (NIC) (Nagpur) has rendered a helping hand in these ventures. Bonafide students taking advanced training in physiotherapy and occupational therapy from different parts of India make use of the Information Services rendered, which also include the CAS/SDI etc.

Extension Activities : The information centre organizes work shops, seminars etc. related to Physiotherapy/Occupational Therapy are held every week which is largely attended by staff, students and interested patients/users. Orations by renowned personalities from different parts of India (Abroad at times) are arranged on several occasions which is largely attended. Donors of repute as the 'Rotary Club', 'Lions Club', 'Armed forces', 'Grand Lodge of India' etc arrange series of programmes wherein all the modern communication aids are used.

Publications of the Information Centre :

- ⇒ Directory of facilities (1965)
- ⇒ Survey of Physically Handicapped (1967)
- ⇒ Co-ordination of rehabilitation Services (1967)
- ⇒ Rehabilitation of paraplegics (1972)

Users : the Information Centre/Library does not have any existence without its users. The users of the Centre form a diverse group which includes the Staff of the Association (Doctors/Executive Body Members coming from different disciplines etc.) Students of B.Ph.T./M.Ph.T. (of the institute/Outside the institute within the city/outstation students) Internees/part time Research Scholars.

Patients of every age group. The Centre has experienced a steady growth in the users and patients since 1995. Quite a few physiotherapists (Seniors) act as Research Guides for students of other institutes pursuing Research for various projects and for M.Ph.T. by thesis. Viva of the Research fellows are regularly conducted in the Institute. User profile is maintained which helps the centre to render SDI/CAS and other modern services (paid). The Information Centre is constantly in touch with other R&D libraries (specially Medical) to keep themselves updated, Being a 'charitable Institute' the centre does not charge any library fees, and emphasis is only

on qualitative services rather than the quantity, and run purely on no profit no loss basis. The core group being mainly the staff and students, the Information Services, are centred only around these, and mostly counseling services are provided to the patients along with general reading.

Infrastructural Facilities

Patients : More than a lakh of patients have enrolled with centre in the past few years.

Units : Physiotherapy unit consisting of Paediatric Physiotherapy, Hand physiotherapy, Orthopaedics, Neurology, Obesity, Sports, Cerebral Palsy etc.

“Sports and fitness physiotherapy clinic” on the 28th of July 2002.

Academic Activities : ‘Dr. V. R. Paithankar memorial oration’ is arranged every year along with a series of Workshops, Seminars and Tutorials. ‘Research Scholars’ present their weekly seminars on their research in progress. 12 M.Ph.T. degrees have already been awarded by RTM Nagpur University and a number of research projects are in progress.

Rehabilitation Activities : Some Beneficiaries

Hundreds and thousands of patients approaching NARCAOOD with severe ailments of Paraplegia, Hemiplegia, Polio, Paralysis, Spinal cord injuries, Spastic, Pediatric and various degenerative diseases have been successfully treated by the centre.

Shri Jagdish Harde took regular treatment for Post Polio paralysis between 1973-1980 appointed as Caining Instructor at NARCAOOD between 1974-80. Recruited by MSEB (Maharashtra State Electricity now Distribution Board, Nagpur) as Senior clerk in 1982. Awarded the ‘Gunwant Kamgar, Purskar of the state Government in 1993 and ‘Apang Kalyanartha Rajya Puraskar’ in 1995.

Mrs. Sathe with severe paraplegic problem, confined to wheel chair took regular exercises given by the expert physiotherapists of NARCAOOD. This changed her life drastically. At 47, her life is full of energy, and she conducts regular classes (cookerry, painting ceramic etc) for others. The response to her classes are over whelming.

A young adult Varun a border line mentally retarded (MR) patient is working at NARCAOOD for the past four years now.

Shri Ambadas with psychiatric problem has been employed by NARCAOOD.

An employee of the Punjab National Bank and happily married, Anand Shyam Sarwate was in Panvel with his wife to help out his old ailing in-laws. Riding a bicycle on roadside, he was hit from behind by tanker. Anand was in coma for 25 days. After initial treatment at Sion hospital, he underwent a knee surgery at the CIIMS, Nagpur. Regular medicine and physiotherapy at NARCAOOD, helped Anand of substantial recovery.

All for the cause of visually handicapped : M.D. Shivankar, Deputy Secretary, Regional Office, Nagpur, Maharashtra State Board of Technical Education and Makarand Pandharipande, who runs a computer centre at Blind Relief Association, here, were felicitated at a function organized by Maharashtra Knowledge Corporation Limited (MKCL) recently at Mumbai for their contribution. They both have created history by endeavouring to give a chance to visually impaired students to appear for the MS-CIT examination.

The JAWS software was installed which was having audio output. The students appearing for examination get the result and the certificate immediately. The printout of certificates was drawn from Braille printer which is available at computer centre of Blind Relief Association. This year 5th batch of visually impaired students passed out. Now other handicapped from NARCAOOD and other institutions are also coming forward to appear for the exam.

Highlights

⇒ NARCAOOD was recognized by the Central Government Health Scheme (CGHS) vide GR No. S. 11011/40/2001– CGHS Desk II/CGHS (P) dated 15th April 2005.

⇒ Awarded IMA's Late Dr. V. N. Wankar Award for the year 2005.

Future plan

- ⇒ Keeping in view the emerging changes in the global Health care, and Information technology, NARCAOOD has started computerising all its in-house operations, and provides ‘internet facilities to its scholars, to enhance the research activities.
- ⇒ To be in close contact with its patients, NARCAOOD proposes to start a day care centre for its beneficiaries.
- ⇒ With the construction work gaining momentum in the past few years, NARCAOOD looks forward, to add more units by adding modern infrastructural facilities.
- ⇒ With the recognition of CGHS, NARCAOOD looks forward, to widen its horizon, and help the real needy and poor patients free of cost.
- ⇒ Start short term professional courses in physiotherapy, and actively involve itself in Academic and research oriented activities, which would help unfold new dimensions in the therapy of lesser privileged and redefine the work culture in true sense.

- 9. Observation :** the disabled have the same human right as other citizens of a country. The disabled are entitled to a comprehensive education which provides continuity of service from early detection and intervention through schooling, vocational preparation, independent living in the community, and lifelong education. Which will support their life and also stabilize their learning. Therefore, the financial support of the government or other local public institutes is necessary for the NPOs to have facilities with barrier free environment for elderly and disabled people.

According to the attitudes that must be taken to reach this population’s problems, the great majority of parents think, that they should be taken by the Government, and Politicians. The parents don’t see themselves as citizens that are able to fight for their own rights and of their children. Despite the introduction of legislation like the Persons with Disabilities Act, disabled people are amongst the most disempowered groups in India. The number of disabled people would be around 55 million. They are constantly faced with discrimination and are subjected to neglect, prejudice, revulsion, rejection and pity. The insurmountable barriers that exist in society

(economic, educational, architectural, legal, health) prevent people with disabilities from leading a fulfilling life and achieving their full potential.

9.1.1 In the Indian context, there is no awareness of the term Information Literacy and its applications in higher education and lifelong learning. There are no specific standards, reports and policy guidelines for Information Literacy brought out either by Government. However, going through similar political, economic and social changes over the last couple of decades, most of these countries, regardless their development level, have certain common points of relevance regarding the information literacy issues, (Pejova,2002)

10. Recommendations :

- ⇒ There is an urgent need to provide ample facilities and arrange reading sessions in the library for the disabled.
- ⇒ Provision for a separate library building, collection development, and equipment facilities, should be considered without delay.
- ⇒ Library buildings must be designed or modified with structures to facilitate the movement of users in wheelchairs and Separate areas for the physically challenged and should be provided closer to the entrance to the library.
- ⇒ Braille books are not easily available, hence they should be published simultaneously whenever a printed version comes out.
- ⇒ Specially skilled Librarian should be made available in the Rehabilitation institutes and their libraries.
- ⇒ Adequate efforts must be made to develop a proper understanding of the concept of rehabilitation and awareness about the concept of disability.
- ⇒ Adequate efforts have to be made to create awareness about Information and legal literacy amongst differently abled persons and their families. Separate employment cells and ICT enabled training have to be provided to the disabled to match the stiff competitive world.
- ⇒ Steps need to be taken to provide equal access to education to every category of disabled.
- ⇒ Policy for the disabled should not be developed in isolation but should be an integral component of policies for society as a whole.

- ⇒ Integration of the disabled into the education system cannot be regarded as an issue separate from the policies for society as a whole.
- ⇒ Attempts should be made to assess the awareness attitude and competencies of parents of children with disabilities. Similarly attempts should be made to identify the awareness and attitude of community towards children with disabilities.
- ⇒ Scientific investigations are needed to identify the problems of parents and management strategies to deal their children with disabilities.
- ⇒ Indepth studies can be made about the factors associated with successful special schools and normal schools in the education of disabled children.
- ⇒ Scientific studies that integrate the different strategies that promote awareness, attitude and competencies in special and normal school teachers to deal children with disabilities can be done.
- ⇒ Studies can be made on innovative strategies / activities to promote better attitude in normal school children towards their disabled children.

Considering the explosive spread of Internet, we need to ensure not only the development of electronic communication devices but also the web accessibility. W3C (World Wide Web Consortium)'s WAI (Web Accessibility Initiative) developed a guideline in 1999. The United States has the Rehabilitation Act and preparing a new regulation regarding the federal government's web information. Fundamental Law for the disabled people (1970 law No.84) stipulates "Our state and local public institutions must take necessary measures to provide the environment and facility for the disabled people where they can use information, electronic communication, and broadcasting smoothly." (The first clause of Article 22)

One of the main problems regarding the support for elderly people is the lack of information. The support for disabled people should be provided in accordance with the different needs based on the type and level of disabilities. Therefore the involvement of elderly and disabled people in the support activity, namely the peer support, will be effective since the support could be provided from the viewpoint of users. The person who received the support will be able to provide the support next time, and the circle of support expands. It is expected to provide the elderly and disabled people a chance to participate in the society and give feelings of fulfillment in their life.

It should be stated to the credit of NPE 1986 that revision for education of the handicapped was mentioned under the part relating to equal educational opportunities. However, the NPE, so far as it relates to education of the handicapped, is inadequate in the following respects : NPE had not stressed the mobilization of the total general education system for the education of the handicapped. Special schools had been treated in isolation from other educational institutions from the point of view of providing the educational supervisory infrastructure, leaving it to the Ministries of Welfare and HRD to co-operatively develop the same.

- 11. Epilogue:** Presently various organizations are involved in the activities related to the welfare of elderly and disabled people. It is important to exchange information about new technology and management plans, especially the training for the support activities among organizations. It is necessary to develop a nationwide association to improve the support level. The parents, the handicapped should have more knowledge of the society in general, this could be provided by lectures, educational campaigns associations, with the media (written, oral and in television) so that it promotes greater conscience awareness of the rights of people who are disabled and those whose needs special. “As we are going to celebrate 21st century as technology century, we must pay attention to physically handicapped. We should concentrate on how their intelligence can be used. Only then, we can achieve the motive of technology century.”

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Assistive Technologies for the Disabled

According to the PWD Act 1995 the disabilities recognized are Mental Retardation , Hearing Impairment , Visual Impairment, Low vision, Locomotor Disability, Mental Illness, Leprosy cured. If a person has more than one disability, he is recognized as multiple disabilities. Cerebral palsy and Autism are also addressed as multiple disability .Deafblindness is a multiple disability.

The need of the above population is unique and advancements made in the field are many .Most important skill needed is the communication skill , and more the vocabulary , high is the level of communication and less of isolation .Due to the limitations in sensory inputs the disabled need an alternate method of communication.

The following are the technologies available for assistance in education training of the disabled.

- For a low vision person the CCTV is a good tool to develop reading skill.
- Modification in the computers have played a major role
- An ordinary computer with a Braille soft ware enables the blind students to read and understand.
- Computer screen modification like screen readers screen enlargers and text readers are helpful. Touch screen is extremely useful.
- Computer Aided Learning packages are many and could be used.
- MOUSE MODIFICATIONS are also available. Use a large size mouse pad to improve the area.

- Mouse can be replaced by joystick, head mouse, track pad, modified pointers, switch interface.
- Key Board modifications are many.
- Place large print stickers cover selected keys to reduce distraction. Key guards are used. Expanded Membrane key board, refreshable Braille display and Braille note maker are available. Soft ware modifications are also available for key boards.

Modification of sound out put:

JAWS on WINDOWS: This is a screen reader soft ware that can be used if there is residual hearing. ALVA Display is yet another soft ware.

Talking books are also available.

FOR THE HEARING IMPAIRED

F M system has a microphone worn by the teacher and receiver attached to the hearing aids.

PHONIC EAR is advanced technology for easy listening.

Dragon Dictate is a soft ware where SPEECH to TEXT is available.

Picture soft ware programmes are available. Picture can be attached to talking Devices and it can be used by mentally challenged too. Autistic children can also use this system.

Big Mac, Cheap Talker, is examples.

American Sign Language and other sign language CD ROM dictionary are available.

ACTS stands for ADAPTING COMMUNICATION BETWEEN TEACHER AND STUDENT. The mode of communication is mentioned in the book and the student carries it every where.

From IBM there are many soft wares used to develop vocabulary.

DHAIRYA device is a simple light box used by deafblind.

The Role of Information Literacy for Excellence: An Overview

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Abstract: The present paper defines the concept of Information literacy with the help of standard definitions. It also highlights the importance of Information Literacy, standards and also discusses the dimensions. The problems in the implementation of Information Literacy programs, the model with performance indicators and outcomes are also discussed.

1. Keywords: Information Literacy, Information Literacy Standards, Information Skills, Evaluation of Information, Challenges. Performance Indicators

2. Background: According to the Commission on Colleges of the Southern Association of Colleges and Schools (2000), information literacy is “the ability to locate, evaluate, and use information to become independent lifelong learners.” The American Library Association’s Presidential Committee on Information Literacy (1989) states, “To be information literate, a person must be able to recognize when information is needed and have the ability to locate, evaluate, and use effectively the needed information.” Information literacy, “the overarching literacy essential for twenty-first century living” (Bruce, 2002) is an empowering and enabling force. It describes the process of recognizing when information is needed, where it is located, how it is to be evaluated and effectively used. Information literacy makes for the creation of information literate individuals, who know how to learn because they know how information is organized, how to find information and how to use information in such a way that others can learn from them (American Library Association, 1989) defines Information literacy is a set of abilities requiring individuals to "recognize when information is needed and have the ability to locate, evaluate, and use effectively the needed information. NFIL defines

Information Literacy is defined as the ability to know when there is a need for information, to be able to identify, locate, evaluate, and effectively use that information for the issue or problem at hand. Information literacy also is increasingly important in the contemporary environment of rapid technological change and proliferating information resources. Because of the escalating complexity of this environment, individuals are faced with diverse, abundant information choices--in their academic studies, in the workplace, and in their personal lives. Information is available through libraries, community resources, special interest organizations, media, and the Internet--and increasingly, information comes to individuals in unfiltered formats, raising questions about its authenticity, validity, and reliability. In addition, information is available through multiple media, including graphical, aural, and textual, and these pose new challenges for individuals in evaluating and understanding it. The uncertain quality and expanding quantity of information pose large challenges for society. The sheer abundance of information will not in itself create a more informed citizenry without a complementary cluster of abilities necessary to use information effectively. Information literacy forms the basis for lifelong learning. It is common to all disciplines to all learning environments, and to all levels of education.

Edward K. Owusu-Ansah states that librarians, seeking greater participation in the educational process saw a unique opportunity to contribute. They could, concurrent with their existing custodial duties of collecting, organizing and providing access to the multiple forms and sources of information, also help students learn, know, and do the following:

1. Select a topic and identify a specific focus for research.
2. Frame research questions, statements of purpose, and thesis statements.
3. Determine the nature, scope and depth of their information needed.
4. Understand the process and dynamics of information creation and flow.
5. Establish what kind of information will be required and why.
6. Determine specific tools to use for retrieval of required resources.
7. Formulate appropriate strategies for location and retrieval of those resources.
8. Develop checklists and skills for screening, evaluating, and selecting resources.

9. Understand and appreciate the concept of intellectual property.
10. Apply understanding and appreciation of intellectual property to the research process.
11. Understand the process and requirements of scholarly communication.
12. Have a grasp of the ethical issues in information retrieval and use.
13. Understand legal issues attending access and use of intellectual property.
14. Understand the role of citations and attribution in the communication of knowledge.
15. Properly present assembled, interpreted, or newly created information/knowledge.

Shapiro and Hughes (1996) believe that information literacy should be regarded as a new liberal art in that it has become a part of what it means to be a free person in the information age. They described seven dimensions that should be considered in designing a curriculum that promotes comprehensive information literacy:

1. Tool literacy. Ability to use print/electronic resources and software.
2. Resource literacy. Ability to understand the form, format, location and access methods of information resources.
3. Social-structural literacy. Knowledge of how information is socially situated and produced, including the process of scholarly publication.
4. Research literacy. Ability to understand and use information technology tools to conduct research, including discipline-related software.
5. Publishing literacy. Ability to produce a text/multimedia report of research results.
6. Emerging technology *literacy*. Ability to adapt to, understand, evaluate, and use continually emerging innovations in information technology.
7. Critical literacy. Ability to evaluate information technologies critically in terms of their intellectual, human, and social strengths and weaknesses as well as their potentials and limits, benefits and costs.

The “seven pillars” model of information literacy drawn up by the UK and Irish Society of College, National and University Librarians (SCONUL) (1999) in 1999 as the

framework for OIAs. It shares a great deal in common with the US and Australian models and is consistent with the evolving national thinking on the shape of the information literacy programs in the future. The “seven pillars” model graphically charts the progression from “novice information user” to “information literate person”. It displays an iterative process whereby information users make this progression from novice, through competency, to expertise by practicing the skills. The model suggests a progression from:

1. Recognizing information need to;
2. Distinguishing ways of addressing information gap to;
3. Constructing strategies of locating information required to;
4. Locating and assessing information to;
5. Comparing and evaluating found information to;
6. Organizing, applying and communicating found information to; and
7. Synthesizing and creating new knowledge
8. Students do not believe (or are unaware) that they need help.

3. Information Literacy Competency Standards for Higher Education: These standards have been developed by the Association of the College and Research Libraries of ALA which are listed below:

3.1 Standard: ONE: The information literate person recognizes the need for information and determines the nature and extent of the information needed

Performance Indicators:

1. The information literate student defines and articulates the need for information.

Outcomes Include:

- a. Confers with instructors and participates in class discussions, peer workgroups, and electronic discussions to identify a research topic, or other information need

3.2 Standard: TWO: The information literate person accesses needed information effectively and efficiently Outcomes

Performance Indicators:

1. The information literate student selects the most appropriate investigative methods or information retrieval systems for accessing the needed information.

Outcomes Include:

- a. Identifies appropriate investigative methods (e.g., laboratory experiment, simulation, fieldwork)

3.3 Standard: THREE: The information literate person evaluates information and its sources critically and incorporates selected information into their knowledge base and value system

Performance Indicators:

1. The information literate student summarizes the main ideas to be extracted from the information gathered.

Outcomes Include:

- a. Reads the text and selects main ideas
- b. Restates textual concepts in his/her own words and selects data accurately
- c. Identifies verbatim material that can be then appropriately quoted

3.4 Standard: FOUR: The information literate person classifies, stores, manipulates and redrafts information collected or generated

Outcomes

Performance Indicators:

1. The information literate student applies new and prior information to the planning and creation of a particular product or performance.

Outcomes Include:

- a. Organizes the content in a manner that supports the purposes and format of the product or performance (e.g. outlines, drafts, storyboards)
- b. Articulates knowledge and skills transferred from prior experiences to planning and creating the product or performance

3.5 Standard: FIVE: The information literate person expands, reframes or creates new knowledge by integrating prior knowledge and new understandings individually or as a member of a group

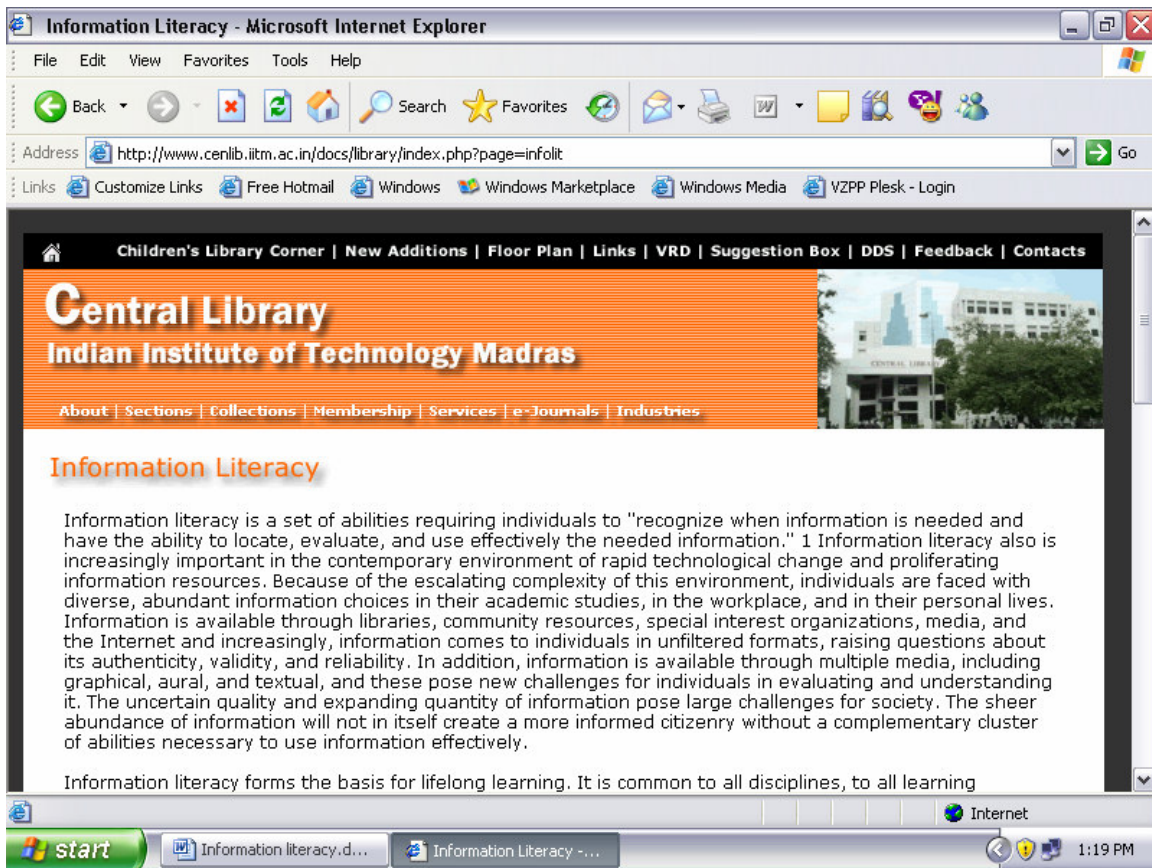
Performance Indicators:

1. The information literate student understands many of the ethical, legal and socio-economic issues surrounding information and information technology.

Outcomes Include:

- a. Identifies and discusses issues related to privacy and security in both the print and electronic environments
- b. Identifies and discusses issues related to free vs. fee-based access to information

4. Initiatives at the Central Library of IIT Madras: Keeping in view the importance of Information Literacy and the information need of the students, staff and students, we have taken various initiatives with the objectives to increase the awareness and capability among users about information seeking and using effectively and efficiently. With this purpose, we have also designed the separate webpage for Information Literacy and 200 seating capacity Media Resource Center inside the Central Library. The screenshot of the webpage for Information Literacy is given below:



4.1 Programs Conducted: We have organized various information literacy programs; some of them are listed below:

1. Presentation on web resources and services available at the Central Library of IIT Madras for the faculty, students and staff on 03-11-2006
2. Half Day Workshop on Information Handling in Digital Era focusing digital preservation, meta data standard, Search Engines and WIKISPACE on 25-10-2006
3. Convincing Multi Faculty Users in a Modern Learning Resources Center by Dr B.S. Nigam, Head, Department of Library and Information Science Makhanlal Chaturvedi National University of Journalism, Bhopal Noida Campus, on 09-08-2005
4. Digital Information Management by Dr P.Pichappen, Anna Malai University on 13-01-2005

5. Scholarly Information from Web by Dr Edward Proctor, South West Missouri State University, USA on 12-01-2005
6. Development in Search Engines by Dr Edward Proctor, South West Missouri State University, USA on 11-01-2005
7. National Workshop on Building Digital Libraries using DSpace during 16-17th December 2004
8. Web of Knowledge on 22-11-2004 addressed by Mr. Mark Wheeler, ISI - Thomson Scientific, Asia Pacific Region, Singapore.
9. Web of Science on 23-08-2004 addressed by Mr. Sanjay Grover, Informatics.
10. Tutorial on Development and Management of Digital Resources on 21-01-04
11. Seminar on Web Resource Management on 13-08-2003
12. Presentation on Web Searching Techniques on 24-09-2003
13. Presentation on Web of Science on 01-04-2003

The following table highlights the increasing Internet users population which motivates us to do more and more for digital information literacy.

Source: <http://www.internetworldstats.com/stats8.htm>

#	Country	Population (2006 Est.)	% of World Population	Population Growth Rate	Expected Pop. for year 2050
1	China	1,306,724,067	20.1 %	1.1 %	1,470,468,924
2	India	1,112,225,812	17.1 %	1.7 %	1,619,582,271
3	United States	299,093,237	4.6 %	0.8 %	403,943,147
4	Indonesia	221,900,701	3.4 %	1.8 %	337,807,011
5	Brazil	184,284,898	2.8 %	1.4 %	206,751,477
6	Pakistan	163,985,373	2.5 %	2.6 %	267,813,495
7	Nigeria	159,404,137	2.5 %	2.6 %	303,586,770
8	Russia	143,682,757	2.2 %	0.5 %	118,233,243
9	Bangladesh	136,138,461	2.1 %	1.1 %	205,093,861
10	Japan	128,389,000	2.0 %	0.1 %	101,228,471
TOP TEN Countries		3,855,828,443	59.3 %	-	5,034,508,670
Rest of the World		2,643,868,617	40.7 %	-	4,049,986,735
TOTAL World Population		6,499,697,060	100.0 %	1.1 %	9,084,495,405

Source: <http://www.internetworldstats.com/stats8.htm>

As we know that the impact of Internet on education, information seeking and handling is progressing increasing very fast, now, we need to concentrate more and more on digital information literacy so that end-users are effectively and efficiently using all digital resources.

5. Problems in Indian Context

There are various issues and problems due to them, the Information Literacy initiatives are not getting much momentum. Some of them are listed below:

1. Lack of Awareness
2. Lack of Systematic Efforts
3. Lack of Promotional Activities on the part of Institutions
4. Lethargic Attitude of Librarians

5. Traditional Role of Libraries
6. Lack of Interest on the part of Students
7. Class room based Studies
8. Lack of Resources
9. Reluctance of the Faculty
10. Lack of updated subject knowledge of Library staff
11. Lack of knowledge about the modern tools of Information Handling

6. Conclusion

There is great need on the part of librarians and academic administrators to promote Information Literacy initiatives so that the fruits which are enjoyed by the users of developed countries are also made available to the users of the developing world by creating awareness among end-users. With these initiatives, users would be able to achieve excellence in their respective areas.

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ICT Literacy/Skills, Overview of ICT Technologies, Internet and WWW

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The UN has declared this millennium as the 'knowledge millennium', signifying the overwhelming role knowledge is slated to play in our lives. The explosion of knowledge is intensely facilitated by Information and Communication Technologies, popularly known as ICT. Over the last decade ICT has grown by leaps and bounds, thanks to technological developments driven by consumer demand.

In its 1999 report, the United Nations Development Programme (UNDP) gives the following information:

- The radio took 38 years to finally have 50million users.
- TV took 13 years to reach the same number of users.
- Computers, the Internet's fundamental support,
- took 16 years to reach 50 million users.
- The Internet reached that figure in only 4 years.

According to the International Telecommunication Union, India has 6 crore Internet users, representing 5.4 % of the population(2006). In the context of such rapid expansion in internet use, it is important for Library professionals to understand the services offered by Internet and the World Wide Web that are the dominant ICTs today. This paper attempts to provide a conceptual overview of ICT and provide an outline of some of the important services.

ICT Literacy

ICT literacy is using digital technology, communication tools, and/or networks to access, manage, integrate, evaluate, and create information in order to function in a knowledge society. This is to be regarded as a continuum that allows the measurement of various

aspects of literacy, from the skills used in everyday life, such as using a bank ATM or filling in an online form to the transformative benefits of ICT proficiency.

The possession of ICT skills does not equate to ICT literacy – persons need to be proficient in applying ICT as a solution to real life problems, this is true ICT literacy.

ICT literacy is seen as made up from three important components, Cognitive Proficiency, Technical Proficiency and ICT Proficiency. ICT proficiency incorporates several elements in a continuum of increasing complexity that are explained with the following examples:

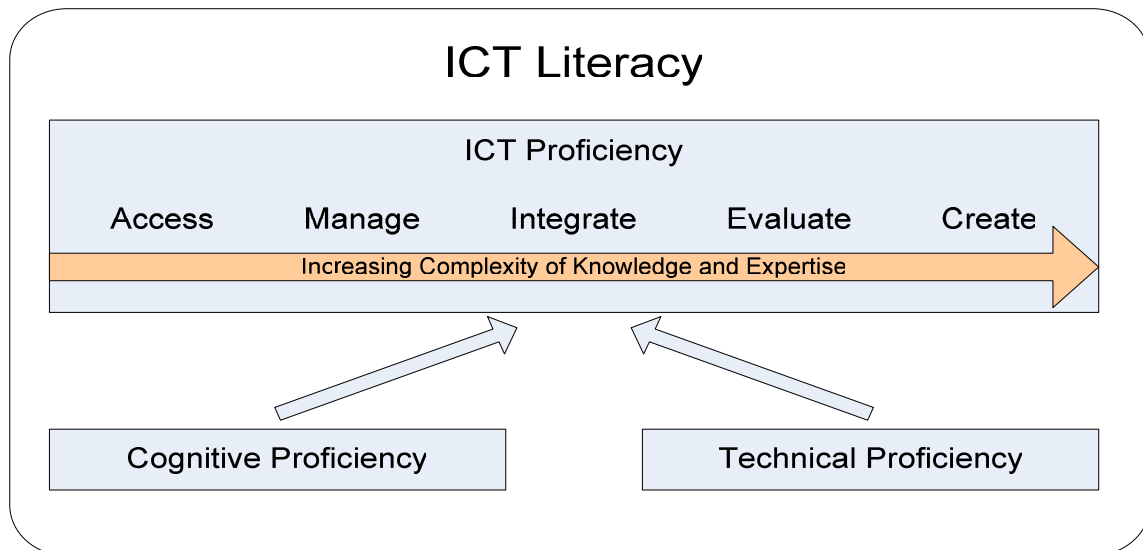
Access: Select and open messages from inbox

Manage: Identify relevant information within messages

Integrate: Summarize information elicited

Evaluate: Make decisions based on information gained

Create: Write up a recommendation using an application such as an electronic presentation



Adapted from O'Connor B et al (2002)

Complete ICT proficiency is therefore made up of all the above, but ICT literacy also requires the cognitive and technical proficiencies. The rapid development in software and technology necessitates dynamic skill acquisition rather than memorisation of step-by-step procedures.

ICT literacy is actually made up of several 'literacies' that were identified in the early 90's as various technologies developed. The first one was computer literacy.

Computer Literacy

Morgan(1998), giving an informal definition typical of those cited in the library/information literacy, still emphasises hardware and software knowledge, particularly general purpose software packages:

'Computer literacy means taking control of your computer and not letting it control you. You are computer literate when you feel you are telling the computer what to do and not the other way around.... It's not necessarily knowing what button to push, but it's knowing the difference between a word processor and a text editor, a spreadsheet and a database program, or a local hard disk drive and a networked file server... In short, computer literacy is knowing what a computer can and cannot do.'

Tuckett (1989) sees computer literacy as having three components.

1. A general understanding of what computers can do
2. The skills necessary to use them as an effective tool
3. The demonstration of self-reliance in use of computers.

He argues that, even if someone uses a computer to accomplish useful tasks every day, and has an idea of what, in totality, can be accomplished by its use, they cannot reasonably be called computer literate if they are entirely dependent on others for instruction in computer use, and for assistance should something go wrong.

Internet Literacy

The term 'internet literacy', though quite often used informally since 1995, has appeared little in print. It is used as the title of a volume of individual papers (Martin 1997), given the sub-title 'the instruction-web convergence', and covering the twin perspectives of the use of the Internet for teaching, and teaching of the use of the Internet, with some emphasis towards the perspectives and contribution of the librarian. It appears to denote essentially the same as 'network literacy', and, to a large extent, 'digital literacy'.

Network Literacy

The term 'network literacy' was introduced in McClure (1994), who defined it as 'the ability to identify, access and use electronic information from the network'. It seems little different from the concept of Internet literacy.

Maclure suggests that the basic components of network literacy include:

Knowledge:

- an awareness of the range and uses of networked resources
- an understanding of the role and uses of networked information in problem solving and 'basic life activities'
- an understanding of the system by which networked information is generated, managed and made available

Skills:

- retrieval of specific types of information from networks
- manipulation of networked information; combining, enhancing, adding value
- use of networked information to help make work-related and personal decision

Digital Literacy

The term 'digital literacy' has been used by a number of authors throughout the 1990s, to refer to an ability to read and understand hypertextual and multimedia texts. The concept has been widely popularised, with an emphasis on information retrieval and information management, by Paul Gilster, with his book of the same title (Gilster 1997). Gilster defines generally as digital literacy as 'the ability to understand and use information in multiple formats from a wide variety of sources when it is presented via computers'.

Gilster notes that 'acquiring digital literacy for the Internet involves mastering a set of core competencies' which include:

- the ability to make informed judgments about what is found on-line
- skills of reading and understanding in a dynamic and non-sequential hypertext environment
- knowledge assembly skills; building a 'reliable information horde' from diverse sources, with 'the ability to collect and evaluate both fact and opinion, ideally without bias'
- searching skills, essentially based in Internet search engines
- managing the 'multimedia flow', using information filters and agents
- creating a 'personal information strategy', with selection of sources and delivery mechanisms
- an awareness of other people and our expanded ability [through networks] to contact them to discuss issues and get help
- being able to understand a problem and develop a set of questions that will solve that information need
- understanding of backing up traditional forms of content with networked tools
- wariness in judging validity and completeness of material referenced by hypertext links

All the above literacies contribute to the development of information literacy that enables individuals to go about their personal and official lives with much ease in this knowledge millennium.

Information Literacy

The ALA's definition of the term (ALA 1989) includes the following:

'To be information literate an individual must recognise when information is needed and have an ability to locate, evaluate and use effectively the information needed. Ultimately information literate people are those who have learned how to learn. They know how to learn because they know how information is organised, how to find information, and how to use information in such a way that others can learn from them'.

The ALA report called for ensuring that students were competent in six general areas:

- recognising a need for information
- identifying what information would address a particular problem
- finding the needed information
- evaluating the information found
- organising the information
- using the information effectively in address the specific problem

Depuis (1997), gives a list of 35 skills necessary for 'creating and nurturing' information literacy, culled from the printed literature and the Internet, which are divided into six principal sections.

1. understanding the information world, including information technologies, while understanding that not all information is found on a computer
2. assessing information need, and articulating what information is needed
3. assessing and selecting resources, and searching effectively

4. evaluating and interpreting information, in different formats and media, and employing critical analysis
5. manipulating and organising information
6. communicating to others the location and content of information found, including citation practices and the integration of new information into an existing body of knowledge.

The internet and the world wide web are the primary tools in the ICT world, that enable learning.

Internet

The internet is a system architecture that has revolutionized communications and methods of commerce by allowing various computer networks around the world to interconnect. Sometimes referred to as a “network of networks,” the Internet emerged in the United States in the 1970s but did not become visible to the general public until the early 1990s. By the beginning of the 21st century approximately 360 million people, or roughly 6 percent of the world's population, were estimated to have access to the Internet. It is widely assumed that at least half of the world's population will have some form of Internet access by 2010 and that wireless access will play a growing role.

The Internet provides a capability so powerful and general that it can be used for almost any purpose that depends on information, and it is accessible by every individual who connects to one of its constituent networks. It supports human communication via electronic mail (e-mail), “chat rooms,” newsgroups, and audio and video transmission and allows people to work collaboratively at many different locations. It supports access to digital information by many applications, including the World Wide Web. Many experts believe that the Internet will dramatically transform business as well as society.

The World Wide Web(WWW)

The World Wide Web ("WWW" or simply the "Web") is a global, read-write information space. Text documents, images, multimedia and many other items of information, referred to as resources, are identified by short, unique, global identifiers called Uniform Resource Identifiers (URIs) so that each can be found, accessed and cross referenced in the simplest possible way.

The term is often mistakenly used as a synonym for the Internet itself, but the Web is actually something that is available via the Internet, just like e-mail and many other Internet services.

The Web gives users access to a vast array of documents that are connected to each other by means of hypertext or hypermedia links—i.e., hyperlinks, electronic connections that link related pieces of information in order to allow a user easy access to them. Hypertext allows the user to select a word from text and thereby access other documents that contain additional information pertaining to that word; hypermedia documents feature links to images, sounds, animations, and movies. The Web operates within the Internet's basic client-server format; servers are computer programs that store and transmit documents to other computers on the network when asked to, while clients are programs that request documents from a server as the user asks for them. Browser software allows users to view the retrieved documents.

On the World Wide Web, a client program called a user agent retrieves information resources, such as web pages and other computer files, from web servers using their URLs. If the user agent is a kind of web browser, it displays the resources on a computer display. The user can then follow hyperlinks in each web page to other World Wide Web resources, whose location is embedded in the hyperlinks. It is also possible, for example by filling in and submitting web forms, to post information back to a web server for it to save or process in some way. Web pages are often arranged in collections of related

material called "websites." The act of following hyperlinks from one website to another is referred to as "browsing" or sometimes as "surfing" the Web.

The phrase "surfing the Internet" was first popularized in print by Jean Armour Polly, a librarian, in an article called Surfing the INTERNET, published in the University of Minnesota Wilson Library Bulletin in June, 1992.

According to a 2001 study, there were more than 550 billion documents on the Web, mostly in the "invisible Web". A 2002 survey of 2,024 million web pages determined that by far the most Web content was in English: 56.4%; next were pages in German (7.7%), French (5.6%) and Japanese (4.9%). A more recent study which used web searches in 75 different languages to sample the Web determined that there were over 11.5 billion web pages in the publicly-indexable Web as of January 2005.

The Deep Web

The deep web (or invisible web or hidden web) is the name given to pages on the World Wide Web that are not part of the surface web that is indexed by common search engines. It consists of pages which are not linked to by other pages (e.g., dynamic pages which are returned in response to a submitted query). The deep web also includes sites that require registration or otherwise limit access to their pages (e.g., using the Robots Exclusion Standard), prohibiting search engines from browsing them and creating cached copies. Pages that are only accessible through links produced by JavaScript and Flash also often reside in the deep web since most search engines are unable to properly follow these links. It is estimated that the deep web may be 500 times larger than the surface Web

Supported by the Internet backbone, the WWW offers wonderful ways of communicating with others and managing knowledge. Some of them are outlined here.

Email

One of the most popular use of the WWW, email is the short form for electronic mail, the transmission of messages over communications networks. The messages can be notes entered from the keyboard or electronic files stored on disk. Most mainframes, minicomputers, and computer networks have an e-mail system. Some electronic-mail systems are confined to a single computer system or network, but others have gateways to other computer systems, enabling users to send electronic mail anywhere in the world.

Sent messages are stored in electronic mailboxes until the recipient fetches them. To see if a mail has arrived, one has to check the electronic mailbox periodically, although many systems alert the recipient when mail is received. After reading the mail can be stored in a text file, forwarded to other users, or deleted. Copies of the mail can be printed out on a printer if required.

Listserv

An automatic mailing list server developed by Eric Thomas for BITNET in 1986. When e-mail is addressed to a LISTSERV mailing list, it is automatically broadcast to everyone on the list. The result is similar to a newsgroup or forum, except that the messages are transmitted as e-mail and are therefore available only to individuals on the list.

When a user submits a question or something that he/she wants to share to the listserv, the submission is distributed to all of the other people on that list. Each listserv targets pre-determined topics and discussions.

Each listserv has two different addresses.

List address: This is the address used to submit a query or share knowledge with the entire group. This message will be distributed to all people on the listserv. This is known as "sending mail to the list."

LISTSERV address: This is the address used for subscribing and unsubscribing.

Bulletin Board

It is an electronic message center. Most bulletin boards serve specific interest groups. Users can review messages left by others, and leave their own message if they want. Bulletin boards are a particularly good place to find free or inexpensive software products. An example of a bulletin board for disability issues can be found here: <http://blindcanadians.ca/bulletin/>

Weblog – Blog

A blog is a website where entries are made in journal style and displayed in a reverse chronological order.

Blogs often provide commentary or news on a particular subject, such as food, politics, or local news; some function as more personal online diaries. A typical blog combines text, images, and links to other blogs, web pages, and other media related to its topic. Most blogs are primarily textual although some focus on photographs (photoblog), videos (vlog), or audio (podcasting), and are part of a wider network of social media. The term "blog" is a contraction of "Web log."

An example of a blog for disability can be found here: <http://dir.blogflux.com/cat/disability.html>

Internet Forum

An Internet forum is a facility on the World Wide Web for holding discussions, or the web application software used to provide the facility. Web-based forums, which date from around 1995, perform a similar function as the dial-up bulletin boards and Internet

newsgroups that were numerous in the 1980s and 1990s. A sense of virtual community often develops around forums that have regular users. Technology, computer games, and politics are popular areas for forum themes, but there are forums for a huge number of different topics.

Internet forums are also commonly referred to as web forums, message boards, discussion boards, discussion forums, discussion groups, bulletin boards or simply forums. Here is a forum on disability : <http://www.disabilityforum.org.au/forums.php>

Wiki

Wiki is a piece of server software that allows users to freely create and edit Web page content using any Web browser. Wiki supports hyperlinks and has a simple text syntax for creating new pages and crosslinks between internal pages on the fly.

Wiki is unusual among group communication mechanisms in that it allows the organization of contributions to be edited in addition to the content itself. Like many simple concepts, "open editing" has some profound and subtle effects on Wiki usage. Allowing everyday users to create and edit any page in a Web site is exciting in that it encourages democratic use of the Web and promotes content composition by nontechnical users.

Video Conferencing

Conducting a conference between two or more participants at different sites by using computer networks to transmit audio and video data. For example, a point-to-point (two-person) video conferencing system works much like a video telephone. Each participant has a video camera, microphone, and speakers mounted on his or her computer. As the two participants speak to one another, their voices are carried over the network and delivered to the other's speakers, and whatever images appear in front of the video camera appear in a window on the other participant's monitor.

Search Engines

They are programs that search documents for specified keywords and returns a list of the documents where the keywords were found. Although search engine is really a general class of programs, the term is often used to specifically describe systems like Google, Alta Vista and Excite that enable users to search for documents on the World Wide Web and USENET newsgroups.

Typically, a search engine works by sending out a spider to fetch as many documents as possible. Another program, called an indexer, then reads these documents and creates an index based on the words contained in each document. Each search engine uses a proprietary algorithm to create its indices such that, ideally, only meaningful results are returned for each query.

Google, Yahoo, MSNSearch and Ask.com are the popular search engines. A comprehensive list of search engines can be found here - http://en.wikipedia.org/wiki/List_of_search_engines

Web Pages

Web pages are documents on the World Wide Web. Every Web page is identified by a unique URL (Uniform Resource Locator). The page can be composed of text and graphics. These can be created using HTML, DHTML and JavaScript and can be about anything the author of the page wants it to be about.

Some web pages related to Disability are given here:

India

<http://www.disabilityindia.org/>

<http://www.disabilityindia.org/disabilityindiajournal.cfm>

<http://www.indiatogether.org/health/disability.htm>

<http://disabilitykar.net/>

<http://www.disabilityindia.com/>

http://www.censusindia.net/disability/disability_mapgallery.html

<http://www.abilityinfo.com/ticker/arch/archindia.html>

www.jica.go.jp/english/global/dis/pdf/india_eng_01.pdf

www.cdc.gov.mill1.sjlibrary.org/nchs/about/otheract/citygroup/products/citygroup5/disabilitycon.ppt

<http://disabilitylaw.blogspot.com/2005/06/inaccessibility-in-india.html>

The United Nations

<http://www.un.org/esa/socdev/enable/>

<http://unstats.un.org/unsd/disability/>

<http://www.unescap.org/esid/psis/disability/>

http://www.unesco.org/education/efa/know_sharing/flagship_initiatives/disability_last_version.shtml

Government of India

<http://socialjustice.nic.in/disabled/>

Government of Tamil Nadu

<http://www.tn.gov.in/department/social.htm>

Subject Gateways - Portals

A subject directory is a service that offers a collection of links to Internet resources submitted by site creators or evaluators and organized into subject categories. Directory services use selection criteria for choosing links to include, though the selectivity varies among services. Most directories are searchable.

There are two basic types of directories: academic and professional directories often created and maintained by subject experts to support the needs of researchers, and directories contained on commercial portals that cater to the general public and are competing for traffic.

Some of the directories that have plenty of information on disability issues are as follows:

<http://www.bubl.ac.uk/link/linkbrowse.cfm?menuid=4800>

<http://www.intute.ac.uk/socialsciences/cgi-bin/browse.pl?id=120664>

http://www.asksource.info/res_library/disability.htm

<http://cirrie.buffalo.edu/>

<http://www.naric.com/research/>

<http://www.eldis.org/>

Virtual Libraries

It is a library in which the holdings are found in electronic stacks. It is a library that exists, without any regard to a physical space or location. It is a technological way to bring together the resources of various libraries and information services, both internal and external, all in one place, so users can find what they need quickly and easily. Some of the advantages include the following:

- It saves and/or reduces the physical space taken up by library materials.
- It often adds enhanced searching capabilities in a digital format.
- The library materials are available at the user's desktop, regardless of where the user is physically located.
- It allows for the inclusion of materials only available on the Internet or in digital format.
- It provides the user with the capability to download and manipulate text.
- It often allows for multiple, concurrent users.
- It eliminates the problem of a book being missing or off the shelf.

- It is less labor intensive.

Some virtual libraries that have a section on disability are:

<http://www.independentliving.org/library.html>

<http://www.ipl.org/div/subject/browse/soc80.25.00/>

<http://www.netreach.net/~abrejcha/websites.htm>

Postscript

ICTs have a lot to offer. The question is whether one is equipped to make substantial use of the tools for knowledge management. One of the challenges in equipping oneself with ICT skills is the rapid changes and progress in the various technologies, which warrant efforts to keep pace with those changes. Mere learning of the skills do not guarantee effective use of ICT. It is constant use that will enable one to use ICT confidently. Librarians have a great role to play in leveraging ICTs for library users. The potential is enormous, ranging from computerized indexing to developing a digital library, ultimately ensuring that the user gets the information that he/she requires and uses it in meaningful ways.

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INFORMATION LITERACY – LEARNING ASSESSMENT

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INTRODUCTION

Computers, whether used for recreation or to access information, are an important tool for students with disabilities. Research has demonstrated that many students with learning disabilities respond very positively to auditory and visual stimuli as opposed to print media⁹. For children whose mobility is limited, email and other Internet tools focus on the content of the communication rather than personality or physical attributes, so that students can interact as "equals" without the encumbrances which sometimes isolate them, such as wheelchairs, canes or physical appearance. This method of communication contributes to the self-worth of students, because it is a highly used technology, and for those with limited mobility the use of electronic communication has great advantages for shopping, banking and gaining employment.

DEFINITION

Information literacy is an understanding and a set of abilities enabling individuals to recognise when information is needed and have the capacity to locate, evaluate, and use effectively the needed information.

THE ABILITY OF INFORMATION LITERATE INDIVIDUALS

1. recognise the need for information and determine the nature and extent of the information needed
2. find needed information effectively and efficiently
3. critically evaluate information and the information seeking process
4. manage information collected or generated

5. apply prior and new information to construct new concepts or create new understandings

6. use information with understanding and acknowledges cultural, ethical, economic, legal, and social issues surrounding the use of information

The vision of information literacy is to enable the students, special educators and librarians from different institutions to get acquainted with the concept of information literacy and use it meaningfully. They could be further assisted to become lifelong learners through the collaborative effort of academicians and personnel working information technology departments.

INFORMATION LITERATE STUDENT:

The emphasis on information literacy for the student community is a life long learning process in our present society. The changing personal goals (academic, career, life) need to be focused.. The next changing goals would be with regard to the social cultural aspects. Institutions are the basic units providing information literacy. The librarians within the institutions act as a key specialist in providing information literacy. Special educators play a supportive role in this type of setting. The local, national and global expansion in education has removed boundaries, shortened time and space, moving towards a positive change in information literacy. The student is further provided with opportunities to learn new and relevant subjects offered in the curriculum. This brings us back to the need for enhancing the teaching –learning process by including information literacy along with knowledge and skill. The drastic changes in the information economy in the areas of law, pricing, access, technology and media signifies the relevance of acquiring information literacy.

As a student -honing the ability to locate, evaluate, manage, and present information on any subject seems to be the need of the 21st century..

Implications

The collaboration between librarians and special educators to promote information literacy among the student population seems to be the core element of any professional training already acquired. .

The implication lies in the fact that the libraries and the university information centres not only provide access to knowledge but acquisition to a list of skills leading to information literate individuals.

INFORMATION LITERATE UNIVERSITY

A collaboration between university library faculty and members of the educational studies department to meet the new state standards on information literacy and technology needs to be carried out systematically. Information literacy integration in a doctoral program—incorporating and verifying standards, and an appraisal of the results can update the researcher.

STAFF DEVELOPMENT FOR INFORMATION LITERACY

The curriculum formation needs to be incorporated with the information literacy as a discipline. Information Literacy Instruction for Educators draws on examples from the United States, Canada, and Australia, articulating a multi-faceted approach to education programs that goes beyond making pre-service teachers and librarians into better students to help them become more effective information literacy instructors themselves. Information literacy programs require inclusion not only of faculty and staff throughout the institution, but also of staff in all library departments.

BARRIERS

- Lack of academic recognition
- Academic politics
- Obsession with ICT training & e-learning
- Not embedded in curriculum
- Library instruction/ library skills focus (nice but no status): not taking IL seriously as a subject as study
leading to problems such as
- Lack of appropriate assessment

LEARNING DESIGN

The classroom interaction encompasses the long goals, specific objectives, the actual teaching learning process involved along with the assessment strategies and evaluation techniques and effective feed back process.

DESIGNING ASSESSMENT IN PRACTICE

It is important for teaching, learning and assessment to be aligned, so that the assessment method is appropriate for the learning outcomes that have been set for a class or a task. The issue of assessment of learning in information literacy has received some attention.

There are three types of learning assessment, each used for a different purpose

Prescriptive or Diagnostic assessment deals with the knowledge and skill of participants before the instruction is designed. These can take the form of standardized or instructor developed tests, auditions or review of a student's prior work.

Formative assessment provides feedback about student learning while the instruction is ongoing and allows the instructor to adjust teaching methods during a course. For example, require students to write a one page "reaction paper" to a reading assignment, or prepare an annotated bibliography of research materials several weeks before the research paper is completed.

Summative assessment is a final evaluation of the criteria for assessment, which occurs at the end of instruction, i.e. multiple choice question, essays given under controlled conditions, or an evaluation of citations used in the student's research paper or a portfolio review.

SET CRITERIA IN ASSESSMENT

Assessment should address a blend of purposes

- Diagnosis
- Formative feedback

- Summative feedback
- Course evaluation, quality assurance
- Assessment regime should display certain conditions e.g.
 - relevance, consistency, authenticity, practicality
- Recording of assessment should take a variety of forms e.g.
 - transcripts of test results, portfolios, learning diaries
- Assessment should address the learner's concept of, & approach to, learning e.g.
- Quantitative/qualitative; LTM,STM.

In our formal system of education the focus is more on course evaluation rather than giving the students a proper feed back in the acquisition of relevant knowledge and skill.

MODES OF ASSESSMENT

The modes of assessment involves the following:

- Expert assessment
- Self assessment
- Peer assessment

Need to develop self-critical and reflective capacity to be able to engage in self and peer assessment. Emphasis on expert assessment is found to be significant. Self: assessment often goes without proper support/feedback to help students make realistic assessment of themselves.

BARRIERS TO INFORMATION LITERACY

- Lack of academic recognition
- Academic politics
- Obsession with ICT training & e-learning
- Not embedded in curriculum
- Library instruction/ library skills focus (nice but no status): not taking IL seriously as a subject of study

Information literacy – Curriculum

The curriculum for information literacy should include the following combination of basic library skills and information technology skills.

1. Recognise information need
2. Distinguish ways of addressing gap
3. Construct strategies for locating information
4. Locate an access
5. Compare and evaluate
6. Organise, apply and communicate.
7. Synthesis and create.

Progress involves work & collaboration

- Librarians
- Academicians
- Students
- Support staff
- Administrators

CONCLUSION

In our present society ,education has moved forward to include information literacy as a key factor to benefit all learners in the future. This can be effectively achieved only with the collaborative effort of librarians, academicians, students, support staff and administrators.

When YOU Reach Out - Everybody WinsEF

_Are you reaching all the potential users of your library? Do you know who are your potential users ? Have you done any studies or compiled any statistics to learn what percentage of each customer group is actually using your services? _Who? might benefit from Information & Technology Literacy Courses? Business Professionals?, Medical Professionals? School Teachers?, Community Leaders?

Community Organizations?, Media Reporters/Researchers? Make your own list. and Reach OUT!

INFORMATION LITERACY COMPETENCY STANDARDS, PERFORMANCE INDICATORS AND UNESCO/IFLA SCHOOL/ PUBLIC LIBRARY MANIFESTO

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1. INTRODUCTION

Information literacy has been the subject of many studies over many years. The originating concept of information literacy is generally attributed to Paul Zurkowski, in 1974 (Spitzer, Eisenberg & Lowe 1998). Indeed, since 1974 information literacy has been an area of increasing interest to librarians and information professionals and there is a huge amount of literature on the topic. However, the majority of publications have come from the industrialized, English-speaking countries, especially from the United States and Australia. Information literacy is related to information technology skills, but has broader implications for the individual, the educational system, and for society. Information literacy is a natural extension of the concept of literacy in our information society. Information literacy education is the catalyst required to transform the information society of today into the learning society of tomorrow. IL is generally seen as pivotal to the pursuit of lifelong learning, and central to achieving both personal empowerment and economic development. Information literacy is a key component of, and contributor to, lifelong learning

2. INFORMATION LITERACY: DEFINITIONS AND MEANING

“Information literacy is an intellectual framework for recognizing the need for, understanding, finding, evaluating, and using information. These are activities which may be supported in part by fluency with information technology, in part by sound investigative methods, but most importantly through critical discernment and reasoning. Information literacy initiates, sustains, and extends lifelong learning through abilities that may use technologies but are ultimately independent of them.” (Bundy, A. 2004)

Most current definitions of information literacy are built on that issued by ALA's Presidential Committee on Information Literacy (1989): 'To be information literate an individual must recognize when information is needed and have the ability to locate, evaluate and use effectively the information needed... Ultimately information literate people are those who have learned how to learn...' (ASLA/ALIA 2001: 1).

The terms defined here are related to Information Literacy:

1. **Information Literacy:** The ability to know when there is a need for information, to be able to identify, locate, evaluate, and effectively use that information for the issue or problem at hand.
2. **Computer Literacy:** The ability to use a computer and its software to accomplish practical tasks.
3. **Technology Literacy:** The ability to use media such as the Internet to effectively access and communicate information.
4. **Media Literacy:** The ability to decode, analyze, evaluate, and produce communication in a variety of forms.
5. **Visual Literacy:** The ability, through knowledge of the basic visual elements, to understand the meaning and components of the image.
6. **Health Literacy:** The degree to which individuals have the capacity to obtain, process, and understand basic health information and services needed to make appropriate health decisions.

7. **Business Literacy:** The ability to use financial and business information to understand and make decisions that help an organization achieve success”.(Source: <http://nosferatu.cas.usf.edu/lis/il/definition.html> }

An information literate individual is able to:

- Determine the extent of information needed
- Access the needed information effectively and efficiently
- Evaluate information and its sources critically
- Incorporate selected information into one’s knowledge base
- Use information effectively to accomplish a specific purpose
- Understand the economic, legal, and social issues surrounding the use of information, and access and use information ethically and legally

Information literacy has five broad abilities within the context of this continuum and a lifelong learning context:

- Recognizing the need for information
- Knowing how to access information
- Understanding how to evaluate information
- Knowing how to synthesize information
- Being able to communicate information

3. SEVEN FACES OF INFORMATION LITERACY

In her book *Seven Faces of Information Literacy* (1997) Christine Bruce identifies seven categories of IL as experienced by Australian educators in two universities:

1. *Information technology conception*
 - using information technology for information retrieval and communication
2. *Information sources conception*
 - finding information

3. *Information process conception*
 - executing a process
4. *Information control conception*
 - controlling information
5. *Knowledge construction conception*
 - building up a personal knowledge base in a new area of interest
6. *Knowledge extension conception*
 - working with knowledge and personal perspectives adopted in such a way that novel insights are gained
7. *Wisdom conception*
 - using information wisely for the benefit of others.

4. INFORMATION LITERACY STANDARDS AND PERFORMANCE INDICATORS

Information literacy standards and rubrics provide behavioural descriptors to guide curriculum design and evaluation of student learning. The information literacy standards to become effective learners include three basic components: **access, evaluation and use of information**. These core goals are found in most of the standards created by library associations, and individual educators, such as the relevant contributions of AASL, ACRL, SCONUL and the Australian and New Zealand Institute for Information Literacy, followed by the work of other countries, like Mexico.

5.1 IFLA Information Literacy Standards

The IFLA information literacy standards are based on these international experiences and contributions. The IFLA standards are grouped under the three basic IL components.

A. ACCESS. The user access information effectively and efficiently

1. Definition and articulation of the information need
 - Defines or recognizes the need for information

- Decides to do something to find the information
- Express and defines the information need
- Initiates the search process

2. Location of information

- Identifies, and evaluates potential sources of information
- Develops search strategies
- Accesses the selected information sources
- Selects and retrieves the located information

B. EVALUATION. The user evaluates information critically and competently

3. Assessment of information

- Analyzes, and examines, extracting information
- Generalizes and interprets information
- Selects, and synthesizes information
- Evaluates accuracy and relevance of the retrieved information

4. Organization of information

- Arranges, and categorizes information
- Groups and organizes the retrieved information
- Determines which is the best and most useful information

C. USE. The user applies/uses information accurately and creatively

5. Use of information

- Finds new ways to communicate, present and use information
- Applies the retrieved information
- Learns, or internalizes information as a personal knowledge
- Presents the information product

6. Communication and ethical use of information

- Understands ethical use of information
- Respects the legal use of information

- Communicates the learning product with acknowledgement of intellectual property
- Uses the relevant acknowledgement style standards

5.2 Information Literacy Standards and Indicators and School Libraries

The school library is a primary source for information and curriculum support. The school library program functions as the information center for the school by providing access to a full range of information resources, in both traditional and electronic format, and opportunities to acquire information literacy skills and integrated and interdisciplinary learning activities which support the curriculum. The mission of the school library program is to ensure that all students and staff become literate, life-long learners and effective and responsible users of ideas and information.

The following **three categories, nine standards, and twenty-nine indicators** describe the content and processes related to information that students must master to be considered well educated..

Category I: Information Literacy

The student who is information literate:

Standard 1: Accesses information efficiently and effectively, as described by the following indicators:

1. recognizes the need for information;
2. recognizes that accurate and comprehensive information is the basis for intelligent decision making;
3. formulates questions based on information needs;
4. identifies a variety of potential sources of information;
5. develops and uses successful strategies for locating information.

Standard 2: Evaluates information critically and competently, as described by the following indicators:

6. determines accuracy, relevance, and comprehensiveness;
7. distinguishes among facts, point of view, and opinion;
8. identifies inaccurate and misleading information;
9. selects information appropriate to the problem or question at hand.

Standard 3: Uses information effectively and creatively, as described by the following indicators:

10. organizes information for practical application;
11. integrates new information into one's own knowledge;
12. applies information in critical thinking and problem solving;
13. produces and communicates information and ideas in appropriate formats.

Category II: Independent Learning

The student who is an independent learner is information literate and:

Standard 4: Pursues information related to personal interests, as described by the following indicators:

14. seeks information related to various dimensions of personal well-being, such as career interests, community involvement, health matters, and recreational pursuits;
15. designs, develops, and evaluates information products and solutions related to personal interests.

Standard 5: Appreciates and enjoys literature and other creative expressions of information, as described by the following indicators:

16. is a competent and self-motivated reader;
17. derives meaning from information presented creatively in a variety of formats;
18. develops creative products in a variety of formats.

Standard 6: Strives for excellence in information seeking and knowledge generation, as described by the following indicators:

19. assesses the quality of the process and products of one's own information seeking;
20. devises strategies for revising, improving, and updating self-generated knowledge.

Category III: Social Responsibility

The student who contributes positively to the learning community and to society is information literate and:

Standard 7: Recognizes the importance of information to a democratic society, as described by the following indicators:

21. seeks information from diverse sources, contexts, disciplines, and cultures;
22. respects the principle of equitable access to information.

Standard 8: Practices ethical behavior in regard to information and information technology, as described by the following indicators:

23. respects the principles of intellectual freedom;
24. respects intellectual property rights;
25. uses information technology responsibly.

Standard 9: Participates effectively in groups to pursue and generate information, as described by the following indicators:

26. shares knowledge and information with others;
27. respects others' ideas and backgrounds and acknowledges their contributions;
28. collaborates with others, both in person and through technologies, to identify information problems and to seek their solutions;
29. collaborates with others, both in person and through technologies, to design, develop, and evaluate information products and solutions.

The items related to information literacy describe the core learning outcomes that are most obviously related to the services provided by school library media programs. The items related to the other two other areas--independent learning and social responsibility--

are grounded in information literacy and describe more general aspects of student learning to which school library media programs also make important contributions. The latter two categories build upon the first so that, taken together and pursued to the highest levels, the standards and indicators present a profile of the information literate high-school graduate: one who has the ability to use information to acquire both core and advanced knowledge and to become an independent, lifelong learner who contributes responsibly and productively to the learning community

5.3 Alaska Association of School Librarians (AkASL) Standards

The following are the standards for the school libraries which comprises of **5 standards and 23 performance indicators:**

A. A student should understand how information and resources are organized.

A student who meets the content standard should:

- 1) recognize that libraries use classification systems to organize, store and provide access to information and resources;
- 2) understand how information in print, non-print and electronic formats are organized and accessed;
- 3) understand how library classification and subject heading systems work;
- 4) search for information and resources by author, title, subject or keyword, as appropriate; and
- 5) identify and use search strategies and terms that will produce appropriate results.

B. A student should understand and use the research processes necessary to locate, evaluate and communicate information and ideas.

A student who meets the content standard should:

- 6) state a problem, question or information need;
- 7) consider the variety of available resources and determine the best ones to use;
- 8) access information;
- 9) evaluate the validity, relevancy, currency and accuracy of information;
- 10) organize and use information to create a product; and

11) evaluate the effectiveness of the product in conveying the intended message.

C. A student should recognize that being an independent reader, listener, and viewer of material in print, non-print, and electronic formats will contribute to personal enjoyment and lifelong learning.

A student who meets the content standard should:

12) read for pleasure and information;

13) read, listen to, and view a wide variety of literature and other creative expressions; and

14) recognize and select materials appropriate to personal abilities and interests.

D. A student should be aware of the freedom to seek information and possess the confidence to pursue information needs beyond immediately available sources.

A student who meets the content standard should:

15) know how to access information through local, national and international sources in printed and electronic formats;

16) recognize the importance of access to information and ideas in a democratic society;

17) access information on local, state, national and world cultures and issues;

18) evaluate information representing diverse views in order to make informed decisions; and

19) assimilate and understand how newly acquired information relates to oneself and others.

E. A student should understand ethical, legal and social behavior with respect to information resources.

A student who meets the content standard should:

20) use library materials and information resources responsibly;

21) understand and respect for the principles of intellectual freedom;

22) understand and respect for intellectual property rights and copyright laws; and

23) develop and use citations and bibliographies.

5.4 Information Literacy Competency Standards and Performance Indicators for Higher Education

Information Literacy Competency Standards for Higher Education provides a framework for assessing the information literate individual. It also extends the work of the American Association of School Librarians Task Force on Information Literacy Standards, thereby providing higher education an opportunity to articulate its information literacy competencies with those of K-12 so that a continuum of expectations develops for students at all levels. It comprises of 5 standards and 22 performance indicators. The competencies presented here outline the process by which faculty, librarians and others pinpoint specific indicators that identify a student as information literate.

Standard One: “The information literate student determines the nature and extent of the information needed”.

Performance Indicators:

1. The information literate student defines and articulates the need for information.
2. “The information literate student identifies a variety of types and formats of potential sources for information”.
3. “The information literate student considers the costs and benefits of acquiring the needed information”
4. “The information literate student reevaluates the nature and extent of the information need”.

Standard Two: “The information literate student accesses needed information effectively and efficiently”.

Performance Indicators:

5. The information literate student selects the most appropriate investigative methods or information retrieval systems for accessing the needed information.
6. The information literate student constructs and implements effectively-designed search strategies.

7. The information literate student retrieves information online or in person using a variety of methods.
8. The information literate student refines the search strategy if necessary.
9. The information literate student extracts, records, and manages the information and its sources.

Standard Three: “The information literate student evaluates information and its sources critically and incorporates selected information into his or her knowledge base and value system”.

Performance Indicators:

10. The information literate student summarizes the main ideas to be extracted from the information gathered.
11. The information literate student articulates and applies initial criteria for evaluating both the information and its sources.
12. The information literate student synthesizes main ideas to construct new concepts.
13. The information literate student compares new knowledge with prior knowledge to determine the value added, contradictions, or other unique characteristics of the information.
14. The information literate student determines whether the new knowledge has an impact on the individual’s value system and takes steps to reconcile differences.
15. The information literate student validates understanding and interpretation of the information through discourse with other individuals, subject-area experts, and/or practitioners.
16. The information literate student determines whether the initial query should be revised.

Standard Four: “The information literate student, individually or as a member of a group, uses information effectively to accomplish a specific purpose”.

Performance Indicators:

17. The information literate student applies new and prior information to the planning and creation of a particular product or performance
18. The information literate student revises the development process for the product or performance.
19. The information literate student communicates the product or performance effectively to others.

Standard Five: “The information literate student understands many of the economic, legal, and social issues surrounding the use of information and accesses and uses information ethically and legally”.

Performance Indicators:

20. The information literate student understands many of the ethical, legal and socio-economic issues surrounding information and information technology.
21. The information literate student follows laws, regulations, institutional policies, and etiquette related to the access and use of information resources.
22. The information literate student acknowledges the use of information sources in communicating the product or performance.

All the above stated standards identify that the information literate person

- recognizes the need for information and determines the nature and extent of the information needed
- finds needed information effectively and efficiently
- critically evaluates information and the information seeking process
- manages information collected or generated
- applies prior and new information to construct new concepts or create new understandings
- uses information with understanding and acknowledges cultural, ethical, economic, legal, and social issues surrounding the use of information.

6. INFORMATION LITERACY AND SCHOOL LIBRARIES

Information Literacy standards for libraries aim at:

- Moving away from "how to use the library" towards teaching the information process – recognizing a need, meeting it, evaluating the result
- Moving away from limited and discrete library assignments towards integrated instruction with classroom teachers.
- Moving away from basic technology skills towards information problem-solving skills that may or may not involve technology.

6.1 Why is Information Literacy Important for School Libraries?

Students need their own internal navigation system to manage the information rich environment that now surrounds them. Without the ability to sift, process, and evaluate information, students will be literally unable to function. Information literacy requirements are being integrated into state and national curriculum standards. School librarians are the natural in-house experts for teaching both students and colleagues how to find, evaluate and use information effectively.

6.2 Advantages of School Libraries in the Shift to Information Literacy

- School libraries have a long history of instruction.
- School libraries have a captive audience.
- School librarians often enjoy close working relationships with teachers.
- School librarians often have a teaching background.
- Schools may have computer classes that ensure basic technology skills.
- Community concerns about Internet use can be used to encourage a curriculum-wide focus on evaluation and critical thinking.

6.3 Challenges for School Libraries in the Shift to Information Literacy

- School libraries and librarians are in danger of being seen as "not necessary now that we have the Internet" by schools under budget constraints.
- School budgets may not allow for advances in information technology.
- Community concerns about Internet use can be used to resist technology and student-driven Internet use.
- Teachers and computer lab staff may resist collaboration and change.
- Students tend to resist evaluation when information is so readily available.

7. INFORMATION LITERACY AND PUBLIC LIBRARIES

The most pertinent role of the public library is a supporting one. Information literacy will continue to be a moving target for public libraries. If the concept of information literacy is taken to its fullest extent, the challenge of the public library is to get involved in the knowledge construction process of school children in collaboration with schoolteachers and school librarians.

The challenge for the public library is to consider how to provide intellectual access and actively support the construction of knowledge of its target groups. The public library is one type of library in a continuum of libraries concerned with information literacy and lifelong learning. It has a major part to play, if it decides not only to provide readymade answers and access to resources, but takes on an educational role being actively involved in the knowledge construction processes of its target groups in collaboration with other stakeholders. Public library authorities and public librarians should impart information literacy competencies to the public library users. The importance of public libraries would be felt more strongly, if the public libraries attract common citizens and younger generations and such librarians meet the information needs of all walks of users. Public libraries can be a vital force in developing and serving information literate citizens. By responding effectively to ever-changing literacy needs, public libraries can be a welcoming oasis in the Information Age.

7.1 Why is Information Literacy Important for Public Libraries?

All citizens need their own internal navigation system to manage the information rich environment that now surrounds them. Public libraries play a special role in bridging the "digital divide" between those with home computers and those without. Citizens who lack the ability find, evaluate and use information effectively may be left behind in terms of job opportunities, lifelong learning, quality of life, and even access to basic services. Like basic literacy and reading, Information Literacy is a natural fit for public libraries.

7.2 Advantages of Public Libraries in the Shift to Information Literacy

- Public libraries are already key places for information access.
- Public librarians know what people want and can tailor learning to high-interest areas.
- Public fascination with Internet use can be used to encourage a district-wide focus on both technology training and information literacy.
- Public concern with Internet use can be used to help government recognize the key role libraries play in both providing access and teaching critical thinking and evaluation skills.

7.3 Challenges for Public Libraries in the Shift to Information Literacy

- No captive audience, the audience is diverse and can be hard to reach.
- Public library patrons expect service, not teaching, at the reference desk.
- Public library patrons often need technology literacy as well as IL.
- Instruction is relatively new to public libraries.
- Information literacy standards for public libraries do not exist.

8. IFLA's ROLE IN INFORMATION LITERACY IN THE 21ST CENTURY

The role of IFLA in defining information literacy in the future is one of balance and inclusiveness. IFLA has a role in broadening the practical definition to include all forms of information literacy for all people. IFLA has included information literacy statements in many of its policy documents, including The IFLA Internet Manifesto, The IFLA/UNESCO School Library Manifesto, and The UNESCO Public Library Manifesto. More recently, one can see the impact of IFLA's activities in section C4 of the World Summit of the Information Society Plan of Action, which reads, "Everyone should have the necessary skills to benefit from the Information Society" and goes on to refer to ITC (Information and Communication Technology) literacy and later e-literacy. However, there is much more work to be done in specifying how ITC literacy and e-literacy will be developed and implemented in tandem with the delivery of the Information and Communication Technologies.

In addition to continuing its information literacy related lobbying efforts and partnerships with other organizations, IFLA has a role in supporting the creation of standards against which librarians and libraries can evaluate all forms of information literacy, in supporting and valuing all forms of information literacy, and in continuing to provide various forums in which all interested parties can share their successes in defining information literacy in their own environments.

9. INFORMATION LITERACY SCENARIO AT GLOBAL LEVEL

Information literacy has become a global issue calling for greater attention. As a result several countries have taken initiatives in starting National and International programmes. The UNESCO, IFLA, ALA and host of other organisations and associations have developed ample number of plans and strategies. One such worth mentioning attempt is by the UNESCO. Its famous Prague declaration entitled, '**Towards an Information Literate Society**,' is an outcome of the Information Literacy Meeting of Experts (20-23 September 2004, Geneva) that highlights the immediate actions to be

taken for the promotion of information literacy by all the countries in the world. The significant aspects listed in the document are given below:

- (i) *The creation of Information Society is key to social, cultural and economic development of nations and communities, institutions and individuals in the 21st century and beyond.*
- (ii) *Information Literacy encompasses knowledge of one's information concerns and needs, and ability to identify locate, evaluate, organize and effectively create, use and communicate information to address issues or problems at hand; it is a prerequisite for participating effectively in the information society, and is part of the basic human right of life long learning.*
- (iii) *Information Literacy, in conjunction with access to essential information and effective use of information and communicating technologies use of information and communicating technologies, plays a leading role in reducing the inequalities within and among countries and peoples and in promoting tolerance and mutual understanding through information use in multicultural and multilingual contexts.*
- (iv) *Governments should develop strong inter disciplinary program to promote Information Literacy nationwide as a necessary step in closing the digital divide through creation of an information literate citizenry an effective civil society and a competitive workforce.*
- (v) *Information Literacy is a concern to all sectors and should be tailored by each to its specific needs and context.*
- (vi) *Information Literacy should be an integral part of education for all, which can contribute critically to the achievement of the United Nations Millennium Development Goals, and respect for the Universal Declaration of Human Rights.*

In the last decade information literacy has become a global issue and many information literacy initiatives have been documented throughout the world, with particularly strong

efforts and examples in North America, Australia, South Africa and Northern Europe .These programmes addressed many concerns relative to ICT and information skills. In education, teachers, librarians and others are working to integrate information skills instruction within the curricula to achieve relevant learning outcomes.

In the US and Australia, government recognition of information competencies has been informed by high-profile information literacy led by the profession. Examples include the ALA Presidential Committee on Information Literacy (1987), US Forum on Information Literacy (1989), Association of College and Research Libraries Institute for Information Literacy (1997) and Information Literacy Competency Standards (2000), Australian Library and Information Association Information Literacy Task Force (1997), Australia and New Zealand Institute for Information Literacy and Australian Universities Librarians Information Literacy Standards (2000). There is also a Nordic Information Literacy Institute and IFLA Sectional Committee on Information Literacy which is being established.

10. INFORMATION LITERACY IN INDIA

In India concept of information literacy begins to appear in the library and information science (LIS) literature is very recent, but related terms, concepts and services are present in research and practice in India during the 1990s. Information literacy cuts across many different disciplines and across professional and even political agendas: librarians, teachers and faculty, experts in educational technology, learning facilitators, all contribute to the training in information literacy of citizens, even while unaware of the concept and its implications. In recent reviews in primary and secondary compulsory education and the higher education sectors, all these are related in several ways to the IL experience. Recording the evolution and achievements of IL in India is not an easy task because of its great variety, but in recent years LIS institutions in India have gone through an accelerated pace in development which certainly has had a strong positive influence for all IL-related activities and services and for the widespread acceptance of the concept itself .

11. CONCLUSION

The information literacy guidelines can be reviewed, and changed (adapted) by librarians according to the priorities of their institution, so that IL elements can be better suited to local or national needs. Local budget, policies, procedures, and priorities need to be taken into account in their application. The guidelines are a checklist of subjects to keep in mind during the planning and implementation of IL program or to reinforce previous information literacy work. Information professionals must keep in mind that they need to do whatever they can with the resources that they may have. It is better to do something than to wait for the crafting of the perfect information literacy program.

Information literacy demands a new way of thinking about learning and teaching which may be in conflict with cultural standards and expectations concerning the roles of students and educators. Incorporating information literacy across curricula, services, the collaborative efforts of faculty, librarians, lectures and by leading discussions, Faculty also inspire students to explore the unknown, best to fulfill information needs, and monitor students' programs and services; organize, of access to information; who seek information, and staff development among faculty, librarians, initiate information literacy programs, those programs, and provide ongoing resources to sustain them.

Information literacy programme is well positioned to develop these skills, thanks to its learning-how-to-learn framework which is fully articulated in the information literacy standards devised by various associations (ACRL, IFLA, ALA, ALIA, ANZIIL etc.). There is little recognition of the learning-how-to-learn or the knowledge construction approaches in the Indian education system, and these omissions should be addressed through the development of an information literacy policy that is embedded in Indian national learning agenda.

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Right to Information Act 2005 – A Primer

Sriharini Narayanan
Citizen consumer and civic Action (CAG), Chennai

About CAG

- Consumer Action Group (CAG) came into existence in 1985
- Non-profit, voluntary, professional citizens group – registered as a Trust

To protect the rights of citizens in

- Consumer and environmental issues
- Promote good governance through processes of accountability, transparency and participatory decision making.

CAG and RTI

- Strongly believes in accountability and transparency within the government.
- Welcomed the RTI Act 1997 and put it to maximum use.
- Have filed more than 25 requests under the RTI Act 2005 requesting information from various State and Central government departments/agencies.

Why Right to Information?

- Fundamental Right – Part of Article 19(1) (a) of Constitution of India.
- Access to information necessary for an informed citizenry - linked to participatory decision-making
- Important for Transparent and accountable government
- Useful in exposing corruption and other irregularities in the government.

What is RTI Act?

- Act of the Parliament of India

- Received President's assent on June 15, 2005
- Came into force on October 12, 2005.
- Replaces many State Acts and the Freedom of Information Act 2002.
- Applicable to all the Citizens of India.
- Does not extend to the State of Jammu and Kashmir

What does Right to Information mean?

Includes the right to -

- 1. inspect works, documents, records.
- 2. take notes, extracts or certified copies of documents or records.
- 3. take certified samples of material.
- 4. obtain information in form of printouts, diskettes, floppies, tapes, video cassettes or in any other electronic mode or through printouts.[S.2(j)]

What is information?

- "information" means any material in any form, including records, documents, memos, e-mails, opinions, advices, press releases, circulars, orders, logbooks, contracts, reports, papers, samples, models, data material held in any electronic form and information relating to any private body which can be accessed by a **public authority** under any other law for the time being in force;

Who is a public authority?

- any authority or body or institution of self-government established or constituted:
[S.2(h)]
- by or under the Constitution;
- by any other law made by Parliament;
- by any other law made by State Legislature;
- by notification issued or order made by the appropriate Government. and includes any-
 - body owned, controlled or substantially financed

- non-Government organization substantially financed directly or indirectly by the appropriate Government

What are the obligations of public authority?

- Section 4 – proactive disclosure
- It shall publish within one hundred and twenty days of the enactment:-
 - the particulars of its organization, functions and duties;
 - the powers and duties of its officers and employees;
 - the procedure followed in its decision making process, including channels of supervision and accountability;
 - the norms set by it for the discharge of its functions;
 - the rules, regulations, instructions, manuals and records used by its employees for discharging its functions;

 - the monthly remuneration received by each of its officers and employees, including the system of compensation as provided in its regulations;
 - the budget allocated to each of its agency, indicating the particulars of all plans, proposed expenditures and reports on disbursements made;
 - the manner of execution of subsidy programmes, including the amounts allocated and the details and beneficiaries of such programmes;

 - particulars of recipients of concessions, permits or authorizations granted by it;
 - details of the information available to, or held by it, reduced in an electronic form;
 - the particulars of facilities available to citizens for obtaining information, including the working hours of a library or reading room, if maintained for public use;
 - the names, designations and other particulars of the Public Information Officers.[S.4(1)(b)]

- Publish an Annual report on compliance with RTI.

Who is in-charge of giving information?

- Public Information Officers (PIOs) are officers designated by the public authorities in all administrative units or offices under it to provide information to the citizens requesting for information under the Act.

- Any officer, whose assistance has been sought by the PIO for the proper discharge of his or her duties, shall render all assistance and for the purpose of contraventions of the provisions of this Act, such other officer shall be treated as a PIO.

Duties of PIOs

- Render reasonable assistance to the person seeking information and where the person seeking information cannot read-write, PIO must help in writing request.

- If the information requested for is held by or its subject matter is closely connected with the function of another public authority, the PIO shall transfer, within 5 days, the request to that other public authority and inform the applicant immediately.

- PIO, on receipt of a request, shall as expeditiously as possible, and in any case within 30 days of the receipt of the request, either provide the information
 - on payment of such fee as may be prescribed or
 - reject the request for any of the reasons specified in S.8 or S.9.

- Where the information requested for concerns the **life or liberty** of a person, the same shall be provided within **forty-eight hours** of the receipt of the request

- PIO **fails to give decision** on the request within the period specified, he shall be deemed to have **refused the request.**

- When request is rejected, **reasons for rejection** must be conveyed.
- PIO shall provide information in the **form** in which it is sought.
- If allowing partial access, the PIO shall give a notice to the applicant, informing:
 - 1. that only part of the record requested, after severance of the record containing information which is exempt from disclosure, is being provided;
 - 2. the reasons for the decision, including any findings on any material question of fact, referring to the material on which those findings were based;
- the name and designation of the person giving the decision;
- the details of the fees calculated by him or her and the amount of fee which the applicant is required to deposit; and
- his or her rights with respect to review of the decision regarding non-disclosure of part of the information, the amount of fee charged or the form of access provided.

- If information sought has been supplied by third party or is treated as confidential by that third party, the PIO shall give a written notice to the third party within 5 days from the receipt of the request and take its representation into consideration.
- Third party must be given a chance to make a representation before the PIO within 10 days from the date of receipt of such notice.

Exemptions

- Information, disclosure of which would prejudicially affect the sovereignty and integrity of India, the security, strategic, scientific or economic interests of the State, relation with foreign State or lead to incitement of an offence
- Information which has been expressly forbidden to be published by any court of law or tribunal or the disclosure of which may constitute contempt of court;
- Information which would cause a breach of privilege of Parliament or the State Legislature;
- information including commercial confidence, trade secrets or intellectual property, the disclosure of which would harm the competitive position of a third

- party, unless the competent authority is satisfied that larger public interest warrants the disclosure of such information;
- 18 organisations are exempt but have an obligation to provide information relating to corruption and human rights violation (with approval from CIC or SIC).
 - Ministry of Personnel, Public Grievances & Pensions in their website claim: “Information means any.... but does not include "file notings" [S.2(f)]!!!
 - In correct Information!!

How to make a request?

- In writing or through electronic means in English or Hindi or in the official language of the area, to the PIO,
- Reason for seeking information are not required to be given;
- Pay fees as may be prescribed

Time limit and Fee

- 30 days from the date of application
- 48 hours for information concerning the life and liberty of a person
- 5 days shall be added to the above response time, in case the application for information is given to Assistant Public Information Officer.
- If the interests of a third party are involved then time limit will be 40 days (maximum period + time given to the party to make representation).
- Failure to provide information within the specified period is a deemed refusal and information to be given free!
- No Fee for BPL category

Appeal process

- If PIO fails to provide the information or rejected the request or has given partial information or incorrect/false/misleading information or has charged an irregular fee, applicant can file an appeal at two levels:
 - Appellate Authority
 - Central/State Information Commission (IC)
- Appellate authority may entertain appeal after expiry of 30 days and must respond within 45 days(max)

Role of Information Commission

- The duty of the Central Information Commission or State Information Commission, as the case may be, is to receive and inquire into a complaint from any person on the RTI Act.
- IC's may be contacted for any of the grounds for appeal, SIC/CIC has the powers equivalent to Civil Court.
- IC has powers to impose fine, issue show-cause, hold hearings, take disciplinary action.
- Fine of Rs.250 per day up to Rs. 25,000.

Some stumbling blocks

- Payment difficulties: method of remitting fees unclear. GoTN said DD to be in favour of "0075-00 - Miscellaneous General Services - 800. Other receipts - BK Collection of fee under Tamil Nadu Right to Information (Fees) Rules, 2005 (DPC 0075 00 800 BK 0006)"!!
- Word Play – vague responses used to deny information. Received response from CMWSSB - Told that there is no “contract” only an “agreement”!
- Procedural Uncertainties: PWD refers request to the Highways and Rural Works Dept. DD returned after 14 days of making the request.
- Cash is not accepted by PIO. To be remitted to the Treasury or RBI.

- PIO's do not have accurate information on mode of payment and procedure for cash payments.
- Some department staff are not aware of who the PIO is.

Case study of RTI in Action.

PWD rapped for violating Right to Information Act

- PWD defaulted on providing information about a proposed bridge over the Adyar and imposed a fine of Rs. 250 a day for 100 days of default.
- PWD issued show cause –No response
- Called for hearing – did not come
- Fine of Rs. 25,000 imposed!
- Many such cases all over the country.

What can you do?

- Be aware of RTI provisions and obligations
- Urge your departments to move towards proactive disclosure – Fulfill Sec 4 obligations.
- Display details clearly within office premises
- Educate your colleagues about RTI and how to handle RTI related queries
- Organise training activities on RTI.
- Be prompt in meeting RTI deadlines.
- Citizens First – We all need RTI Act to fight corruption and bring in transparency!

Useful Websites

- www.tn.gov.in
- <http://www.righttoinformation.gov.in/>
- www.persmin.nic.in
- www.parivartan.com
- <http://www.righttoinformation.info/>

Development of Information Literacy Programs For The Disabled at School and Vocational Institutions & Case Studies of Library & Information Services For Disabled People

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INTRODUCTION

Individuals with disability have varying degrees of need. Their needs are just like those who are not disabled. They often strive hard for a high quality of life as other normal individuals. Unfortunately many a times people fail to understand that disability in simple terms is nothing but a natural part of the human experience. Often they are shrouded by misconceptions such as, that the disabled are forced to lead a poor quality of life. But the fact is, a person with disability with all limitations can carry out normal activities of living if they have an easy access to community based long term services such as an attendant care, accesses to buildings, public transportation, side walks etc. . A disabled who is in the prime of his youth, needs an equal opportunity and we must therefore to provide wide range of assistance , services and opportunities.

TYPES OF DISABILITY:

In order to assist the disabled in leading an active and purposeful life it is important to identify and understand the various types of disability that can be assisted. They can broadly be classified as Physical and Mental disabilities.

I. Physical Disabilities

Spinal Chord Injury
Amputated Limbs:
Blindness/ Visual impairment:
Hearing Impairment:

II. Mental Disabilities

Learning disability

Mental Illnesses

Mental Retardation

Some Basic Services to the Disabled People

The library should provide basic services to disabled people in order to meet their information needs .

- Providing the disabled users with reading lists and catalogues, high demand materials and lecture tapes that are held in open reservation.
- Delivering books and other documents from library shelves.
- Photocopying of Library materials and enlarging for the partially blind.
- Paging books from stacks and shelf areas.
- Extending loan periods or modifying other lending rules on an individual basis.
- Accepting telephone requests and providing reference service.
- Conducting orientation tours and information skills sessions.
- Providing audio visual equipments.
- Assisting in the use of computer aided learning equipments such as CD-ROMS, optical disks etc.
- Providing access to library facilities by ensuring that directional signs are labelled at appropriate locations with large, simple and clear messages.

SPECIAL SERVICES

Different types of disability require different types of specialized services. The same theory holds good for library services as well and hence the trained library personnel will taken into consideration the following points

- Library services for the blind must enable them to have access to equipments such as Braille printers, Braille embosser and tape duplicators, Kuzweil reader (a text-to speed reading machine with synthesised speech output) , closed circuit TVs for magnifying regular text, PCs with CD ROMS, Powermacs with CD ROMS, large print tape writers, special track tape recorders, computers that are having adaptable equipments such as voice eyes.

- Services for speech and hearing impaired users must include TTD communications (a device also known as TTY-text type telephone) for those needing library questions answered on telephone. Librarians must also familiarise themselves with American sign language which is considered to be the common language of the deaf community.
- For the physically challenged the library facility must be barrier free to wheel chairs and other mobility devices and ensuring that all devices including door handles are designed for easy manipulation.

INFORMATION SERVICE IS THE RIGHT OF DIABLED PEOPLE: UN STANDARD RULE

The United Nations standard rule on the equalization of opportunities for persons with disabilities lists accessibility as one of the target areas for equal participation of persons with disabilities in the mainstream. The rule 5, which talks about accessibility, is as follows

- Access to Physical Environment
- Access to Information and communication

Access to Information and communication

1. Persons with disabilities and, where appropriate , their families and advocates should have access to full information on diagnosis, rights and available services and programmes at all stages. Such information should be presented in forms accessible to persons with disabilities.
2. Should develop strategies to make information services and documentation accessible for different groups of persons with disabilities. Braille, tape services, large print and other appropriate technologies should be used to provide access to written information and documentation for persons with visual impairments. Similarly, appropriate technologies should be used to

provide access to spoken information for persons with auditory impairments or comprehension difficulties.

3. Consideration should be given to use of sign language in the education of deaf children in their families and communities. Sign language interpretation services should also be provided to facilitate communication between deaf persons and others.
4. Considerations should also be given to the needs of people with other communication disabilities.
5. To ensure that new computerized information and services systems offered to the general public are either made initially accessible or are adapted to be made accessible to persons with disabilities.
6. Organisations of persons with disabilities should be consulted when measures to make information services accessible are being developed.

INFORMATION LITERACY

To be information literate, a person must be able to recognize when information is needed and have the ability to locate, evaluate, and use effectively needed information. In other words Information Literate person is one who

1. Recognizes the need of information
2. Identifies potential sources of information.
3. Access sources of information
4. Develops successful search strategies.
5. Organizes information for practical application
6. Uses information in critical thinking and problem solving.

Factors to be Considered in Designing in IL programme for Disabled

The following factors should consider while in designing the Information Literacy Programme for the disabled.

1. Type of disability- Single, Two or Many
2. Type of the parent institution

3. Type of the resources
4. Infra structure facilities
5. Level of the users
6. Types of services
7. Level of the service
8. Approaches of the users.

Case Studies:

Digital Voice Library(DVL)

The Hong Kong Society for the blind has set up a Digital Voice Library for people with a visual impairment. The 15 month project was successfully completed in march 2004. The digital voice library enables registered members to access a range of resources including text on the internet and talking books and Braille books from the library, using either a conventional telephone to listen to the material, not only can members adjust the volume and reading speed but they can also skip forward and backward through the text, inserting books marks in key passages via telephone keyboard.

Even members who do not know Braille can access the library's Braille books with the help of text-to-speech engine of the DVL which can convert Braille Code into speech.

National Institute of Visually Handicapped

The Institute has a National Library for the print/visually handicapped. The Library offers free lending services to the visually handicapped readers all over the country. It has 45,948 Braille volumes and 7,761 print books. The Library has a total membership of 2,980 persons.

Library of Congress

The National Library Service for the Blind and Physically Handicapped (NLS), Library of Congress, administers the free program that loans recorded and braille books and magazines, music scores in braille and large print, and specially designed playback equipment to residents of

the United States who are unable to read or use standard print materials because of visual or physical impairment.

NLS administers the program nationally while direct service to eligible individuals and institutions is the responsibility of cooperating libraries in the various states, the District of Columbia, Puerto Rico, Guam, and the Virgin Islands. Service is also extended to eligible American citizens residing abroad.

National Library of Australia

The National Braille Reserve collection is maintained at the **National Library of Australia**. A large print book publisher has been added to the Cataloguing in Publication (CIP) program.

The State Library of South Australia has included special format materials and materials for people with disabilities in their current collection development policy. The **University of Queensland Libraries** coordinate an extensive tape reading service for print disabled students; and the **State Library of Victoria** is producing topical material on tape cassette, and collects material and information about disabilities, including legislation and awareness raising literature.

State Library of New South Wales

The State Library of New South Wales provides a variety of computer software and equipment for people with a disability to improve access to a range of print and electronic information resources in the library. With the refurbishment of the General Reference Library reading room adaptive technology software will be networked allowing mainstream access to CD-ROM resources. The State Library of New South Wales has TTY access for people who are Deaf. Hearing loops are being installed throughout the Library and a portable loop system is available for meetings and functions. The CD-ROM catalogue may be used with both speak output and image magnification software. A Garaventa platform is provided for wheelchair access to the Mitchell wing. The State Library of New South Wales World Wide Web page has been designed taking into account guidelines for access by people with disabilities. Current adaptive technology in use throughout the library including:

- Master touch and Vocal eyes screen reading software for DOS applications, and out-SPOKEN - screen reading software for both Windows and MacIntosh applications.

- Zoomtext Plus - magnification software for DOS and Windows applications
- Intellikeys - expanded keyboard.
- The Reading Edge - text scanner with speech output.
- Chroma CCD - colour/text magnification system.

Resources and instructions in appropriate formats are being produced to support independent use of this equipment as well as referral details, to other institutions, for clients who require training in the use of the adaptive technology

The Major Challenges

The libraries in the context of special education institutions need to be strengthened. The major challenges are faced by the libraries of special education institutions include

1. No professional librarians
2. Lack Training and Expertise in the filed of special Education.
3. Lack of resources
4. Lack of interest in developing libraries for Special People by the authorities.

Conclusion

It is an opt time for the library science professionals and special educators should work together in association with statutory bodies and professional bodies like Rehabilitation Council of India UNESCO and etc to develop libraries to meet the information requirements of special people. The special education courses should be incorporated in the curriculum of library science so that librarian can play a vital role. At other end, library science education should be incorporated in the curriculum of special education which will help the special educators to play a dynamic role.

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2. *Information Literacy: Essential skills for the information age* by Michael B.Eisenberg

Technical Session – X (10/11/06)

Information Literacy Models- Big Six Model, Empowering 8 Problem Solving Model, SCONUL Seven Pillars Model

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Information Overload

Today, a *daily newspaper* has more print information in it than a person would come across in an entire *lifetime* in the 17th Century.

Information Overload

Today, a *daily newspaper* has more print information in it than a person would come across in an entire *lifetime* in the 17th Century.

Bruce, a well-known Australian information literacy researcher, notes:

The idea of information literacy, emerging with the advent of information technologies in the early 1970s, has grown, taken shape and strengthened to become recognized as the critical literacy for the twenty-first century. Sometimes interpreted as one of a number of literacies, information literacy is also described as the overarching literacy essential for twenty-first century living. Today, information literacy is inextricably associated with information practices and critical thinking in the information and communication technology environment

What is Information Literacy?

- Information literacy is a set of abilities requiring individuals to "recognize when information is needed and have the ability to locate, evaluate, and use effectively the needed information."
- Information literacy is knowing when and why you need information, where to find it, and how to evaluate, use and communicate it in an ethical manner. (*The UK's Chartered Institute of Library and Information Professionals (CILIP)*)

Information Literacy is a Process

- Must be internalized
- Integrated throughout the curriculum
- Reinforced throughout the learning community

Information Literacy helps

- Determine the extent of information needed
- Access the needed information effectively and efficiently
- Evaluate information and its sources critically
- Incorporate selected information into one's knowledge base
- Using information effectively to accomplish a specific purpose
- Understand the economic, legal, and social issues surrounding the use of information, and access and use information ethically and legally

AASL (American Association of School Librarians (AASL)) – Nine Information Literacy Standards for Student Learning

- **Information Literacy**
- **Independent Learning**
- **Social Responsibility**

**AASL – Nine Information Literacy Standards for Student Learning:
*INFORMATION LITERACY***

The student who is information literate

1. accesses information efficiently and effectively.
2. evaluates information critically and competently.
3. uses information accurately and creatively.

**AASL – Nine Information Literacy Standards for Student Learning:
*INDEPENDENT LEARNING***

The student who is an independent learner is information literate and:

4. pursues information related to personal interests.
5. appreciates literature and other creative expressions of information.
6. strives for excellence in information seeking and knowledge generation.

AASL – Nine Information Literacy Standards for Student Learning: *SOCIAL RESPONSIBILITY*

The student who contributes positively to the learning community and to society is information literate and

7. practices ethical behavior in regard to information and information technology.
8. participates effectively in groups to pursue and generate information.
9. recognizes the importance of information to a democratic society.

Information Literacy Models, K12

- Kuhlthau – The Information Search Process
- McKenzie – The Research Cycle (1995) www.fno.org
- Pappas/Tape - Pathways to Knowledge Information Skills
www.pathwaysmodel.com
- Stripling/Pitts Research Process Model
- Eisenberg/Berkowitz – The Big6 www.big6.com

The Big6

- Developed by Mike Eisenberg and Bob Berkowitz
- Used in thousands of K-12 schools, higher education institutions, and corporate and adult training programs
- The Big6 information problem-solving model is applicable whenever people need and use information
- The Big6 integrates information search and use skills along with technology tools in a systematic process to find, use, apply, and evaluate information for specific needs and tasks.

Information Literacy: The Big6 Skills

- 1. Task Definition**
- 2. Info Seeking Strategies**
- 3. Location & Access**
- 4. Use of Information**
- 5. Synthesis**
- 6. Evaluation**

Task Definition

- The first step in the information problem-solving process is to recognize that an information need exists, *to define the problem, and to identify the types and amount of information needed*. In terms of technology, people will be able to:
- **A.** Use desktop conferencing, e-mail, and groupware software on local area networks to communicate with others regarding assignments, tasks, and information problems

Information Seeking Strategies

- Once the information problem has been formulated, people must consider *all possible information sources and select the best sources*. people will be able to:
- **A.** Assess the value of various types of electronic resources for data gathering, including databases, CD-ROM resources, commercial and Internet online resources, electronic reference works, community and government information electronic resources.
- **B.** Identify and apply specific criteria for evaluating computerized electronic resources.

Location and Access

- After people determine their priorities for information seeking, they *must locate* information from a variety of resources and *access specific information* found within individual resources. people will be able to:
- **A.** Locate and use appropriate computer resources and technologies available within the school library media center, including those on the library media center's local area network, (e.g., online catalogs, periodical indexes, full-text

sources, multimedia computer stations, CD-ROM stations, online terminals, scanners, digital cameras).

Use Of Information

- After finding potentially useful resources, people *must engage (read, view, listen)* the information to determine its relevance and then *extract the relevant information*. people will be able to:
 - **A.** Connect and operate the computer technology needed to access information, and read the guides and manuals associated with such tasks.
 - **B.** View,download, decompress and open documents and programs from Internet site and archives.

Synthesis

- people *must organize* from multiple sources and *communicate the results* of the information problem-solving effort. people will be able to:
 - **A.** Classify and group information using a word processor, database or spreadsheet

Evaluation

- Evaluation focuses on how well the final product meets the original task (*effectiveness*) and the process of how well people carried out the information problem-solving process (*efficiency*). People may evaluate their own work and process or be evaluated by others. People will be able to:
 - **A.** Evaluate electronic presentations in terms of both the content and format.

Task Definition

- 1.1 Define the problem
- 1.2 Identify the information needed

Information Seeking Strategies

- 2.1 Determine all possible sources
- 2.2 Select the best sources

Location & Access

- 3.1 Locate sources
- 3.2 Find information within sources

Use of Information

- 4.1 Engage (read, hear, view)
- 4.2 Extract relevant information

Synthesis

- 5.1 Organize
- 5.2 Present

Evaluation

- 6.1 Judge the result
- 6.2 Judge the process

Empowering 8

- developed by Asians for Asians.
- a by-product of two workshops: the first in Colombo, Sri Lanka in November 2004 and the second in Patiala, India in November 2005.
- uses the problem-solving approach for resource-based learning

Information Literacy Skills Embedded in Empowering 8

1. *Ability to Identify*

-- a topic/subject, the intended audience, a relevant format, keywords, types of resources

2. *Ability to Explore*

--resources and information

3. *Ability to Select*

-- and record relevant information, identify stages in the process, and collect appropriate citations

4. *Ability to Organize,*

-- evaluate and sequence information, and use visual organizers to compare and contrast information

5. *Ability to Create*

-- information using own words

6. *Ability to Present,*

-- share or display information

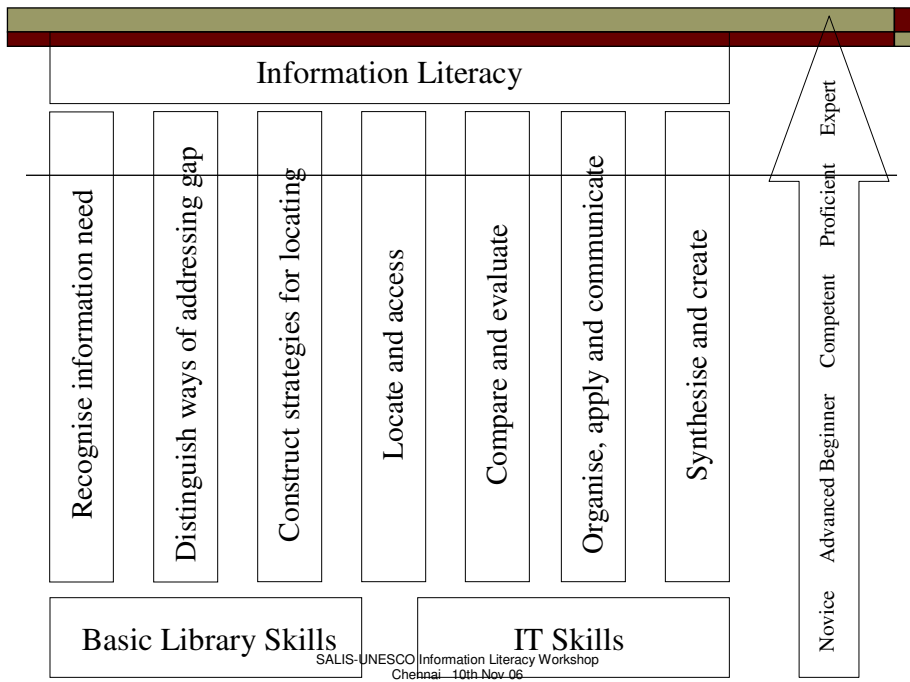
7. *Ability to Assess*

-- the output

8 Ability to Apply

-- the solutions based on the feedback and assessment and use new knowledge gained in a variety of situations.

SCONUL (Society of College, National and University Libraries) Seven Pillar Model



The Seven Headline Skills

The ability to recognise a need for information

The ability to distinguish ways

in which the information “gap”
may be addressed

- knowledge of appropriate kinds of resources, both print and non-print
- selection of resources with “best fit” for task at hand
- the ability to understand the issues affecting accessibility of sources

The ability to construct strategies for locating information

- to articulate information need to match against resources
- to develop a systematic method appropriate for the need
- to understand the principles of construction and generation of databases

4. The ability to locate and access information

- to develop appropriate searching techniques (eg use of Boolean)
- to use communication and information technologies, including terms international academic networks
- to use appropriate indexing and abstracting services, citation indexes and databases
- to use current awareness methods to keep up to date

The ability to compare and evaluate information obtained from different sources

- awareness of bias and authority issues
- awareness of the peer review process of scholarly publishing
- appropriate extraction of information matching the information need

The ability to organise, apply and communicate information to others in ways appropriate to the situation

- to cite bibliographic references in project reports and theses
- to construct a personal bibliographic system
- to apply information to the problem at hand
- to communicate effectively using appropriate medium
- to understand issues of copyright and plagiarism

The ability to synthesise and build upon existing information, contributing to the creation of new knowledge

Attributes of the model

- Generic in application
- But different
 - for specific subject fields
 - for levels of student or staff
 - for individuals?
- Levels not absolute

Applications of the model

- Diagnostic tool
- Program planning
- Program design
- Performance measurement
- To construct an 'ECDL' equivalent for IS

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Annexure I

Web Accessibility

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Adaptive Technology International (ATI)

June 2006

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The Consultant Professional Opinion

The main intent of this consultancy document is:

- To show how web site should be designed and be accessed by people with disabilities.
- To promote equal web access to UNESCO information resources technologies and services for employees, guests and visitors including those with disabilities.
- To advocate equality of access through design standards for websites and for hardware and software acquisition and development.

The ultimate goal of these guidelines is that UNESCO Web pages, information and services be accessible to the widest possible audience, including users of adaptive, alternate or emerging technologies.

These guidelines are meant to reflect the fundamental principles of equality of opportunity under Section: (Universal Declaration of Human Rights, Article 25, and the right to an adequate standard of living explicitly concerning persons with disabilities)

Equality of opportunity means:

Equal treatment; it means an equal opportunity to participate, obtain the same result, gain the same benefit, or reach the same level of achievement, and that disparate or separate treatment should be permitted only when necessary for equal opportunity.

Date: June 2006.

Table of Contents

1. Introduction
2. Major categories of disability types
3. Methodologies and standards to perform assessment of UNESCO's text-only web pages and of the tool (LIFT Text Transcoder/LTT):
 - 3.1 Brief discussions on the advantages and the disadvantages of LIFT Text Transcoder
 - 3.2 ALT/alternative text approach
 - 3.3 Method of using the self-assessment tool online
 - 3.4 Web definitions for Section 508 -- a universal standard for web accessibility
4. Methods for creating accessible online training:
 - 4.1 Accommodate students in a variety of situations
 - 4.2 Make it clear to trainees that you are open to providing accommodations if needed
 - 4.3 Understand the issues faced by people with disabilities
 - 4.4 Create course materials with differing learning styles in mind
 - 4.5 Remember the students
 - 4.6 Email
 - 4.7 Keep it simple
 - 4.8 Try to create opportunities for team projects
 - 4.9. Ask the Trainee for input
 - 4.10. Course Management Tools
5. Evaluation of the current software and hardware related to accessibility for people with disabilities:
 - 5.1 Screen Reader
 - 5.2 Screen Magnification software
 - 5.3 Closed Circuit Television Systems (CCTV)
 - 5.4 Alternative Keyboards and Key guard
 - 5.5 Key modification software
 - 5.6 Key guards
 - 5.7 Macros
 - 5.8 Key Modifier software
 - 5.9 On Screen Keyboard
 - 5.10 Voice Recognition and dicta
 - 5.11 Braille Display
6. Techniques, Tips, Recommendations
 - 6.1 Links
 - 6.2 Adding an Image
 - 6.3 Colour and accessibility in web pages
 - 6.4 PDF files
 - 6.5 Headings
 - 6.6 Tables
 - 6.7 Logical flow
 - 6.8 Audio or video attachments
 - 6.9 Footnotes for accessibility in WebPages
 - 6.10 Cascading Style Sheets/CSS for web accessibility

7. Key three components for web accessibility:
 - 7.1 Commitment and accountability
 - 7.2 Policies and Procedures.
 - 7.3 Training and technical support

8. Summary

9. Conclusion

10. References

11. Glossary

1. Introduction:

The Internet is one of the best things that ever happened to people with disabilities. We may not have thought about it that way in the past, but all we have to do is think back to the days before the Internet was as ubiquitous as it is today to see why this is so. For example, without the Internet, how did blind people read newspapers? The answer is that they mostly didn't. At best, they could ask a family member or friend to read the newspaper to them. This method works, but it makes blind people dependent upon others. They could never read the newspaper themselves.

We might think that audiotapes or Braille printouts of newspapers could offer a reasonable solution, but both options are expensive and slow compared to the rate at which publishers create and distribute newspapers. Blind people wouldn't receive the news until after it was no longer new. Not only that, but a Braille version of the New York Times or the Toronto Star would be so big and bulky with the extra large and thick Braille embossed paper that we would practically have to use a forklift to move it around. None of these methods of reading newspapers are ideal. They're too slow, expensive, and too dependent upon other people.

With the advent of the World Wide Web, many newspapers now publish their content electronically in a format that can be read by text-to-speech synthesizer software programs (often called "screen readers") used by the blind. These software programs read text out loud so that blind people can use computers and access any text content through the computer. Suddenly, blind people don't have to rely on the kindness of other people to read the newspaper to them. They don't have to wait for expensive audio tapes or expensive, bulky Braille printouts. They simply open a web browser and listen to their screen reader as it reads the newspaper to them, and they do it when they want to do it. The Internet affords a whole new level of independence and opportunity to blind people.

When we understand the impact that the Internet can have in the lives of blind people, the concept of web accessibility issue takes on a whole new level of significance. Similarly, people with motor disabilities who cannot pick up a newspaper or turn its pages can access online newspapers through their computer, using certain assistive technologies that adapt the computer interface to their own disabilities. Sometimes the adaptations are crude, such as having the person place a stick in the mouth, and to use that stick to type keyboard commands. In other cases, the adaptations are more sophisticated, as in the use of eye-tracking software that allows people to use a computer with nothing more than eye movements. People with tremors may use a special keyboard with raised ridges in-between the keys so that they can place their hand down on the keyboard and then type the letters, rather than risk typing the wrong keys. Most of these people would not be able to use a mouse with much accuracy. Regardless of the level of sophistication, many of these adaptations have one thing in common: they make use of the keyboard, or emulate the use of a keyboard, rather than the use of a mouse. As with people who are blind, the Internet allows people with motor disabilities to access information in ways that they never could before.

People who are deaf always had the possibility of reading newspapers on their own, so it may seem that the Internet does not offer the same type of emancipation that it does to those who are blind or to those with motor disabilities, but there are a few cases in which the Internet can still have a large impact. For example, they can read online transcripts of important speeches, or view multimedia content that has been fully captioned. Where can we find web-based video or multimedia content that has been fully captioned for the deaf? What if the Internet content is only accessible by using a mouse? What do people do if they can't use a mouse? And what if web developers use all graphics instead of text? If screen readers can only read text, how would they

read the graphics to people who are blind? As soon as we start asking these types of questions, we begin to see that there are a few potential glitches in the accessibility of the Internet to people with disabilities. The Internet has the potential to revolutionize disability access to information, but if we're not careful, we can place obstacles along the way that destroy that potential, and which leave people with disabilities just as discouraged and dependent upon others as before.

Though estimates vary, most studies find that about one fifth (20%) of the population has some kind of disability. Not all of these people have disabilities that make it difficult for them to access the Internet. For example, a person whose legs are paralyzed can still navigate a web site without any disability-related difficulty. Still, if only half—or even a quarter—of these individuals have disabilities that affect their ability to access the Internet, this is a significant portion of the population. Businesses would be unwise to purposely exclude 20, 10 or even 5 percent of their potential customers from their Web sites.

Schools, universities, UN agencies and government entities would be not only unwise, but, in many countries, they would also be breaking the law if they did so.

There are three main reasons that motivate web developers to create accessible web content:

- To improve the lives of people with disabilities (human-centered motivations)
- To capitalize on the a wider audience or consumer base (marketing or economic-centered motivations)
- To avoid lawsuits and/or bad press (public relations and punishment-centered motivations.)

2. Major categories of disability types:

2.1 Visual: blindness, low vision, colour-blindness.

2.2 Hearing: deafness

2.3 Motor: inability to use a mouse, slow response time, limited fine motor control

2.4 Cognitive: learning disabilities, distractibility, and inability to remember or focus on large amounts of information.

Each of the major categories of disabilities requires certain types of adaptations in the design of the web content. Most of the time, these adaptations benefit nearly everyone, not just people with disabilities. For example, people with cognitive disabilities benefit from illustrations and graphics, as well as from properly organized content with headings, lists, and visual cues in the navigation. Similarly, though captioned video content is meant to benefit people who are deaf, it can also benefit those who do not have sound on their computers, or who do not want to turn the sound on in public places such as libraries, airplanes, or computer labs.

Occasionally, Web developers must implement accommodations that are more specific to people with disabilities. For example, developers can add links that allow blind users or people with motor disabilities who cannot use a mouse to skip past the navigational links at the top of the page. People without disabilities may choose to use this feature as well, but they will usually ignore it. In almost every case, even these disability-specific adaptations can be integrated into the site's design with little or no impact to its overall visual "look and feel." Unfortunately, too many web developers are convinced that the opposite is true. They worry that their sites will become less appealing to their larger audience of people without disabilities. This faulty

perception has led to countless circular debates that tend to cause unnecessary friction between web designers and people with disabilities.

From the perspective of people with disabilities, inaccessible web content is an obstacle that prevents them from participating fully in the information revolution that has begun unfolding on the Internet. To them, it is a matter of basic human rights. When web developers truly understand this perspective, most of them realize the importance of the issue, and are willing to do what they can to make their Web content more accessible.

3. Methodologies and standards to perform assessment of UNESCO's text-only web pages and of the tool (LIFT Text Transcoder/LTT):

3.1. Discussions of the advantages and the disadvantages of LIFT:

The LIFT Text Transcoder is an online tool in a server-side solution that needs to fetch web content, transform it, and then re-deliver it via the browser. The LIFT Text Transcoder aims to make live web content more accessible to blind, low vision, colour blind or low mobility users. Most of the standard arguments against creating a second, stand-alone, text-only version of a site apply equally to creating an on-the-fly text-only version of a site. For example, it provides many clients with a second-rate browsing experience. Text-only does not mean accessible to all. Text-only really serves only a specific subset of the much larger group of users who benefit from a site being "accessible" in other ways. Someone who is quadriplegic with 20/20 vision and who browses using sip-and-puff input control does not need or want a text-only version of a site, they just

want a version that is fully accessible to a keyboard user, and that does not depend too much on fine motor control. An older, novice web user with weakening, but still good vision does not need or want a text-only site, they just want a site that will increase font sizes when they use the View -> Text Size -> Increase in Internet Explorer. There is a tendency for the "main" or "high graphics" version of a site to get all the design team's attention, and for the second version of the site to be used as an excuse for not implementing or concentrating on normal accessibility improvements to the main site.

It is not easy to ensure that all users who come to a site will know or figure out that a text-only version exists. As an example of how these issues can occur with the LIFT Text Transcoder, check out the UNESCO PORTAL AT:

http://portal.unesco.org/ci/en/ev.php - URL_ID=19487&URL_DO=DO_TOPIC&URL_SECTION=201.html

Now, click on the main link to the "UNESCO NEWS Service" and when you get to that page, ask yourself, where are the headings? Where are the skip navigation links? All of the arguments I identified above is not to appose the UsableNet - LIFT /LTT approach for the web. The point here is not that such a technology couldn't be useful in specific cases for specific user groups, but that it is not a magic pill that will make all of a site's accessibility issues go away. The amount of time, energy and resources has spent on LTT trying to configure the software and re-organize a site to conform to it would in all likelihood be better spent directly fixing the accessibility problems on the main site.

Disadvantage:

As the LIFT is an internet or intranet based solution only, it doesn't function when the user is offline, or has a slow/unreliable internet connection. Indeed, if the original site is *badly*

inaccessible, even the text transcoder won't be able to magically make it accessible. For example, if we have graphic or videos embedded in pages, not using structural mark-up, or similar situations, the LIFT Text Transcoder won't automatically generate text transcripts or give proper structure to the pages.

Some people are using very slow (dial-up) internet connections, and others don't have internet connections at all. Therefore, LIFT Text Transcoder is a dead tool while offline. The LIFT Text Transcoder can't be used while the user is trying to access web page contents from a given CD-ROM. To put the point bluntly, I'd like to add to this technical argument by saying that for many people a text only option is a second-class solution. It's rare to find a text-only site that offers the same quality of content as a primary site. If the website is designed correctly in the first place, there's no need to take on the burden of LIFT Text Transcoder, and pay the license for it to make up the shortfall of poor design, and no need to relegate people to a second-class site.

While I can appreciate the LIFT Text Transcoder as an interim/temporary aid in the mist of a formal plan to achieve enterprise-level web accessibility, my concern continues to be the false sense of security I think some organizations will have upon implementing it, and the belief that they've done their part to meet web accessibility requirements.

The WCAG 1.0 includes specific mention of the use of "alternative" versions of web pages and it discourages against it: "Content developers should only resort to alternative pages when other solutions fail because alternative pages are generally updated less often than "primary" pages. An out-of-date page may be as frustrating as one that is inaccessible since, in both cases, the information presented on the original page is unavailable. Automatically generating alternative pages may lead to more frequent updates, but content developers must still be careful to ensure that generated pages always make sense, and that users are able to navigate a site by following links on primary pages, alternative pages, or both. Before resorting to an alternative page, reconsider the design of the original page; making it accessible is likely to improve it for all users."

3.2. ALT/alternative text approach

One of the simplest ways we can improve the accessibility of UNESCO Web Portal pages is to add alternative text. Any good book or article on web design will inform you that it is good practice to include alternative (alt) text for your graphics. We need to ensure, as much as is practical, that graphic content has text alternatives, that the visible page is clearly legible, and that it can be altered using browser preferences. Who needs alt texts anyway?

- Anyone with a visual impairment who needs a text explanation of an image or logo in your page, because either it is not clear to them, or they cannot see at all. The wrong choice of colours, or an ornate script, or tiny text, can all hide important content from some of your visitors without a text version to decode it.
- Anyone with a slow connection, who turns off images to save page loading time, so that they can decide if a treacle-slow all-graphic home page is worth waiting for. If we use alt texts, they have something to read while they wait.

We may imagine that, for example, everyone in the USA, Canada, and in many European countries have high-speed internet access. But from conversations in online discussions, I can tell you that this isn't true. Just as in Canada, USA, and Europe, more rural and depopulated areas of

the do not, and will perhaps not for years, have access to cable, satellite or DSL. Like many of us, they rely on a 56K modem.

How about people with a disability living in developing countries that don't have access to an internet connection at all?

3.3 Method of using self-assessment tool online: what is Self-assessment tool?

The Self-assessment tool, which is a free service, will allow you to test web pages and help expose and repair barriers to accessibility and encourage compliance with existing accessibility guidelines, such as Section 508 and the W3C's WCAG. The report can be customized to include the guidelines to which we wish to conform. For example: Try Bobby Online for a Self-assessment tool: <http://webxact.watchfire.com/>

3.4 Web definitions for Section 508 a universal standard for web accessibility:

Section 508 (the 1998 Amendment to Section 508 of the Rehabilitation Act) requires the federal government to make all goods and services—including Web pages—fully accessible. It identifies specific standards for Internet and Web accessibility, which are often used as a basis for evaluating whether or not Web sites meet accessibility requirements.

4. Methods of creating accessible online training

4.1. Accommodate students in a variety of situations:

Creating documents in alternative formats such as Braille can aid with this goal. Try to do this before you have a student in your class who needs accommodations.

4.2. Make it clear to trainees that you are open to providing accommodations if needed:

Many students may be uncomfortable disclosing their disability in fear of being treated differently or losing your respect. A simple statement on your syllabus may open the lines of communication and avoid last minute problems.

4.3. Understand the issues faced by people with disabilities:

If you understand the issues faced by people who use assistive technology to access online courses, it will be easier to plan ahead and design your course to avoid accessibility issues.

4.4. Create course materials with differing learning styles in mind:

Most of us have a preferred method of learning and of demonstrating our knowledge. If you are creating an online exam, consider providing the students with a choice of formats. For example, provide both a multiple choice and an essay exam. This may allow you to avoid accessibility problems while giving all students the best opportunity to succeed.

4.5. Remember the students:

Make sure that communication between you and all of your trainees is clear and easy. When using technology to deliver course content, it is easy to rely on the technology for everything. If all else fails, pick up the phone.

4.6. Email:

Email is still the most widely used method of communication, and will most likely be accessible. Some universities strongly encourage, or even require their students to use the email system offered by their institution. Be aware that some students may need to use an alternative email system for accessibility purposes.

4.7. Keep it simple:

Whether using a course management tool or creating your own online course website, try to resist the pressure to use the latest and greatest technology. It will most likely be more difficult to make accessible, and students with and without disabilities may not have the technology to use it at home.

4.8. Try to create opportunities for team projects:

Providing opportunities for students to work together can solve many accessibility problems. For example, a sighted student may be able to describe an image for a student who is blind.

4.9. Ask the student for input:

When accessibility issues do arise, invite the student with the disability to help problem-solve. The student may have encountered the issue before, and may have some reasonable suggestions. As the instructor you have the right to maintain the integrity of your course. Accommodations must be reasonable. They are meant to level the playing field, not to give an unfair advantage to any student.

4.10. Course Management Tools:

All tools discussed here have the capability to build online courses that comply to some degree with Section 508 Requirements For Accessibility.

5. Evaluation of current software and hardware related to accessibility for disabled people:

Using assistive technology, persons with vision impairments can independently operate computer workstations, surf the Internet, send and receive e-mail, access books and other printed information, create and deliver presentations, communicate extensively, and gain access to increased social opportunities. An alternative input system is any hardware or software solution that allows persons with disabilities to control the computer independently. Examples of alternative input systems are alternative keyboards, key modification software, on-screen keyboards, and voice recognition systems.

A. Screen Reader:

As their name implies, screen readers are software programs that read information displayed on the computer video monitor. Screen readers require a sound card and speakers or headphones in order to provide voice output. They are used in conjunction with software programs like word processors, databases, spreadsheets, browsers, e-mail clients, and other applications. Screen readers come bundled with speech engines, which are software programs that convert incoming text into an unlimited vocabulary voice, and handle the text-to-speech conversion process. Screen

readers let you hear your keystrokes as they are entered at the keyboard, and also let you read what is displayed on the video monitor.

B. Screen Magnification software:

One of the most widespread adaptive technologies for persons with low vision, magnification systems enlarges text and graphics, empowering many individuals to pursue career and educational goals. Objects that are magnified produce a larger image within the eye; thus, they are much easier to see. The technology of magnification systems can be employed to access printed text, and to magnify information displayed on computer screens. Perhaps the most-used magnification adaptation currently on the market is that of magnification software. This software allows personal computer users to increase the size of the characters displayed on a computer's video screen. Magnification programs can enlarge both text and graphics, depending on the brand of magnification software chosen. Some programs also feature speech output, and can provide magnification and speech at the same time.

C. Closed Circuit Television Systems (CCTV) :

CCTVs are hardware electronic magnifiers designed to assist persons with vision impairments. They consist of a video camera and video monitor. CCTV systems also come equipped with sliding trays for holding books and other printed information beneath the video camera. These trays slide left to right, and forward and back, allowing the reading material to be positioned beneath the camera. CCTV systems can provide from 2 times to about 60 times magnification, depending on the system.

CCTV systems are easily operated, and a little user training is often all that is required. You merely aim the video camera at the desired reading material, and focus the image on the video display, allowing you to read the printed material in as large a type face as is necessary for clarity. These units are about the same size and weight as a small television system, but portable units are also on the market. Monitors range in size from 4 inches to 21 inches and come in colour or black-and-white. There are also CCTV systems that are worn on the body or mounted on goggles that permit reading of printed materials.

D. Alternative Keyboards and Key guards:

For persons unable to use the traditional computer keyboard, adapted keyboards allow greater access to personal computers. Adapted keyboards are input devices created to assist persons with motion related disabilities. They are also useful for individuals experiencing pain, or for those having difficulty with coordination. Adapted keyboards can be used by persons who have control over one hand or control of just one finger. Some adapted keyboards are programmable, permitting them to re-arrange the keyboard layout. An adapted keyboard can be used with one hand, a mouth-stick, or even with the feet, depending on the exact nature of the keyboard. It may be large or small in size.

E. Key guards:

Key guards are plastic or metal covers that fit over a standard or alternative computer keyboard. The guard has holes in its surface, permitting the user to strike any key by inserting their finger into one of the holes, with a hole for each key. This keyboard adaptation helps prevent accidental keystrokes and provides a place to rest hands for stability while typing. Some key guards have key latches---levers that can hold down keys such as Shift and Control --- to eliminate the need to

press two keys at once. Key guards are made for individual models of computers and often are not interchangeable from one keyboard to another. Key guards, however, are often an inexpensive solution to assist someone who has difficulty using a keyboard.

F. Key modification software:

We can modify the behavior of the user's keyboard and make it a great deal more accessible using a software solution. Among these is macro software that save many keystrokes and sticky key software that addresses the requirement of having to depress two keys simultaneously. Some assistive software can allow the arrow keys to be used instead of the mouse, while others can filter out unwanted keystrokes.

G. Macros:

The world of computer software contains numerous utilities that are useful to persons with disabilities even though they were never designed for that purpose. Macro software programs fit neatly into this category, and are an inexpensive method for making our computer more accessible and easier to use. Macro programs remember keystrokes and mouse movements, letting the user play them back whenever they need. We can assign a macro to almost any key on the keyboard, and have it play back hundreds of keystrokes and mouse movements in exact sequence. For example, we can define any keystroke to automatically write your name and address into a document. Let's define this macro key as ALT+N. When the ALT+N key is struck, the macro executes and types your name and address at the cursor location. It's that simple. You can define almost any keystroke in this manner, further saving keystrokes. The defined macros are permanently stored on the computer's hard disk drive, and can be used over and over again when necessary. The ability to define macros can help with word processing, database management, spreadsheets, browsing, e-mail, and so forth.

H. Key Modifier software:

Many compound keyboard sequences present a barrier for persons with motion disabilities. The most obvious example of this is using the shift key to capitalize a letter or to send a command sequence. This is because this key sequence requires two hands to execute. For example, to write a dollar sign one must hold down a Shift key with one finger while simultaneously pressing the 4 key - an operation that requires the use of two fingers and both hands. Transforming this compound keystroke into two individual keystrokes is often much more accessible to persons with motor disabilities. Windows includes the Sticky Key utility that transforms multiple key sequences into ones that can be performed using one hand or one finger.

Microsoft Windows includes utilities to modify the behavior of the keyboard and mouse, making it more accessible for persons with motor disabilities. These utilities can be found under Accessibility Options, and can be controlled using the Utility manager. Below is a short description of these utilities.

Bounce Keys is a utility for persons who have a tendency to strike the same key multiple times. The program will not accept two presses for the same key unless the keystrokes are spaced apart by a certain time interval that is user selectable.

MouseKeys is a utility that lets the user use the keyboard to control mouse movements. The arrow keys emulate the movement of the mouse, and the mathematical operator keys serve to click the various mouse buttons.

Repeat Keys is a utility that turns off or adjusts the automatic-repeat feature found on most keyboards. This filters out unwanted and accidental keystrokes.

Slow Keys slows down the response time for keys to become active, and automatically filters out accidentally struck keys. This utility works on the idea that unwanted keystrokes are of shorter duration than desired ones. For keystrokes to take effect, they must be held down for a longer period of time than that of an accidental keystroke. You can define the most appropriate time interval.

Serial Keys controls the keyboard and mouse functions using an adapted switch connected to the computer. This allows you to run your computer using an alternative input system, such as a communications device with its own keyboard. This also allows you to operate your computer using an adapted switch customized to your specific requirements.

Toggle Keys provides you with audio feedback to indicate when the caps lock, number lock, or scroll lock has been activated. This program is useful when switching various settings on and off, and provides audio confirmation.

I. On Screen Keyboard:

Windows includes an on-screen keyboard to assist persons who have difficulty with the standard, physical keyboard. The on-screen keyboard is a software program that displays a graphical representation of a physical keyboard on the computer screen, allowing the user to select any key on the video keyboard by moving and clicking the mouse. Users who cannot click the mouse can activate keys simply by holding the pointer over them. Users who cannot use any type of pointing device can use the on-screen keyboard by tapping a single key on the keyboard. The user can use the on-screen keyboard to control programs, to enter documents and information into the computer, and to communicate with others.

J. Voice Recognition and dictation:

Computers that comprehend the spoken word conjure up images from science fiction, but such machines are a solid reality with today's technology. Although personal computers come equipped with keyboards for data entry, microphones rapidly are becoming standard equipment for many systems. Most computers today are shipped with built-in sound cards that permit voice synthesis and speech recognition.

Simply put, speech recognition systems "listen" to spoken commands, process the verbal input, and send the commands to the computer as if they had been typed at the keyboard. These systems are compatible with commercial software to create an interactive voice-response system for individuals with motor disabilities. That is, individuals can speak to their computers to enter commands and data.

Most speech recognition systems require training before they can work, a process that takes about an hour for most systems. The training process lets the speech recognition system become familiar with a specific voice pattern, and store those patterns for future recognition. The training process involves speaking a list of words and phrases into the microphone, and allowing the system to record these on the hard disk drive. Most speech recognition systems that are available today must be trained to recognize your voice before they can function. A newly blind person who can't type, or is slow to type, can use an amusing program known as: J-Say. J-Say Standard

extends JAWS for Windows to provide dictation and a limited voice command and control feature set. Users of this innovative technology can talk to their computer and obtain effective speech feedback. Additionally, the J-Say interactive help system makes the concept of self-help a reality.

With J-Say the user able to:

- Create text documents such as letters and reports using their voice.
- Create text on their PC by voice, while simultaneously reading notes from another source on their Braille display.
- Quickly and intuitively obtain information about their word processed document, such as the number of pages or margin settings, using voice commands.
- Create and process E-Mail using your voice as the primary means of input.
- Browse the Internet using a combination of voice input and keyboard control.
- Rapidly move to specific cells within an Excel worksheet, even if the focus is located some distance from the desired cell location.

More info about J-Say can be found at: <http://www.enablemart.com/>

K. Braille Displays

A refreshable Braille display is an electro-mechanical device for displaying Braille characters, usually by means of raising dots through holes in a flat surface. The display sits under the computer keyboard. It is used to present text to computer users who are blind and cannot use a normal computer monitor. Speech synthesizers are also commonly used for the same task, and a blind user may switch between the two systems depending on circumstances.

In addition, for individuals who are deaf-blind, the proliferation of Braille displays use at home has increased opportunities for personal communications and independent pursuits of a variety of interests and recreational activities. Indeed, the computer is perhaps one of the most effective means a deaf-blind individual may have for directly communicating with the general population, which has neither the specialized skills nor the devices to facilitate such communication. However, in order to learn the skills necessary to gain employment, pursue personal interests independently, and effectively communicate via the computer, deaf-blind individuals need computer training with Braille displays that are affordable and easy to acquire.

6. Techniques, Tips, & Suggestions

6.1 Links:

- a. Use descriptive, meaningful text, not just icons (screen reader software reads/summarizes links by link names). Example: "Introduction to Macro Economy 101A Syllabus." is descriptive. "Click here for Syllabus" means nothing to a screen reader (it will only read "Click here").
- b. Place the list of links at the top, to serve as a table of contents.
- c. Remove any unused links (edit the course menu, within Course Settings, and remove extraneous links).
- d. Avoid opening new or pop-up windows without warning (add note that link will open in a new window if you have links that do not directly navigate within the same window). WebCT includes a "Close" button (see example) on new windows that are opened.

6.2. Adding an Image:

Each image should have a descriptive title (Image Database Title) or caption (Text block Image Caption), so that screen reader software can read the alternate text tag that is generated. For detailed images (images intended to convey a lot of meaning), long, fully descriptive text can be defined and loaded as a hyperlink (known as a d-link) to a separate page.

6.3 Colour and accessibility in web pages:

Colour is often overlooked as a cause of inaccessible content in web pages.

The most common kind of colour vision deficiency (commonly but inaccurately known as colour-blindness) is the red-green sort. If we are using colour as a distinguishing feature of the web site (either as part of the site livery, or to colour-code different parts of the site), remember that not all your visitors will be able to get enough information from this. Try to use some kind of distinctive pattern/texture, wording or icon to supplement the colour.

6.4 PDF files:

PDF images are not interpretable text. Use true text files (Word, PDF text, simple text, etc.). When possible, make available Adobe-Reader 7.0, which has feature of accessible text conversion capability downloaded from your web site.

6.5. Headings:

Use “Heading” designations where they are provided in WebCT course setup or in attachments (large text alone is not an indication to screen reader software, which may summarize headings, where they exist).

6.6 Tables:

Ensure that any table has a succinct one-line description and a caption (avoid complicated tables, such as nesting one table within another). Tables are, in general, difficult to interpret for the visually impaired, but if row and column headers are defined with appropriate titles, and the table logically reads left to right, screen readers can make the data more accessible.

6.7. Logical flow:

Course content organization should be logical and navigation should follow the recommendations for web pages: simple, identifiable, and easy to follow, including logical flow of links or objects (for users who tab through them). A site index link that will return the user to the home page is an acceptable alternative navigation to reorient users with cognitive issues.

6.8. Audio or video attachments:

If possible, provide alternative formats (even dial-up access users with no disabilities could have problems with large files). If audio or video are crucial to your course, and you cannot provide captioning or an alternative format, then identify this course content on your orientation page (or in a course catalog description).

6.9 The benefits of footnotes for accessibility in WebPages:

The good old footnotes are undervalued in WebPages. Even serious commentary and longer articles and reports often use mediocre tool tips made with the title attribute as a poor substitute. Footnotes are much more usable and accessible.

Where do we put the footnote? In print there is not much consensus about where exactly to place a footnote reference. It differs from book to book and from country to country. Here is the technique for a web page based on what the footnote relates to: word, expression, sentence or paragraph:

- For a word and expression the footnote reference should be placed right after it without a space. If superscript made with the sup element is not used there should always be a space to make it easier for screen readers to tell what is what.
- For a sentence the footnote reference should be placed inside the sentence before the last punctuation, and a space must be used before it.
- For a paragraph the footnote reference must be placed after the last punctuation. A space should be used to make it even clearer that the footnote relates not to the last sentence but to the paragraph as a whole.
- In block level elements we should place the footnote reference between the last punctuation and the end tag.

One of the most important uses of footnotes is for well-documented linking. It is a scandal that so many WebPages are documented by almost meaningless link texts and URLs only. Frequently we have to follow a link just to find out the title, author and date of a resource. It is not easy to get a fast overview with such sloppy documentation, and it does not work if the link is one day broken. If that happens we have no way of finding out what was actually linked to. This information is also most often lost if the webpage is printed.

In footnotes on the other hand it is easy to include title, author and date of the resource not just the URL. We have a good chance of finding the resource even the day the link is broken. We can make a web search for title, author and date.

Indeed, Well-documented linking does not necessarily require footnotes but it is often too clumsy to get room for all the nice information in the proper text, and the title attribute is simply not up to the job in any usable or accessible way.

6.10 Cascading Style Sheets/CSS for web accessibility:

CSS benefits accessibility primarily by separating document structure from presentation. Style sheets were designed to allow precise control - outside of markup - of character spacing, Headings, text alignment, object position on the page, audio and speech output, font characteristics, etc. By separating style from markup, authors can simplify and clean up the HTML in their documents, making the documents more accessible at the same time.

CSS allows precise control over spacing, alignment and positioning. Authors can thereby avoid "tag misuse" - the practice of misusing a structural element for its expected stylistic effects. For example, while the BLOCKQUOTE and TABLE elements in HTML are meant to mark up quotations and tabular data, they are frequently used to create visual effects instead such as indentation and alignment. When specialized browsing software such as a speech synthesizer encounters elements that are misused in this way, the results can be unintelligible to the user.

In addition to preventing element misuse, style sheets can help reduce image misuse. For instance, authors sometimes use 1-pixel invisible images to position content. This not only bloats documents, making them slow to download, but can also confuse software agents looking for alternative text (the "alt" attribute) for these images. CSS positioning properties mean that invisible images are no longer required to control positioning.

CSS provides precise control over font size, colour, and style. Some authors have used images to represent text in a particular font when they are uncertain of the availability of the font on the client's machine. Text in images is not accessible to specialized software such as screen readers, nor can it be cataloged by search robots. To remedy this situation, the powerful WebFonts of CSS allows users much greater control of client-side font information. With WebFonts, authors can rely on fallback mechanisms on the client when the author's preferred fonts are not available. Fonts can be substituted with more accuracy, synthesized by client software, and even downloaded from the Web, all according to author specification.

CSS allows users to override author styles. This is very important to users who cannot perceive a page with the author's chosen fonts and colour. CSS allows users to view documents with their own preferred fonts, colours, etc. by specifying them in a user style sheet.

CSS provides support for automatically generated numbers, markers, and other content that can help users stay oriented within a document. Long lists, tables, or documents are easier to navigate when numbers or other contextual clues are provided in an accessible manner.

7. Key three components for web accessibility:

7.1 Commitment and accountability Awareness:

The foundation of any kind of commitment to web accessibility is awareness of the issues. Most Web developers are not personally opposed to the concept of making the Internet accessible to people with disabilities. In fact, most accessibility errors on web sites are the result of ignorance, rather than malice or apathy. A large proportion of developers have simply never even thought about the issue. Even if they have heard of web accessibility, they may not understand what's at stake. Their ignorance leads them to ask questions such as, "Why would a blind person want to access the Internet?" After hearing an explanation of the ways in which blind people can access the Internet and the reasons why they have difficulties with some sites, most of these same developers understand the importance of the issue, and most are willing to do something about it, at least in the abstract.

Leadership:

Understanding the issues is an important first step, but it does not solve the problem, especially in large organizations. If the leadership of an organization does not express commitment to web accessibility, chances are low that the organization's web content will be accessible. Oftentimes, a

handful of developers make their own content accessible while the majority will not bother since it is not expected of them.

7.2 Policies and Procedures:

Even when leaders express their commitment to an idea, if the idea is not backed up by policies, the idea tends to get lost among the day-to-day routines. The best approach for a large organization is to create an internal policy that outlines specific standards, procedures, and methods for monitoring compliance with the standards and procedures. For example, an organization's policy could be that Web developers will create content that complies with the web Content Accessibility Guidelines of the W3C that no content is allowed to go live on the web site until it has been verified to meet this standard, and that the site will be re-examined quarterly for accessibility errors. This example won't fit every situation or every organization, but it does at least provide a simplified theoretical model from which to create standards, procedures, and monitoring methods within organizations.

7.3 Training and technical support:

Sometimes web developer's fear that it is more expensive and time-consuming to create accessible web sites than it is to create inaccessible ones. This fear is largely untrue. On a page-by-page basis, the extra time required by a knowledgeable developer to make the content accessible is so minimal as to be almost negligible. Once developers know the concepts, implementing them becomes second-nature, and does not add significantly to the total development time. However, it does take time to become a knowledgeable developer. A developer can learn the basics of Web accessibility in just a few months, but, as with any technical skill, it often takes years to internalize the mindset as well as the techniques. Organizations should ensure that their developers have access to training materials, workshops, books, or courses which explain the details of accessible web design. Some of these resources are available online. However, not everyone learns best in an online environment. The best approach is to invite an outside consultant to provide training through presentations, workshops, or one-on-one tutoring.

8. Summary

In conclusion, the keyboard and mouse can present a barrier for persons with disabilities, and alternative input systems help persons overcome this problem by providing different methods for operating the computer. Alternative keyboards help persons with disabilities by providing a keyboard that is most suitable for specific needs. Key guards fit over standard and adapted keyboard, providing a place to rest while typing, and preventing unwanted and accidental keystrokes. Key modification software provides a method for altering the behavior of the keyboard and mouse, and includes macros, sticky key, and other utilities. On Screen Keyboards let you control the computer using a pictorial representation of the physical keyboard, and can be controlled using alternative input systems of many different configurations. Voice recognition lets you talk instead of type, and can be used for controlling the computer, and for dictating documents.

Special remark:

The most commonly considered group is the blind and partially-sighted, who may use screen magnification and/or screen reader technologies to get at the content of the page with speech software known as Jaws. This unique speech synthesizer software has opened up the web to a

privileged number of blind people. However, the Jaws are only available to a limited number of blind people in few parts of the world, due to the unaffordable price of the product. As these constitute a small percentage of the entire visually impaired community, not all still enjoy the privilege of easily accessing web site contents.

Summary Solutions:

- Make available web contents in alternative media such as on: CD-ROM, Flash-disk ETC. or save website content on personal computers at accessible work stations.
- UNESCO web content could have an audio section either in wave or MP3 format, so that visually impaired persons who can't afford the Jaws program can listen to the information through the sound of any PC at their disposal.
- If the UNESCO Portal has significant audio content, we need to consider providing transcripts for deaf or hard-of-hearing visitors.
- Indeed, we need to think about people with motor impairments, who find it easier to use the keyboard or spoken commands to browse the web pages, or who may be unable to control the mouse precisely. For them, we need to provide navigation that isn't dependent on accurate mousing. For persons unable to use the traditional computer keyboard, adapted keyboards allow greater access to personal computers. Adapted keyboards are input devices created to assist persons with motion related disabilities, and are also useful for individuals experiencing pain, or for those having difficulty with coordination.

Adapted keyboards can be used by persons who have control over one hand or control of just one finger. Some adapted keyboards are programmable, permitting them to rearrange the keyboard layout. An adapted keyboard can be used with one hand, a mouth-stick, or even with the feet, depending on the exact nature of the keyboard. It may be large or small in size.

Finally, it is surprising how many sites developed by so-called experts fail to provide alt texts, even though most reputable HTML editors make it very easy.

A screen shot as a home page, with many images and without alt texts is effectively content-free for many users. Regrettably, most web sites that are inaccessible have become this way due to ignorance and lack of expertise, rather than indifference.

Conclusion:

The web offers so many new opportunities to people with disabilities that are unavailable through any other medium. It provides a method for accessing information, making purchases, communicating with the world, and accessing entertainment that does not depend on the responsiveness of other people. The Internet offers independence and freedom. But this independence and freedom is only partially a reality. Too many web sites are not created with web accessibility in mind. Whether purposefully or not, they exclude the segment of the population that in many ways stands to gain the most from the Internet. Only by committing to accessibility and providing for accountability, training, and technical assistance, can the web's full potential for people with disabilities become a reality.

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Glossary:

The following is a list of terms has been used by the developer of this document.

1. W3C: World Wide Web Consortium (registered in numerous countries)
2. CSS: Cascading Style Sheets
3. HTML: Hypertext Markup Language
4. HTTP: Hypertext Transfer Protocol
5. LTT: LIFT Text Transcoder
6. PWD: People with Disabilities
7. WAI: Web Accessibility Initiative
8. XHTML: The Extensible Hypertext Markup Language

ICTs in the Service of Persons with Disabilities

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Abstract: *This paper attempts to outline issues that are vital to the enjoyment of the right to information and communication of persons with disabilities who temporarily or permanently, experience physical, intellectual or psychological impairment of varying degrees.*

The United Nations Educational, Scientific and Cultural Organization (UNESCO) is mandated by its 184 Member States *inter alia* to promote the free flow of ideas by word and image to foster international co-operation in the fields of communication, information and informatics in order to narrow the existing gap between the developed and developing countries in these areas. Its mission is "to lay the foundations of peace by working in the fields of its competence: education, science, culture and communication in order to contribute to the acquisition, transfer and sharing of knowledge and to foster values of liberty, dignity, justice and solidarity among individuals and nations"

This Draft Position Paper on Information and Communication Technologies (ICTs) for People with Disabilities is submitted to the UNESCO in accordance with Article I of UNESCO Fee Contract No. 4500006784, which required the contractor to:

submit to UNESCO, not later than 15 February 2003, an outline of the paper, which must include the following items:

- ❖ a definition of disabilities, which could include physical, geographical, social and economical dimensions;
- ❖ an overview of the major actors in the world and their activities, which could include contents, ethical and social aspects, tools, etc;
- ❖ themes of research;
- ❖ proposals for what UNESCO could do within the scope of its mandate to improve the way of life, knowledge, skills, social integration of people with disabilities;
- ❖ institutions which could cooperate with UNESCO;
- ❖ submit to UNESCO for approval, not later than 31 March 2003, a draft version of the position paper of at least 40 pages, including names and contact addresses of major institutions;
- ❖ submit to UNESCO, not later than 25 April 2003 a final version of the position paper.

This paper has been compiled by Ms. Anuradha Mohit, Special Rapporteur, National Human Rights Commission of India/ Adjunct Professor, Indira Gandhi National Open University.

The sources referred to in the body of this paper represent only a sample of the amount of material available on the definition of disability, various national policies, laws, guidelines and

standards established and implemented to ensure freedom of information and right to communication without any prejudice to the persons with disabilities in the knowledge-based information society.

The sample materials examined illustrate a pattern of issues and the strategies adopted to address them by various governments; intergovernmental, private and civil society organizations. Therefore, the paper focuses on the similarities and, equally important, the differences between a smaller number of selected sources rather than covering a large sample of materials.

Internet and web exploration has been heavily relied upon for the identification of materials and sources. A questionnaire was designed and used, to collect and collate perceptions of disabled peoples' organizations about the policies, laws, programmes of their respective countries in the area of ICTs and their relevance in the context of persons with disabilities. Within the constraints of time and resources, the survey could not be followed up extensively, however the responses received from the African and Latin American countries have been very useful since the Web search was not very fruitful in accessing information regarding ICTs and people with disabilities from these regions.

Disability NGOs and some UN bodies from around the world supplied most of the hard copy documents referred to in this study. Some documents were also supplied by the UNESCO. The author is grateful to all the colleagues for providing support in this way.

Introduction

Disability is a relative term because different cultures define their norms of disability differently. The title "disability" conceals behind it a loosely connected heterogeneous group of many disabilities. For instance, being a female, poor, displaced, is conceived disabling in several South East and Central Asian societies and across the cultures, persons having physical or intellectual impairments are also considered disabled, but are not formally counted among groups requiring protection against discrimination. Social values, norms and attitudes are not static and are liable to change, depending on a wide range of factors and forces that operate at macro and micro level. Consequently, the formal notion of disability undergoes revision to accommodate the change. One of the significant changes can be noticed in the body of international and domestic laws as the extended list of prohibited heads of discrimination now also includes persons with disabilities. For example, section 9 of the 1996 Constitution of the Republic of South Africa, guarantees the right to all citizens, freedom from discrimination on a number of social criteria, including disability. Similar provision exists in the Constitution of Malawi.

This paper attempts to outline issues that are vital to the enjoyment of right to information and communication of persons with disabilities **who temporarily or permanently, experience physical, intellectual or psychological impairment of varying degrees. Most often, their lives are handicapped by social, cultural, infrastructural barriers, which hamper their freedom of participation, access to opportunities and enjoyment of rights on equal terms.** Persons with disabilities have been traditionally viewed, as abnormal, deserving pity and care, not as holders of rights, equal in dignity and freedom.

Disability Estimates

It is estimated that there are about 600 million people in the world who have disability of one form or another. Over 2/3rds of them live in developing countries with high density of their population in Sub-Saharan Africa and in South and South-East Asia. There is wide variation in the estimated disability rates reported by the developed and developing countries. The variation depends, to a large extent, on the definitions of disability used, which either expand or limit the

disability groups covered in the survey (Asia and the Pacific into the Twenty First Century, 2002).

Definition of Disability

Medical Definition

There are a number of definitions in use to describe persons with disabilities and most of them reflect an understanding that disability is an individual pathology - a condition grounded in the physiological, biological and intellectual impairment of an individual. The World Health Organization in 1976, provided a three-fold definition of **impairment**, **disability** and **handicap** explaining that 'An **impairment** is any loss or abnormality of psychological, physiological or anatomical structure or function; a **disability** is any restriction or lack (resulting from an impairment) of ability to perform an activity in the manner or within the range considered normal for a human being; a **handicap** is a disadvantage for a given individual, resulting from an **impairment** or a **disability**, that prevents the fulfillment of a role that is considered normal (depending on age, sex and social and cultural factors) for that individual'. Such a description couches disability within a medical model, identifying people with disabilities as ill, different from their non-disabled peers and unable to take charge of their own lives. Moreover, the diagnostic parameters of this variety cannot account for the imperfections and deficiencies in the basic structures and processes that fail to accommodate the difference on account of disabilities.

The disability sector around the world found the WHO's 1976 description of impairment, disability and handicap confusing 'particularly for policy-making and political action.' Responding to the growing concern, the WHO redefined the relationship between impairment, disability and handicap establishing that 'Impairment' refers to organ level functions or structures, 'disability' refers to person-level limitations in physical and psycho-cognitive activities, 'handicap' to social abilities or relation between the individual and the society.' Since the WHO has a mandate to develop a global common language in the field of health and disability therefore, the interpretation provided by it of the terms impairment, disability and handicap have far reaching implications in the area of research, law, policy and programmes. The WHO International Classification of Impairments, Disabilities and Handicaps, 1980 and 1996 is relatively relativistic as it makes a clear distinction between impairment, disability and handicap. It has been extensively used though concerns have been expressed that the classification, in its definition of term handicap, is still too medical and too centred on the individual, and does not adequately clarify the interaction between societal conditions or expectations and unique circumstances of an individual.

Social Definition

Disability is a highly varied and complex condition with a range of implications for social identity and behavior. Therefore, several efforts to define disability in a manner that reflects the social dimension of disability have been made in order to establish that disability largely depends upon the context and is a consequence of discrimination, prejudice and exclusion. In the UN Standard Rules on the Equalization of Opportunities for Persons with Disabilities, 1993, disability summarizes a large number of different functional limitations occurring in any population in any country of the world. People may be disabled by physical, intellectual or sensory impairment, medical conditions or mental illness. Such impairments, conditions or illnesses may be permanent or transitory in nature. But a distinction has been made between disability and handicap meaning handicap is the loss or limitation of opportunities to take part in the life of the community on an equal level with others. It describes the encounter between the persons with a disability and the environment The purpose of this term is to emphasize the focus

on the shortcomings in the environment and in many organized activities in society, for example on information, communication and education, which prevent persons with disabilities from participating on equal terms.

Human Rights Definition

There is a growing realization to elaborate a definition of disability, which is in conformity with human rights values and principle. In the heart of human rights mission lies the respect for variation in human cultures and the recognition that people are different on several considerations such as gender, race and disability. Nevertheless, concerning their rights and dignity all people are same but it does not imply that all people should be treated in the same or similar way. The ethical principle of justice implies that people with different needs are treated differently but the difference of treatment must not be decided on arbitrary norms. The formal equality discourse actually builds up on the idea of the Greek philosopher, Aristotle, who said that, “things that are alike should be treated alike, whereas things that are unlike should be treated unlike in proportion to their un-alikeness.”

In the introduction to the Standard Rules on The Equalization Of Opportunities For Persons with Disabilities, 1993, the principle of ‘equal rights’ is described as implying “that the needs of each and every individual are of equal importance, that those needs must be made the basis for the planning of societies and that all resources must be employed in such a way as to ensure that every individual has equal opportunities for participation.” A coherent programme of “equality of opportunity” entails tackling deep-rooted social attitudes to disability. Besides that, equality entitles each person to equal membership in society. This calls for critical reorientation of perspective, which has important implications for the way in which law and policy in relation to disability are developed, as well as for its substantive content. “In essence, the human rights perspective on disability means viewing people as subjects and not as objects. It entails moving away from perceiving the disabled as problems towards viewing them as holders of rights. Importantly, it means locating problems outside the individual and addressing the manner in which various economic, social, cultural and political processes accommodate the difference of ability.” (Quinn and Degener, 2002).

The definition of disability adopted by the British Council also takes into account the conditions, which disable a group of individuals by ignoring their needs of accessing opportunities in a manner that is different from others. By this definition “Disability is the disadvantage or restriction of activity caused by a society which takes little or no account of people who have impairments and thus excludes them from mainstream activities”. Therefore, like racism or sexism, disability is described as a consequence of discrimination and disregard to the unique circumstances of certain sections of the society.

Freedom of Information and Right to Communicate

Information and communications technology (ICT) is generally regarded as the overlap of computer information and telecommunications technologies, and their applications. In this paper the term ICT is used to indicate the whole range of technologies involved in information processing and electronic communications, including the Internet, electronic mail and multimedia communication. In the history of civilization, no work of science has more deeply impacted the course of development as Information Technology (IT). Without doubt, IT has been the greatest agent of change in the twentieth century and has a potential to play this role even more dramatically in the times to come. IT has impacted every aspect of society be it communications, trade, manufacturing, services, culture, entertainment, education, research, defence, security, and even the relationships between individuals, groups and countries.

At the center of the challenge posed by the emerging Information Society is the concept of universal service and how the freedom of information and right to communicate, which is fundamental to the effective exercise of the full range of rights, would further evolve. This right is enshrined in the UN Charter 1947, and further elaborated in Article 19 of the Universal Declaration of Human Rights 1948, which states that everyone has a right to, “hold opinions without interference and to seek, receive and impart information and ideas through any media and regardless of frontiers”.

The further democratization of the society in the information age largely depends on the freedom of opportunity people have to access information technology and their ability to use it. Any restriction can perpetuate social exclusion. Therefore, investment in human capability to make the best possible use of information technology is vital to democracy in the information society.

The Green Paper on the Information Society of **Portugal** (1997) emphasizes the democratic character of the information society, ‘which must provide access to information and knowledge without any form of social discrimination and accept social responsibility for those citizens who, for any reason whatever, need special consideration to avoid exclusion from its benefits’. In the background of this conceptual framework, the Council of Ministers in Portugal adopted Resolution 97/99, which recognizes that “Due regard to citizens with special needs is not dictated by mere considerations of solidarity; rather, it stems from a particular conception of society, which recognizes that each citizen is entitled to participate in accordance with his or her personal characteristics.”

Canada has been a pioneer in providing access to basic services to its citizens with diverse characteristics and cultural backgrounds. The report of the Information Highway Advisory Committee (IHAC), 1997 recommended that the Government should emphasize access to the Internet ‘as a first step in ensuring equitable participation in a knowledge society’, by promoting the development of public access facilities and digital literacy to encourage citizen participation and access to Canadian content in English and French. It also calls on the Canadian Government to articulate a national access strategy with an aim to a) ensuring affordable access to basic telecommunications and broadcasting services b) promoting access to new networks and services especially the Internet and c) establishing a formal mechanism for defining access and universality in a knowledge society.

Similarly, the Government of the **US** in its preamble of National Information Infrastructure (NII) policy defines a broad, modern concept of Universal Service that emphasize giving all Americans who desire, easy and affordable access to advanced communications and information services, regardless of income, disability, or location. The Rehabilitation Act Amendments of 1998 (PL 105-220) by the US Government is a step forward in realising the NII policy mission as the amendment mandate that individuals with disabilities, who are members of the public seeking information or services from a Federal department or agency, have access to and use of information comparable to that of nondisabled individuals.

Based on the government bill on the expansion of infrastructure in the IT field “An Information Society for All” (no.1999/2000:86), the Swedish Parliament has decided that people with disabilities should have access to and be able to use the IT systems that are being constructed. Parliament also decided that various trials should commence to give disabled people opportunities for improved living conditions, with the aid of telecom products and services requiring high transmission capacity (i.e. “broadband”, in everyday speech).

In many European countries rapid improvements are underway due to the collective commitment of the European states through EU mechanism. For instance, on 24 October 2001, the **Committee of Ministers of the Council of Europe** adopted the Resolution "Towards full citizenship of

persons with disabilities through inclusive new technologies". The Resolution takes as a starting point the right of all individuals, including persons with disabilities, to equality of opportunity, freedom of choice, independent living, full citizenship and active participation in the life of the community. This includes the right to access to and use of technology. It recommends drawing up national strategies to ensure that persons with disabilities benefit from the various opportunities of new technologies, particularly in the priority policy areas. (European Disability Forum Bulletin, 8-2001)

Recognizing that access to information is a basic human right, **United Nations Economic and Social Commission** (UNESCAP) in the Asian and Pacific region convened a seminar in June, 2002 with an aim to draw, "Recommendations on Policy/Legislative Guidelines concerning Information and Communication Technology (ICT) accessibility for Persons with Disabilities in the Asian and Pacific Region." The recommendations of this seminar have a clear bearing on the **Biwako Millennium Framework** For Action Towards An Inclusive, Barrier-Free and Rights-Based Society For Persons with Disabilities in Asia and the Pacific (2002 –2013). By resolution 58/4, Governments in the region defined the 7 priority policy areas for action, which, *inter alia*, includes access to information and communications, including information, communications and assistive technologies. The five targets set out in the Biwako Millennium Framework under the priority area ICTs are:

- By 2005, persons with disabilities should have at least the same rate of access to the Internet and related services as the rest of the citizens in a country of the region.
- International organizations (e.g., International Telecommunication Union, International Organization for Standardization, World Trade Organization, World Wide Web Consortium, Motion Picture Engineering Group) responsible for international ICT standards should, by 2004, incorporate accessibility standards for persons with disabilities in their international ICT standards.
- Governments should adopt, by 2005, ICT accessibility guidelines for persons with disabilities in their national ICT policies and specifically include persons with disabilities as their target beneficiary group with appropriate measures.
- Governments should develop and coordinate a standardized sign language, finger Braille, tactile sign language, in each country and to disseminate and teach the results through all means, i.e. publications, CD-ROMs, etc.
- Governments should establish a system in each country to train and dispatch sign language interpreters, Braille transcribers, finger Braille interpreters, and human readers and encourage their employment.

From an international perspective, the importance of information and communication technologies (ICT) for development has been considered at the highest level. For example, in the United Nations "Millennium Declaration" (General Assembly resolution 55/2), heads of State and Government resolved, "to ensure that the benefits of new technologies, especially information and communication technologies, in conformity with recommendations contained in the ECOSOC 2000 Ministerial Declaration, are available to all". As such, reference to people with disabilities does not feature in this resolution, though its text can be applied to interpret the right of equal access to people with disabilities. The **UN Standard Rules on the Equalization of Opportunities for Persons with disabilities, 1993** is the first instrument that spells out in Rule 5, that "States should recognize the overall importance of accessibility in the process of the equalization of opportunities in all spheres of society. For persons with disabilities of any kind, States should (a) introduce programmes of action to make the physical environment accessible;

and (b) undertake measures to provide access to information and communication.” Many Governments in the world have adopted policies in the light of parameters set out in the Standard Rules e.g. Government of **Sweden** in its policy document “I.T. for Disabled and Elderly People 1998-2001” as a starting point states that Swedish Government and Parliament are committed to UN Standard Rules that lay down preconditions for creating an accessible society in which PWDs have equal opportunities.

Non-Discrimination

All points of access to the structures of everyday life – the world of education, of work, of family or of social interaction – are set largely by reference to the dominant norm of the able-bodied. For example, the information and communications environment presupposes the user’s ability to see, hear and use hands. Therefore, the discrimination occurs when the difference of disability is discounted while regulating the terms of access to and participation. (Quinn & Degener, 2002). Protection against discrimination has been afforded both in the international and domestic legislations particularly for groups who are vulnerable and have faced systematic exclusion. Since, in the list of prohibited heads of discrimination, physical and intellectual disability is often not explicitly reflected therefore, in the nineties a move towards adoption of anti discrimination legislations on grounds of disability gained momentum. Today, about 40 countries of the world have put in place anti discrimination legislations and some have provided effective mechanisms for their monitoring and redressal. Most of these legislations have brought about very positive reforms in the area of education, employment, transport and most significantly, they have impacted the design of built environment. In the last few years judicial, quasi judicial and several administrative authorities have interpreted the anti discrimination provisions to uphold the freedom of information and right to communicate of people with disabilities regardless of frontiers. The jurisprudence in this area not only reflects the elasticity in the law but is also a sign of innovative application of non discrimination provisions to secure the freedom of information and right to communicate for people with disabilities.

“For instance, in November 1999, the National Federation of the Blind filed suit against America Online, Inc., charging that AOL’s proprietary browser and Internet web site was inaccessible to consumers who are blind. In March 2000, a settlement was reached under Americans with Disabilities Act (ADA) between Bank of America and the California Council of the Blind requiring to not only install 2500 talking ATMs in Florida and California, but also to ensure that its Web site and online banking services were accessible to people using screenreaders.” The Attorney General of Connecticut, USA settled a complaint filed by National Federation of the Blind v/s four online tax filing services. As per this settlement, four online tax filing services listed on the web site of Revenue Department would be modified to ensure that people who are blind can access the sites with effect from tax filing year 2000 in accordance with Americans with Disabilities Act.” [Cynthia D. Waddell and others 2001]

By reference dated 26 August 1999, the Attorney-General (Australia), *inter alia*, advised the Human Rights and Equal Opportunity Commission to examine the difficulties and restrictions faced by older Australians and those with a disability in achieving full and equal access to services utilizing new technologies and deriving full benefit from such technologies. The Commission was further advised to conduct an audit of the accessibility of Australian government and business Internet sites, with reference to the Disability Discrimination Act and relevant Australian and International guidelines. (**Accessibility of electronic commerce and new service and information technologies for older Australians and people with a disability Report of the Human Rights and Equal Opportunity Commission on a reference from the Attorney-General, 31 March 2000**)

The UK's part three of the Disability Discrimination Act 1995, requires providers of goods, facilities and services to make them accessible to people with impairments. This provision has been interpreted to emphasise that "Unlawful discrimination occurs when a service provider discriminates, by doing one of the following:

- ◇ Refusing to serve a disabled person.
- ◇ Offering a disabled person a lower standard of service.
- ◇ Offering a disabled person less favourable terms.

Failing to make alterations to a service or facility, which makes it impossible, or unreasonably difficult, for a disabled person to use. [Dr. Geoff Busby MBE, 2000]

The National Human Rights Commission of India in January 2003 advised "the Ministry of Urban Affairs and Employment, Railways, Surface Transport, Communication, Information and Broadcasting, Information Technology, Rural Development, Civil Aviation etc to take necessary steps for the implementation of Section 44, 45 and 46 of the Disabilities Act, 1995. The Commission further advised the Ministry of Urban Affairs to take lead in constituting a joint task force of members comprising the relevant ministries and experts from Council of Architects, Engineers, Department of Electronics and Persons With Disabilities. Such a task force should a) Identify barriers to access b) Suggest areas of research c) Suggest amendments or additions to the present laws, policies and regulations concerning ICTs, Broadcasting, Telecommunication and Transport systems. d) Finally, the joint task force may produce a policy framework for creating barrier-free infrastructure for persons with disabilities.

Accessibility

Accessibility has been the overriding concern in the disability rights debate throughout the world. It encompasses a wide range of issues such as the design of infrastructure, products and services, their cost, appropriateness, ease of use and the development of adapted interfaces. The interpretation of the term accessibility has been diverse and dynamic depending upon the context and the circumstances. Over last ten years UN agencies, governments, corporate, academic and organizations of the disabled have expanded the definition of accessibility in response to the demands of the knowledge based information society. For instance, Rule 5 of the UN Standard Rules 1993 is elaborated under the title "Accessibility" implying that "States should recognize the overall importance of accessibility in the process of the equalization of opportunities in all spheres of society for persons with disabilities." "Barrier-free ICT for all" was the theme of the year 2000 and observance of the International Day of Disabled Persons on 3 December at the United Nations Headquarters. The 2001 Report on the World Social Situation by the United Nations highlights the need to attain universal access to social goods and services. In Paragraph 7 of the Economic and Social Council (ECOSOC) Ministerial Declaration 2000, it is emphasized that "Access to information and knowledge-sharing is largely determined by education, capabilities, including resources, transparent societies, capacity to generate and utilize knowledge, connectivity and the availability of diverse content and applications and the policy and legal/regulatory framework."

The UNESCAP has defined Accessibility as "the measure or condition of things and services that can readily be reached or used (at the physical, visual, auditory and/or cognitive levels) by people including those with disabilities..." In a joint report (e-Inclusion) by the European Commission and the High Level Group on Employment and Social Dimension of the Information Society (ESDIS), people with disabilities are very specifically referred and it is stressed that no one is

excluded from the knowledge-based society and new information and communication technologies, in particular, people with disabilities.

The government of Australia is committed to ensuring that all Australians, including the disadvantaged have adequate, affordable access to online services. The ‘Strategic Framework for the Information Economy’ of **Australia 1998** considers questions of access as part of its strategic priority to maximize opportunities for all Australians to benefit from the information economy. The framework aims to ensure that every Australian has access to affordable online services relevant to their individual needs and Australians have access to lifelong learning opportunities to ensure they can obtain the online skills required in both the workplace and the community.

The **Andorra** White Paper emphasizes that “Those in positions of political power must work towards a position where access to the new technologies and the new information and communications services is made available on the basis of equal opportunity for all, so that the advent of the information society can be a progressive factor for the whole of our society.”

Government and Intergovernmental Response

The Access Board, is an independent Federal agency in the US whose primary mission is to promote accessibility for individuals with disabilities. It has established a "Guide to the Section 508 Standards for Electronic and Information Technology" outlining the minimum accessibility requirements.

In **Arkansas**, ‘accessibility’ has been defined as “ability to receive, use, and manipulate data and operate controls included in information technology.” Texas and Arkansas, rule on equivalent access means “a substantially similar ability to communicate with or make use of the technology, either directly by features incorporated within the technology or by other reasonable means such as assistive devices or services which would constitute reasonable accommodations under the Americans with Disabilities Act or similar state or federal laws.”

Corporate Response

The visible presence of the disability culture has not only impacted the law and policy but it has also made a mark on the market. The corporate sector has already recognized the benefits of accessible design to allow greater participation by people with disabilities. The notion of accessibility has been developed in different ways by different corporate bodies, in fact an effort has been made to institutionalize the universal design and accessibility as an integral component, Microsoft has constituted an Accessible Technology Group in keeping with its commitment “to supporting the development of hardware and software that is fully accessible to individuals with disabilities and that enables them to use the latest technology at work, school, and home.” Similarly, IBM has instituted an Accessibility Center, bringing together product and service information for people with disabilities, and for Human Resource Professionals who are proactively seeking knowledge about solutions to empower persons with disabilities including technical guidelines for making services accessible.

The World Wide Web Consortium (W3C) pioneered the Web Accessibility Initiative [WAI]. The purpose of WAI is to improve the accessibility of the web by developing accessibility guidelines, educating people on accessibility issues of the web and influencing the design of future web technologies to include accessibility features. Tim Berners-Lee, W3C Director says, “The power of the Web is in its universality. Access by everyone regardless of disability is an essential aspect.”

The Cingular Wireless Company has also constituted the Wireless Access Task Force, which helps to integrate accessibility solutions into the company’s products and services. The goal of the GNOME accessibility effort is to ensure that people with disabilities can use the GNOME

open source standard to access desktop user-environment. The project has identified 3 key issues vital to accessibility: defining what it means to be accessible ensuring that all applications that comprise the GNOME desktop conform to that definition of accessibility building of the assistive technologies that people with disabilities use in order to interact with the GNOME user environment

Electronic Industries Foundation (EIF) is the philanthropic sector of the Electronic Industries Alliance (EIA), the national voice of over **2,100 U.S.** high tech electronics companies. EIF has produced the Resource Guide for Accessible Design of Consumer Electronics.

Hewlett Packard (HP) has expressed its concern for access by supporting the Library Technology Access Project. The strategic relationship that HP formed with the Association of Specialized and Cooperative Library Agencies - a division of the American Library Association (ALA) -- to help develop accessible computer workstation solutions in libraries nationwide for people with disabilities. Since 1985, Apple has been deeply committed to helping people with special needs attain an unparalleled access to personal computers by providing accessible features. There are yet a number of companies which are totally committed to the concept of universal service and accessible design for all. They have either produced accessible interfaces to make an existing product or service usable by people with disabilities or have launched fully accessible products for a wide customer base.

Similarly, the TransAccess is a US based non profit agency working in partnership with business and the community. The mission of TransAccess is to establish partnerships with Silicon Valley businesses and the community to prepare persons with disabilities for competitive employment. It trains people with disabilities in Software Programming. Through career transition services and adaptive computer access technology, TransAccess creates opportunities for significant advances in universal access, social integration and employment for people with disabilities.

Access and Education

International Response

The right to education is universal and extends to people with disabilities as well. This right is specifically elaborated with reference to children with disabilities in Article 2 and 23 of the Convention on the Rights of the Child (1989) and is covered in several significant, international declarations, including the World Declaration for Education for All (1990), the Standard Rules on the Equalization of Opportunities for Persons with Disability (1993), the UNESCO Salamanca Statement and Framework for Action (1994), and the Dakar Framework for Action (2000). Central to these declarations, rules and resolutions is the concept of inclusive education. They underpin and elaborate a system that has the capacity to create appropriate opportunities of teaching and learning for a diverse population of students within the mainstream system of education. The goal of "education for all" can only be achieved when all nations recognize the universal right to education, and when all nations act upon their obligation to establish or reform public education systems that are accessible to, and meet the needs of, individuals with disabilities.

The UNESCO has established a flagship programme "Education for All and the Rights of Persons with Disabilities: Towards Inclusion." This Flagship represents a joint effort among UN organizations, NGOs and donor countries acting together as a catalyst in the process of achieving 'Education for All'. Recognizing the universal right to education, this effort seeks to unite all EFA partners to provide access to and promotion of quality education for every child, youth, and

adult with a disability. One of the strategic objectives is to combat discrimination and remove structural barriers to learning and participation in education

Access to education for persons with disabilities essentially implies respect for diversity in the physical and intellectual characteristics of learners. The concept of least restrictive and appropriate education is dynamic and recently the rapid use of information technology in the planning and delivery of education has added new dimension in this process. The use of information technology in education is gaining momentum throughout the world, both in traditional classroom environments as well as in distance education. It is assumed that ICTs can enhance the opportunity for disabled students in education at all levels. The Ministers and representatives of the nine high-population countries, convened in Beijing (21-23 August 2001) to review the progress of EFA and the World Education Forum (Dakar) 'to assess the challenges posed by the swift development of the global information society and to reexamine the strategies for developing EFA.' reaffirmed their commitment to the goals set by the World Conference on Education for All (Jomtien, March 1990) to the Delhi Declaration (December 1993) and the Dakar Framework for Action (2000) to meet the basic learning needs of all people the E-9 Ministers upheld important contribution of distance education and the appropriate and effective use of ICTs to reinforcing all aspects of basic education as a strong foundation towards lifelong learning and in the creation of a knowledge based and learning society. **(Beijing Declaration of the E-9 Countries** Adopted by the E-9 Ministerial Review Meeting Beijing, China, 21-23 August 2001)

Government Response

In the UK, there has been a systematic effort by the academic institutions to improve accessibility. In 1986, the National Federation of Access Centres (NFAC) was formed to ensure a consistent level of support to students with disabilities. Access Centres assist college-level students with disabilities in obtaining the level of support needed for a successful college and later university education.

UK passed a new Special Educational Needs (SEN) and Disability Act in 2001, which has a significant implication for ICT provision. The Special Educational Needs and Disability Act requires that: "Educational institution in the post-16 sector must take such steps as it is reasonable for it to have to take to ensure that: (a) in relation to the arrangements it makes for determining admissions to the institution, disabled persons are not placed at a substantial disadvantage in comparison with persons who are not disabled, and (b) in relation to student services provided for, or offered to, disabled students are not placed at a substantial disadvantage in comparison with students who are not disabled. In practical terms, this means that post-16 institutions will ensure that adaptations are made if they are using ICT in libraries and resource centres so that students with disabilities have equal access. The legislation relates not only to the classroom but covers other facilities such as catering, student services and leisure provision. In a nut shell the new Act calls for equal access to students with disabilities in all aspects of the academics. **(Transforming Teaching and Learning Through ICT British Educational Communications and Technology Agency 20 December 2002)**

Section 504 of The Rehabilitation Act of the US and its implementing rules are rather precise regarding what colleges and universities must do. These rules are contained under title 34 of the Code of Federal Regulations. Part II and part III of the Americans with Disabilities Act relates to education, it prohibits public and private entities, which include schools, public community colleges, State and private Universities from discriminating against people with disabilities in their programs, services, and activities. As a consequence, most university administrations and academic departments in the US have initiated measures for making the education system

accessible to people with disabilities. Many State Governments have adopted policy measures to effect changes in accordance with Federal legislations.

North Carolina State's ITA Plan calls for comprehensive measures for making the environment of educational institutions fully accessible for persons with disabilities. It specifically establishes the following initiatives: “ Install, test and implement a wide variety of assistive technologies across campus

Develop a program by which training is provided to faculty, staff and students on assistive technologies

Assess the accessibility of all official NC State web pages, and work toward correcting those pages that are inaccessible by providing feedback and support to web authors

Develop a program by which training is provided to faculty and staff on accessible web design

Develop an accessibility testing program, which evaluates information technology, including general-use computer software applications, for accessibility” [Terry Thompson, 2001]

Mississippi's Master Plan for Educational Technology (1996) notes, "There is currently little systematic integration of technology into the curriculum in the majority of schools." To improve access to and participation of students with disabilities in the general curriculum and to provide a model for utilizing appropriate augmentative and alternative communication technologies, strategies, and techniques the U.S. Department of Education commissioned the T.K. Martin Center for Technology and Disability and the Mississippi State University Department of Education to develop and validate a technology-based model. [Jill Ethridge, 2000]

In **Finland**, a project on electronic learning environments was initiated in 1998 aiming to develop and implement ICT-based services to complement the traditional education system and support independent, lifelong and special-needs learning (for the disabled).

The University of Toronto has established the Adaptive Technology Resource Centre which has initiated the project “Creating Barrier-free Broadband Learning Environments.” It aims to identify potential barriers to access broadband education delivery systems for learners with disabilities, develop solutions to the barriers, advance alternative or multi-modal display and control mechanisms that are only possible in broadband environments and create tools that allow learners with disabilities to customize their learning experience to their individual learning styles and needs.

In 1991, the Government of Thailand enacted the Rehabilitation Act, with the objective of enhancing the opportunities for people with disabilities in work and education. Subsequently many activities have been initiated to realize the full potential of this Act. One of these is the establishment of an assistive technology (AT) committee under the chairmanship of Her Royal Highness Princess Maha Chakri Sirindhorn. The Ratchasuda College, a division of Mahidol University at Salaya, Thailand established in 1992, as an academic institution to provide various programs for and in support of persons with disabilities. Realizing the need in the area of assistive technology for people with disabilities, the college launched a new program to provide individualized assessment for appropriate technology for computer access and environmental control by rehabilitation master degree students with Physical Therapy and Occupational Therapy backgrounds. Another worthwhile project is the joint Canada-Thailand venture. “In 1998, three agencies: ICACBR, NECTEC and Rathchasuda College entered into a project to enhance the understanding and use of technology for persons with disabilities in Thailand. One of the key outcomes of the Canada-Thailand AT project was the joint development of a strategic plan to move the issue of assistive technology for persons with disabilities.” (2001, CSUN Conference, Beverly Biderman, Vice-Chair Canadian Hearing Society, Penny Parnes , Director)

The Murdoch University in Australia has demonstrated an ever-expanding culture of respect for diversity. The University has worked for reflecting the needs of its students in both the classroom and across the campus in its services. The Student Equity Office is responsible for ensuring provision of entry and support for a number of these diverse groups, particularly those people with disabilities, those on low incomes, people from rural or remote locations and those who arrive in Australia as refugees including Aboriginal people.

Affirmative Action Programmes to Promote Access

By International Agencies

In the last one-decade UN agencies, regional bodies and governments of several countries have institutionalized mechanisms to ensure equal and effective use of ICTs by people with disabilities. Apart from providing a legal, policy and regulatory framework several affirmative measures have also been initiated. For instance, the UN Division for Social Policy and Development, which is responsible for the global social development programme, has identified the need for improving its use of Internet resources to offer one-stop Internet-based services to disseminate efficiently and effectively an expanded range of digital content, as well as undertake systematic outreach and network building among programme constituencies. The digital content framework-Internet gateway is focused on three subject areas. This programme reflects definition of information and communication needs related to global social policy and development issues among selected programme constituencies, with emphasis on WSSD, persons with disabilities and 1999-IYOP. [Oliva Acosta, 1998]

The European Commission's services division initiated TIDE project in consultation with a multi-disciplinary panel of independent European experts, many from the COST 219 project. TIDE is a pre-competitive technology research and development initiative in the field of rehabilitation technology for the elderly and disabled. The technologies concerned cover a broad range, including information, communication and control technologies. The Commission has already completed the TIDE pilot project (1991-1992) to provide data on the necessity of launching a community action in this field. A comprehensive range of projects have been initiated in partnership with various governments and private agencies to accelerate the development of technical norms and standards in Europe. The European Commission has also launched the eEurope initiative in December 1999 to bring all European into the digital age and online, to create a digitally literate Europe, supported by an entrepreneurial culture and to ensure that the process is socially inclusive and builds consumer trust. In May 2000, the Commission issued a Communication "Towards a Barrier Free Europe for People with Disabilities" (COM (2000) 212), establishing an EU Action Plan for disabled people.



The "Asia-Pacific Development Center on Disability" (APCD) is a regional center on disability, which will be established in Bangkok towards 2004 as a legacy of the [Asian and Pacific Decade of Disabled Persons 1993-2002](#), under the joint collaboration of the Government of Japan and the Government of Thailand. In this context, Japan International Cooperation Agency (JICA) started the APCD project in Bangkok on 1 August, 2002. The Center will be collaborating with the United Nations Economic and Social Commission for Asia and the Pacific (ESCAP), United Nations agencies, International non-governmental organizations and non-governmental organizations of people with disabilities. In order to establish a barrier-free rights based society the project has envisaged activities in several key areas to provide accessible information services

through the homepage and newsletter by utilizing an accessible information system such as Braille, audio and multimedia products

By Government Agencies

The Swedish government bill (1999/2000:79) “From patient to citizen –a national action plan for disability policy”, emphasizes that the state should set an example by ensuring that the public authorities make their operations, information and premises accessible to people with disabilities. In order to translate these laudable aims into reality the Swedish Parliament set up a National Access Centre at the Office of the Disability Ombudsman (HO). Among other things, this centre will work to promote accessibility in the IT field. The Parliament also assigned the Swedish Handicap Institute the task of developing a comprehensive proposal of IT based measures for disabled and elderly persons. The Swedish Handicap Institute (HI) is a national resource centre for assistive technology and accessibility for persons with disabilities. HI stimulates research and development, tests new assistive technology, contributes to knowledge and methods development, disseminates information and carries out training. It is jointly supported by Ministry of Health and Social Affairs, the Federation of Swedish County Councils and the Swedish Association of Local Authorities. The IT based measures planned and recommended by HI has stimulated positive response from all sectors and several research, development and standardization projects are underway to ensure people with disabilities and elderly persons are not excluded from the information society.

Information society is growing rapidly, therefore, swift and efficient systems are an imperative to keep pace with the changes. Democratic societies are deeply concerned about trends that cause or increase social inequities. The Government of US at all levels from the Federal government to local governments have become involved in a wide variety of ventures to bridge this gap by ensuring access to the information age. For instance, the United States Department of Agriculture (USDA) Accessible Technology Program (ATP) and the Department of Defense (DoD) Computer/Electronic Accommodations Program (CAP) have been developed to ensure accessible work environments for people with disabilities. The centers assist in making electronic and information technology accessible to persons with disabilities for career enhancements. The Centers serve as focal points in USDA for conducting needs assessments, demonstrations, evaluations, training, and acquisitions support for accommodations and technologies.

Similarly, Environment Canada’s ACT program (1996) has evolved to provide services to federal government departments. The services provided include advice and guidance on adaptive technology products to meet the needs of employees with disabilities, assessment of individual adaptive computer technology needs in order to identify the appropriate match between the employee and the hardware or software adaptations, installation and integration of adaptive technology hardware and software into a client's environment and training of employees with disabilities on the use of computer systems including the evaluation of adaptive hardware, software and computer systems for suitability of use by persons with disabilities. To ensure compatibility with the departmental technology infrastructure awareness sessions, demonstrations, and consultations for managers and staff are also conducted.

The US Department of Education established the National Institute on Disability and Rehabilitation Research (NIDRR). It provides leadership and support for a comprehensive program of research related to the rehabilitation of individuals with disabilities. In addition, NIDRR’s work helps to integrate disability research into the nation’s policies regarding science and technology, health care, and economics. Rehabilitation Engineering Research Center (RERC) on Communication Enhancement consists of 15 research and development activities, supported by NIDRR each of which are designed to improve AAC technologies that further the development of communication, language, natural speech, discourse skills, literacy of persons

with significant communication disorders. It is a “virtual” center, consisting of AAC researchers from seven far-flung institutions who cooperate and collaborate across extensive distances and time zones.

Science and Technology Project in Mission Mode is an initiative of Government of India. It aims to coordinate, fund and direct application of technology in development and utilization of suitable and cost effective aids and appliances, and methods of education and skill development leading to enhancement of opportunities for persons with disabilities. More than 50 projects have been funded by the Government so far and several applications to improve participation of the disabled have already been completed.

In July 2000 the Joint Information Services Systems Committee (JISC) initiated National Internet Accessibility Database (NIAD) in the UK. It aims to provide an on-line resource of information about products available to assist those with disabilities and special educational needs. In essence, the NIAD is a product guide with web links to external sites, and relevant support pages related to study needs rather than to daily living aids. (2001 IMPLEMENTING A WEB ACCESSIBLE DATABASE Mrs. E.A.B. Draffan and Mr. Robbie Corbett, Assistive Technology Centre, University of Sussex, UK.)

The Irish National Rehabilitation Board initiated a project to test the viability of delivering information technology training to severely disabled persons living in their homes by distance learning methods using Computers. The project also aims to assist the entry of young disabled people in the employment sector.

Access to Internet and Web Resources

In the last decade or so, Internet has brought about a radical shift in the paradigm of information dissemination, sharing and processing. Using Internet in a variety of information forms like plain/formatted text, pictures, audio and video can be presented to the users across the globe at a fast, reliable and extremely cost effective manner. While the variety in the forms of information makes the content aesthetically very appealing and easy to use, it also poses new challenges for the people with disabilities. For example, web pages divided into segments or frames would confuse software programs that translate text to voice. Graphics that have not been labeled with text are read only as "image" by the software reading the text on the screen and thus deprive blind persons of valuable content. Shapiro and Varian authors of Information Rules: A Strategic Guide to the Network Economy, point out that “[today more than 60 percent of Internet traffic is to Web Sites, and of the Web traffic, almost three-fourths is images.” Therefore, information on web loaded with graphics and images cause a series threat to the freedom of information for those with sight impairment. Similarly, Web pages with a long list of hyperlinks crowded together could confuse a person with visual and learning disabilities. Even people with hearing disabilities find it difficult to access the content of audiostreaming and videoclips posted on the Internet in the absence of captioning.

In this context, a development worth noticing is the release of the "Web Content Accessibility Guidelines 1.0" specification as a World Wide Web Consortium (W3C) recommendation on May 5, 1999. This significant development provides a stable specification that has been reviewed and recommended by the W3C Membership as a tool for making web sites accessible. The specification contains fourteen guidelines which are general principles of accessible design. Each guideline is associated with one or more checkpoints describing how to apply that guideline to particular features of Web pages. An appendix to the guidelines, "Checklist of Checkpoints for the Web Content Accessibility Guidelines 1.0" presents the checkpoints sorted by priority for easy reference. The automated Bobby service is another standard accessibility instrument that has

been developed by the Center for Applied Special Technology(CAST) to support the use of web accessibility guidelines of W3C. The Web Access Symbol developed by WGBH in Boston available at <http://www.wgbh.org> can also be used by webmasters to denote that their site contains accessibility features to accommodate the needs of disabled users.

The progressive evolution of the Information Society and the continuous advances in related technologies, has made the role of the Web extremely important. Its significance is very likely to increase dramatically in everyday social, economic and cultural life. Due to these developments and expected influence, increased attention has been paid to the accessibility of Web-based applications and services by different users, since the World Wide Web has become the primary mode for remote electronic communication and information exchange.

Internet accessibility has been in the center of the debate on bridging the digital divide. The Tokyo Declaration on Asia-Pacific Renaissance through ICT in the Twenty-first Century, adopted by the Asia-Pacific Summit on the Information Society, organized by the Asia-Pacific Telecommunity held at Tokyo in November 2000, declared that people in the Asian and Pacific region should have access to the Internet by the year 2005 to the extent possible. It also recognized disability as one of the causes of the digital divide, along with income, age and gender.

The focus of the sub-regional Workshop on Internet Accessibility in Central and Eastern Europe subsequent to the launching of the European Commission's "[eEurope initiative - An Information Society for all](#)" signifies the need for "accelerating the uptake of digital technologies across Europe and ensuring that all Europeans have the necessary skills to use them." The seminars on Internet accessibility in Asia and Latin America also focused on the web design, content, language and capacity of web designers and users.

Collectively the governments of the world have used the UN as a forum to advance the concept of Universal service in a knowledge based information society. Several worthwhile initiatives have been reported by the UN Secretary-General on the action taken to promote awareness and build national capacities for Internet accessibility. These efforts have been carried out in co-operation with Government, non-government and the private bodies in various parts of the world. They are reflected in the Secretary General's progress report on implementation of the World Programme of Action concerning Disabled Persons to the fifty-fourth session of the General Assembly (1999; document [A/54/388/Add.1](#)) and the fifty-sixth session of the General Assembly (2001; document [A/56/169](#)) and to the thirty-ninth session of the Commission for Social Development (2001).

Internet accessibility by and large has been understood in the context of the design of hardware and software, for instance Mr. Leo Valdés, consultant to the United Nations on Internet technologies, has noted in a paper on "[Accessibility on the Internet](#)" that "accessibility" is the provision of "flexibility to accommodate each user's needs and preferences". Some may need assistive technologies, such as screen magnifiers, screen readers or Braille interfaces to create, access or use information goods owing to a physical or sensorial disability. Others may need text-based or low-density graphical content since they have limited communications capacity or level of information technology to support robust graphics, streaming audio and video clips.

According to Judy Brewer, Director, Web Accessibility Initiative of W3C "common accessibility problems on Web sites include: images without alternative text; lack of alternative text for imagemap hot-spots; misleading use of structural elements on pages; uncaptioned audio or undescribed video; lack of alternative information for users who cannot access frames or scripts; tables that are difficult to decipher when linearized; or sites with poor color contrast." Inspired by the assumption that access to Internet for people with disabilities largely depends on the way the

instruments to reach Internet are designed and in a manner in which the content is organized, the focus of research has been on providing solutions to overcome the physical barriers. The questions of economic, social and lack of capacity of various institutions to accommodate difference of ability are now gradually being recognized and provided for.

The Australian Human Rights Commission conducted an audit of the Australian government and business Internet sites, to identify barriers encountered by visually impaired and other disabled persons. Based on the research and submissions the Australian Human Rights Commission has summarized social, economic and physical barriers which include

- “Cost of access to computers and internet connection
- Limited public access facilities for people who cannot afford their own equipment
- Limited sources of resources, assistance and information where adapted or customized equipment is required by people with disabilities and older people
- Needs for awareness, and training in use of, available options
- Inaccessibility of many web pages to people with vision impairments, slower connections and older equipment
- Inaccessibility of many automatic teller machines, EFTPOS facilities, and other similar devices including public transport ticketing machines, to people with limited vision, manual dexterity or memory, or who are using a wheelchair
- Concerns for safety when using ATMs and security when using EFTPOS facilities
- Concerns regarding privacy and security of internet transactions
- Difficulties in using interactive voice response systems (for bill payment and other services by phone) because of insufficient time provided for entry of information by the user, complexity of menus and lack of readily available recourse to human operator
- Lack of provision, or delays in provision of materials in accessible formats (particularly in education), for reasons including copyright or other legal difficulties and the formats in which materials are made available by publishers.”

The cost of computers suitable for Internet use, and as well as the price of other information and communication access technologies, has gradually declined. Despite this, majority of people with disabilities cannot afford a personal computer. Information and Telecommunications Needs Research (SIMS), of Monash University also validates the fact that cost is a major barrier to the use of the Internet, especially for people who not only need mainstream equipment, but also adaptive equipment and software. Even limited use of Internet from cyber café or through information kiosks is not possible for the majority of people with disabilities, as most of them are poor or have limited income which leaves little freedom to afford access to Internet even at a low cost. For instance, in Myanmar where the average household income is US\$ 20, the cost of Internet access is about US\$ 9 per hour (Disability in the Twenty First Century, 2002). The vast difference between personal income of the disabled and cost of Internet is a major barrier.

In the Asian and Pacific region, it is estimated that of 400 million persons with disabilities, over 40 per cent are living in poverty. These persons with disabilities are hampered even in their access to basic goods and services which all citizens are entitled to. (Biwako Millennium Framework 2002) According to the European Community Household Panel, a person in the active age (16-64 years) has a probability of 66% to find a job or develop a business. For a person with a moderate disability the probability becomes 47% and for a disabled person with severe disability the

probability is reduced to 25%. The 1998 National Organization on Disability/Harris Survey of Americans with Disabilities found that over 72% of Americans with disabilities do not have jobs. Nearly a third live in poverty. The working disabled earn less than $\frac{3}{4}$ of the income earned by non-disabled workers.

For many people with disabilities in the developing countries apart from cost, the basic problem has been the absence or the lack of the infrastructure to support ICT development, such as electricity, telecommunications, and television. The extent to which the persons with disabilities can have access to and benefit from the computer-based technologies also depends on the overall political and economic environment. In the present rich and dynamic climate of innovation and growth in information technology, people with disabilities are likely to have restricted access to fast and reliable information despite eradicating design barriers. As across the globe both in developed and developing countries the economic circumstances of people with disabilities are alike. "Above all, public policies to ensure lifelong access to hardware and Internet services, as well as electronic access to social programs and those services necessary for successful independent living are not fully developed" (Alan Toy 2001).

Overall dismal improvement on the accessibility front in the developing countries can also be attributed to the fact that "the speech engines for local languages needed for effective operation of screen readers are not available for most of the languages of developing countries. Electronic lexicon for various sign languages needed for rendering audio or textual content into sign language for display in electronic media and voice recognition algorithm for conversion of text to voice have yet to be developed [UNESCAP, 2002]. For affording flexibility in the design of computer hardware and software, these technologies are a prerequisite.

People with disabilities in several developed and a few developing countries have already gained from ICTs and particularly from the Internet. The traditional barriers no longer exist as far as their participation in education and social life are concerned. Many new avenues of employment have opened up with the advent of accessible information and communication technologies. The Australian Human Rights Commission's issues paper notes that there are particular potential benefits for older people and people with a disability in information, services or goods being available through the Internet. Internet can facilitate access to information particularly for people whose mobility is severely restricted and who otherwise cannot reach places. Many people with disabilities who cannot turn paper pages can use a computer with a modified keyboard or with voice control. Internet has widened the options for information access for people with sight impairments as they can gain access to documents in electronic form and read them in Braille, audio or large print. Emerging web-based technologies (such as the "babelfish" translation service) offer the prospect of greater equality and convenience of access and participation for people who are not fluent in English. Access to material in spoken form can also assist people with learning disabilities and for whom English is the second language. Similarly, via the web, people with hearing impairments can use recently emerged instant messaging e-mail service and captioned transcription of audio materials. Internet based video conferencing technology has opened up unprecedented opportunities for long distance communication for people using sign language which was not possible until recently.

ICTs in Education of the Disabled

In the field of education, information technologies are viewed as a means of complementing traditional educational techniques to enable education systems to adapt to the different learning and training needs of societies. Computer simulation, telematics, and teleconferencing, alongside

educational TV or radio, have great potential to reach larger audiences than the traditional classroom process, and to make learning more effective, attractive and stimulating.

“Special education and students with functional disabilities are the biggest winners in the current major commitment to IT as a teaching aid in schools; that has been the conclusion of all the studies of IT trends carried out in Sweden over the years” (Per Gunvall). The Australian Human Rights commission in its report (31 March 2000) notes that “digital technologies offer great potential in providing more effective and economical access to government and business information and services, and improved prospects for equal opportunity in many areas of life including education, for people with a disability”.

Similarly the report, entitled ImpaCT2, is an outcome of a comprehensive research in UK which investigated the impact of ICT on pupil attainment levels. The study found that “there was a positive association between the use of ICT and pupil attainment at GCSE. In particular, students who used high levels of ICT gained the equivalent of half a grade more in science and design and technology GCSEs than low ICT users.” (www.becta.org.uk/research/impact2)

Policy approach to Capacity Building

As information and communication technologies are becoming an integral part of our education, social, economic and cultural life, the need to acquire skills for its effective use have become not only necessary but almost inevitable. In order to avoid social divide on grounds of those who can and who cannot the governments, academic, corporate and development organizations world over have worked proactively to enhance the capacity of users, service providers, product developers, administrators and public at large.

The awareness, education and capacity building initiatives for the integration of assistive and adaptive technologies for persons with disabilities are of recent origin. Though the governments all across the globe in the early nineties introduced policies and programmes to improve the capacity of the members of society for effective use of ICTs with focus on teachers and students, however, these initiatives lack perspective on disability. There are very few examples of an integrated and inclusive approach to capacity building.

ITiS – ICT a programme of the Ministry of Education and Science in Sweden is one such model. This programme was carried out between 1999-2002, with the aim to augment IT competencies of schoolteachers’. About 40% of all teachers benefited from the in-service training in computer education. Those who had even one student with disability in their class, received special guidance on IT and the opportunities that the new technology opens up for the disabled pupils. In **Denmark**, however, it is considered that the effective development of computer literacy requires ‘an overall, cohesive strategy for the entire educational field’; it is not enough simply to provide more computers in schools. The capacity building of teachers and administrators is central to the freedom of information and access via ICTs .

Similarly, the Government of UK has established a central organization ‘the British Educational Communications and Technology Agency (Becta)’, to ensure effective harmonization of ICT in the education sector. It supports the UK Government and national organizations in the use and development of ICT in education to raise standards, widen access, improve skills and encourage effective management.

The Government of in The Green Paper on the information society (1997) notes that ‘the information society must be a society for everybody’; that everybody must have access to information technology and know how to use it, ‘it further recommends that Schools, public libraries, information kiosks and other bodies all have an important role in ensuring access to all.

The project Effective Use of ICT to Enhance Learning Outcomes of Disadvantaged Students of the Department of Education, Science, and Training of Commonwealth examines ways to identify what constitutes key effective teaching and learning practice when using ICT in primary and secondary schools, and how such practices can be used to enrich and enhance the learning outcomes of students. The project covers a wide range of issues including implications for professional development of teachers, and in linking to the experience of researchers and industry representatives who are involved in finding solutions for disadvantaged students.

In Ireland the report 'Schools IT 2000, A policy Framework for the New Millennium' of the Department of Education and Science notes that "One of the barriers to Assistive Technology devices among many is no staff available in the field or inadequate training of professional staff". Thus, it is vital that the provision of technology should be linked to the appropriate professional training in assistive technologies and their potentials.

Capacity Building

Many Universities in the developed as well as in developing countries have introduced formal and non formal programs to enhance the capacity of professionals in response to the rapid use of technology. The University of Southern Maine (USM), has instituted the Virtual Assistive Technology University (VATU) with the objective to train K-12 educators on a vast array of assistive technologies for the successful learning experience of students with disabilities. USM and Equal Access to Software and Information jointly offer a Certificate in Accessible Information Technology aimed primarily at colleges, universities and libraries covering such topics as: onsite information technology, web design, e-learning, multimedia learning disability technologies and a train the trainer course.

East Carolina University's Special Education Department teaches pre-service and in service teachers Assistive Technology Competencies in a hands-on environment. Through use of the technology lab, undergraduate students learn how to use adaptive hardware and software, work with children from the university's developmental preschool and create a technology portfolio.

To promote the use of Assistive Technologies (ATs) for students with disabilities across Ohio, a web-based distance learning program has been created. Educators earn graduate credit and improve their ability to work as part of a team to make quality decisions about AT for students with disabilities.

In 1999 Canada's Treasury Board Secretariat's Employment Equity Positive Measures Program approved funding of the Adaptive Computer Technology Training Program for IT Technicians. With the support of Treasury Board Secretariat funding, Environment Canada created a multi-dimensional program for all IT professionals in the public service.

The project ON-NET covering 14 South and South East Asian countries and project E-NET for East European countries provide support in several key areas for effective use of ICTs by persons with disabilities. The activities include:

- Training-of-trainers in special application.
- Up gradation of computer learning centres of the mainstream secondary schools.
- Development of training materials and their translation in multiple languages.
- Development of linkages with mainstream computer schools for smooth integration of disabled students.
- Technology training collaboration with IBM and other industry partners. (L. Campbell, 1998)

Wider Career Options

By providing access to information and communication tools, people with disabilities can have wider options in education, career and greater independence in general. The important link in this process of empowerment is training. Several innovative measures in this direction have been deployed by the government, academic, research and corporate organizations. A few countries have adopted comprehensive policies backed by adequate funding and infrastructural support and have institutionalised mechanisms for capacity building of the disabled. For instance, the Knowledge Foundation was set up by the Swedish government in 1994, with the aim to promote competencies and to create conditions for economic growth, by stimulating use of IT. The Foundation provides a forum for coordinated effort by business, academic and research institutions. “The Foundation aims to help develop pedagogical tools and models which use IT. Examples of these are sign language material, developing new software in areas which have been lagging behind, or new forms of work, whereby new technology gives disabled people greater opportunities in terms of participation and a sense of community”(IT for Disabled and Elderly People in Sweden 2000).

The National Science Foundation and the U.S. Department of Education supports projects to maximize the independence, productivity and participation of students with disabilities in academic programs and careers. To promote science, engineering, mathematics and technology options, many successful models have emerged. Projects such as DO-IT of the Foundation works with high school teachers, post-secondary faculty, and employers to make programs and resources fully accessible to people with disabilities. DO-IT also helps people with disabilities:

- use computers, adaptive technology and the Internet;
- prepare for challenging careers;
- transition from high school to college, from two- to four-year colleges, from undergraduate work to advanced studies;
- transition from school to work; and
- gain access to libraries, labs and electronic information resources.

Similarly, the CLASS project for Creating Laboratory Access for Science Students has been carried out by NSF and Department of biological Sciences and the Office of Disability Services.

In Australia Commonwealth’s AccessAbility Grants Program sponsors research and projects for improved participation of people with disabilities in economy particularly it promotes access to e-commerce.

Project Independent and Employed of California State University and NIDDR provides training opportunities for persons with disabilities to enhance employability in jobs that use computer technology. The aim is to promote high income career paths rather than traditional low-end, functional jobs. The key elements of the training include use of assistive technology, computer operating skills, business skills and self-determination.

Web based Education

Networks such as the Web, Intranets and some dedicated broad band networks are being used by the academic sector in a variety of ways. Web based instruction can be easily adapted to varying learning styles and communication formats. Initially web resources remained out of the reach of majority of people with disabilities, however, the development of accessibility norms and standards for Internet and Web have opened up unprecedented opportunities in Web based education and distance learning. The wider utilization of access technologies can help overcome

barriers to participation. Proactive, resourceful and innovative policies are a key to equitable sharing of resources.

The US Government in the year 1999 instituted the Web Based Education Commission pursuant to Title VIII, Part J of the Higher Education Amendments of 1998. The Commission's mandate required a thorough study to assess the critical pedagogical and policy issues affecting the creation and use of web-based and other technology-mediated content and learning strategies to transform and improve teaching and achievement at the K-12 and postsecondary education.

The Swedish Central Agency for Distance Education "Distum" formed in 1999, promotes the development and application of distance education based on information and communications technology in universities, colleges and other public education systems. Ever since its inception, it has worked to increase accessibility to and awareness of the ways in which flexible education can be utilized by people with disabilities. Distum through its collaborative work has demonstrated that the students with disabilities have gained most from flexible forms of education. In order to spread the results of the development of flexible education as widely as possible, a major effort is currently ongoing to develop a fully accessible information service.

Since the concept and knowledge about accessibility of web sites for people with disabilities has been recognised very recently therefore, majority of existing resources are out of the reach of people with disabilities. Dr. Cyndi Rowland and Tim Smith of Utah State University surveyed sites of 90 institutions, and found that "fewer than 1 in 4 of these institutions had home pages accessible to people with disabilities, and that less than 3% had secondary page links that were accessible to people with disabilities". Similarly, a study conducted at the Centre for Academic Technology at the University of Toronto revealed that none of the currently available Web based courseware tools address the issue of accessibility (Greg Gay and Laurie Harrison, 2001). It is heartening to note that several State and private addressed this challenge for instance, NCAM is collaborating with the Massachusetts Institute of Technology's Center for Advanced Educational Services to make an on-line interactive physics course accessible to students with disabilities. Known as "Access to PIVoT" (Physics Interactive Video Tutor).

The Rochester Institute of Technology has worked to ensure access by people who are deaf and hard of hearing to distance education courses in chemistry and biochemistry courses by incorporating instant captioning on video resources. These trends illustrate the potential and resources that are available to people with disabilities though their application is limited to fewer countries and small population. The absence of a collection and dissemination mechanism for sharing and pooling of resources is of crucial importance.

The University of Toronto with a consortium of partners representing consumers, experts in the field, developers and leading providers of distance education have initiated Accessible Courseware Study project. The project envisaged to create a set of guidelines for courseware developers, to assist in promoting accessibility issues through Web-based educational design tools and would also create another set of guidelines for Web based course designers and instructors, to assist in developing their knowledge of accessibility issues and accessible curriculum design. [Greg Gay and Laurie Harrison, 2001]

Libraries

Libraries whether in schools, universities, or public and specialized are playing an ever greater role in the dissemination of knowledge and experience. When they are computerized and interconnected, are able to pool their resources to provide their clients access to enormous amount of information. Moreover, they are ideally placed to serve as public gateways to information highways, providing as they do both access and guidance and training to users. They are likely to

become more involved in electronic information provision as their clientele across the sectors is becoming increasingly IT literate.

Braille and Talking Book Libraries from among the specialised libraries have played a very significant role in the lives of sight and print impaired persons (the learning disabled) Computerisation of braille printing process and development of conversion softwares for transcription of ink print to braille was a turning point in braille production. Similarly, introduction of digital technology in the production of audio and video have brought about revolution in the quality of talking books. For efficient use of resources in the last decade major audio book producing organizations of the world established a Consortium called the DAISY Consortium in May, 1996. This Consortium currently has 49 members from 32 different countries. In 1997, the Consortium decided to adopt Open Standards based on file formats to take advantage of indexing or linking features in random access environment formats for storing data. To avoid duplication, these formats of recording and storage had to be standardized. The DAISY standards developed and released in 1998 and 2001 are based on open source technologies and formats like the XML and SMIL; this ensures easy comprehension and adoption by product developers.

The use of Internet & web in the libraries is a common feature. However, production, storage and distribution of Braille materials via web is a contribution of 21st century. National Library Service for the Blind and Physically Handicapped (NLS) in the US created the first Web-Braille service which allows users with refreshable Braille displays another similar devices to access books via Internet in Braille mode. The web-braille networks have generated new demands on the staff in braille libraries who require training in electronic file preparation and checking; server maintenance; and various skills associated with using the Internet. [Judith M. Dixon, 2001]

The ensure equal access to Libraries for people with disabilities it is important to consider:

- a) The selection of a core set of adaptive equipment, suited to people with a range of different disabilities for use in public libraries;
- b) The development of related training packages; and
- c) The development of standards and policies to achieve appropriate levels of online public access for disability groups.

These issues are being considered at various levels. For instance, the State Library of Victoria/VICNET undertook a project that contributed very specifically to the hardware, software and liveware needs for making the library environment fully accessible via the Internet and in the traditional mode. [Dr. Kirsty Williamson, 2002]

Community based computer courses have been offered via public libraries for disabled people in a few countries. These experiments can serve as a good model.

Mass Media

The mass media has undergone rapid transformation by simulating major technological innovations such as electronic editing, publishing and through animated images and digitized production of TV programme. The computerized and communication-assisted publishing of the printed press has also contributed to this revolution. Interactive television and multimedia has opened up yet unprecedented opportunities for entertainment, education and for commerce. Whether nurturing of cultures, popularization of science or influencing public opinion, public service broadcasting is likely to play a more significant role than ever before. If the rapidly

developing media technologies are made available over a truly universal broadband network, the media's capacity to break down traditional barriers to participation by disadvantaged groups such as people with disabilities are enormous.

The studies carried out in Asia, Europe and America suggests that disabled and non-disabled have similar media habits. Relevance of television, radio and newspapers is as significant in the lives of PWDs as it is for the non-disabled population. While countries like Sweden have established dedicated television channels for the signing population of deaf persons, it has also ensured effective use of television in the education in general and particularly for the disabled. The Swedish Educational Broadcasting Company (UR) is one of three companies within the Swedish public broadcasting system. Its mission is to take the needs of disabled people into consideration and programmes are to be produced for special target groups during its license period, by utilizing existing and new technologies. Similarly, the department of education and national science foundation in US has promoted educational programmes on public television for people with disabilities. WGB NCM has contributed significantly towards this end.

The new Broadcast and Communication laws have mandated access via captioning and descriptive videos for sight and hearing impaired persons. WebTV and other set-top technologies significantly widen the TV pipeline, by combining World Wide Web with television broadcasting conventions. By inserting special signals throughout the broadcast, these systems deliver accompanying data from the Web. Similarly the interactive features have been incorporated in set-top technologies enhancing multimedia captioning.

The use of radio as an alternative to printed text has greatly benefited the elderly and disabled persons. Committed channels have provided reading service to facilitate access to newspapers and print materials otherwise out of the reach of people who cannot negotiate regular print. Yet there are countries with positive experience of using electronic publishing for making news and information available to the disabled at the same time as it reaches non-disabled population. The copyright acts have been amended ensuring better access and safety but these initiatives have remained concentrated in the small pockets of the industrial world. The recognition of distinct disability culture in countries of Western Europe and North America have been instrumental in promoting accessible media, however the countries with limited resources and poor recognition of the rights have done precious little to effectively use mass media in the promotion of culture, science, entertainment and knowledge for people with disabilities.

Telecommunication

An important facet of the "right to communicate" concerns access to telematics facilities at affordable cost and in accessible formats by people with disabilities. For a long time telecommunication remained restricted for the deaf, hard of hearing and people with speech impairment, though the telephone was invented with the intention to convert speech into a visual representation to ease communication for hearing-impaired persons.

Teletypewriter (TTY) service became available in the mid 70s that enabled communication for the deaf with other TTY users. The tele-relay service is a second milestone that widened the communication choice as the deaf callers through a relay centre can communicate with hearing persons. Voice amplification system in telecom has enabled hard of hearing person's greater independence. Similarly, the "Code-com" revolutionised telecommunication for deaf blind persons but required knowledge of Morse code. The teletext receiver has widen the communication options even for deaf blind persons allowing real time communication in finger braille system as its prosody resembles the spoken language.

In many countries to assist telecom between people with speech impairments and others a special relay service has been introduced. The call routes through an operator who is trained to

decipher the impaired speech. Similarly, videophones have revolutionised long distance communication for the deaf people as for the first time they are able to communicate in sign language independently. The developments in telecommunications have certainly opened unanticipated avenues of communication but have also revolutionised telecom standards to ensure access without prejudice.

Initially six different text telephone systems came in use with serious problems of compatibility, interoperability and limitations in international calling. Therefore, in 1997/98 the International Telecommunications Union (ITU) through Study Group T 16 released 3 major recommendations.

- 1) V.18 describes a multi-function text telephone, which can communicate, with the wide variety of text telephones in use today.
- 2) T.140 adds new facilities, which allow text communication using a very wide variety of alphabets such as Arabic, Cyrillic, kanji etc. as well as Latin-based characters.
- 3) T.134 describes how these facilities are used in the multi-media communications systems defined by the ITU-T. (Gunnar Hellstrom, 1998)

After having completed work on V.18, T.140 and T.134 the ITU focused its attention on 3 new targets with the objective to:

- a) Establish an interoperability test for text telephones.
- b) To establish interworking between text conversation in different environments by adding to Recommendation H.246 on interworking between the different multimedia systems.
- c) To establish a service description for multimedia conversation services, including text conversation and video with motion reproduction sufficient for sign language and lip reading.

The European Telecommunications Standards Institute (ETSI) have produced three very significant deliverables that provide guidance to the designers of communications products and services:

- ETR 029: Human Factors (HF); Access to telecommunications for people with special needs; Recommendations for improving and adapting telecommunication terminals and services for people with impairments (1991)
- ETR 116: Human Factors (HF); Human factors guidelines for ISDN Terminal equipment design; (1994)
- ETR 166: Human Factors (HF); Evaluation of telephones for people with special needs; An evaluation method (1995)

All of these documents have been used, by major European companies to help them in the design of their telecommunications products and services. The ETSI has established two new Specialist Task Forces (STFs), funded by the European Commission (EC) and the European Free Trade Association (EFTA) under the eEurope Initiative.

The STFs will work on two tasks:

One will look into the use of Universal Communication Identification (UCI) systems to assist disabled, young and elderly people; (UCI is a numbering system which is being developed to give every individual a communications identifier to be used throughout life, irrespective of changes in communications systems. The system would identify the originator and recipient to determine the

special requirements of either party (or both). For example, the system could ensure that incoming voice calls to a user with a hearing defect are redirected via a service that applies predefined frequency-based amplification. Secondly, the UCI's "additional information field" can also highlight special requirements relating to the UCI holder, which could be shown to the originator of a communication before connection, enabling him to take special measures to ensure successful communication. The special requirements could, for example, indicate that communications should be via text (e.g.: text phone or e-mail) if the recipient is deaf. (The European Telecommunications Standards Institute, 2002)

The Specialist Task Force would also contribute:

- An ETSI Technical Report describing the most important communication requirements related to disability, age and young people, and including a classification of disabilities.
- An ETSI Guide describing requirements for elements in the additional information field to improve communications for the elderly, the disabled and young people would also be evolved harmonizing basic Man-Machine Interaction (MMI) user interfaces in mobile phones and services.

The developments in telecommunication have been very encouraging. However the cost of specialized products, their wide spread use in the intellectual sector has not received adequate attention. In many regions of the world telecommunication infrastructure, bylaws and regulations are still evolving. Therefore, there is a great potential to address accessibility issues provided the knowledge gained is shared as widely and systematically on sustained basis.

Conclusion and Recommendations

Under its Constitution, UNESCO is required to contribute to "advancing the mutual knowledge and understanding of peoples, through all means of mass communication", "to promote the free flow of ideas by word and image", to "maintain, increase and diffuse knowledge", and "to give fresh impulse to popular education and to the spread of culture." To discharge the role assigned to it UNESCO has adopted a multi pronged strategy. Its effort has been to reach all cultural entities, racial groups and population with diverse characteristics.

In the information age, the UNESCO's role has become even more important as the information society has impacted every facet of life. While the information generation, processing and sharing is much more efficient, reliable and cost effective via the interoperable networks, but its effective utilization have been structured around individual capacity, literacy, ability to operate in English and a few other languages. For people with disabilities the design of ICT products, services and the manner in which content is organized also determines the level to which they could participate and benefit from.

There is now a political will in many countries to support the participation of people with disabilities in the knowledge based information society. New legal frameworks and standards are being developed to promote the concept of universal design and universal service. The telecommunication, broadcasting and information laws and regulations falling short of accessibility standards have either been repealed or revised. These measures have been instrumental in redefining the freedom of information and right to communicate in the information society. Above all the effort is towards creating systems independent of individual bias as a means to overcome the risk of digital divide.

The affirmative programmes introduced by UN, regional and national bodies have evoked wide interest among people with disabilities, service providers in the area of ICT, academic and

research institutions and also among social, private and corporate bodies. The information society is also a market society. Its expansion and growth was entirely left to the market initially. As a consequence the benefits remained by and large concentrated in the affluent countries and among the urban middle class sections. Persons with disabilities and other similarly situated groups with low income, literacy and having personal characteristics different from the majority could have been on the wrong side of the digital divide had the progressive governments not taken steps to regulate the market for equalizing the opportunities for all in the knowledge based information society. Preferential purchase policies in favour of accessible ICT products and services, mandatory access to public information systems and State supported development and distribution of ICT products and services have gone a long way in shaping the market as well as accessible ICT infrastructure.

Freedom of participation in the knowledge based information society is also determined by the user's ability to negotiate the instruments of information generation and processing. To respond to this new social need the countries all over the world introduced capacity building programmes, which initially lacked a disability perspective. However, a more systematic and inclusive approach to capacity building has evolved that has enabled product developers, service providers, rehab workers and people with disabilities to use ICTs more effectively than ever before. Institutional mechanisms have been put in place to compliment the mainstream capacity building programmes for successful integration of people with disabilities.

The UNESCO analyzed the global trends through a process of review of major research initiatives in ICTs and people with disabilities. The desk research of 2002 revealed that rapid ICT developments have opened up unanticipated avenues of employment, education and socialization for disabled in the developed countries and, for a small minority of the disabled in developing countries. The challenge lies in the equitable expansion of these gains to every part of the globe. The basic problem in many developing countries is the lack of the infrastructure to support ICT development, such as electricity, telecommunications, and television. Precious little has been done to develop a Standard Sign language for the deaf people (a basic communication system).

The speech engines needed for effective operation of screen readers are not available in the languages used in poorer countries. Similarly the electronic lexicon for various sign languages, needed for rendering audio or textual content into sign language for display in electronic media and voice recognition algorithm for conversion of text to voice are still underdeveloped. As these technologies are a prerequisite for the creation of accessible ICT systems, therefore the disabled people in the developing countries have limited freedom to communicate in their preferred media of communication via modern ICT systems.

The rapid changes in the electronic communications and switch from digital to analogue has unfolded many new opportunities and as well as challenges for the disability sector, which has limited influence on public resources. While the effort to develop, upgrade and integrate accessibility standards on consistent basis has ensured smooth transition in a few countries of the world but the arrangements to manage technology switch by and large lack perspective on disability. The efforts made by ITU, W3C, European Commission under the eEurope initiative and ETSI in the up-gradation and integration of universal standards has a great potential to manage technology better than ever before.

The UN bodies and regional organizations have played a significant role in placing the issue of universal design and access by elderly and people with disabilities in the center of the debate on information society. The regional preparatory meetings for the World Summit on Information Society have harmonized disability concerns in their proposals. However, detailed consultations with the disabilities sector in many regions could not be held and this is reflected in the proposals from Africa and the Middle East.

Recommendations

UNESCO in co-operation with UN bodies and other community organizations will as part of its international intellectual co-operation

- Ensure information highways are not only used as new and powerful channels for electronic consumption. They must promote culture, science and education and provide sufficient space for sharing of knowledge, creativity and public opinion, which must be open, accessible, manageable, and affordable by people with disabilities.
- The public media must be encouraged to reorient its mission to accommodate educational, scientific and cultural needs of persons with disabilities and to promote disability culture. User Interface Standards, User Presentation Standards and Terminal Equipment Standards need to be developed and redefined so that all analogue and digital broadcasting services are delivered on accessible norms.
- It may encourage and facilitate research to analyze the social impact of ICTs in the lives of people with disabilities.
- It may ensure the World Summit on Information Society takes into account the concerns and aspirations of people with disabilities and its output incorporates a clear disability perspective.
- It may influence the debate on copyright and intellectual property right to ensure that they remain effective in making all forms of literature accessible and available to people with disabilities at the same time as it is made available to the non-disabled population.
- It may assist Member States in elaborating barrier-free national information infrastructure policies; based on the principles of universal design and universal service with an aim to promote equal access to knowledge based information society regardless of frontiers, personal characteristics and difference of ability.
- It may encourage Member States to adopt and support ICT development based on international standards, which are universal, open, non-proprietary and flexible enough to accommodate technology growth and switch over.
- It may encourage inclusion of a disability dimension in all the research, development, standardization initiatives and pilot projects undertaken to promote literacy, science, culture, media and management of heritage sites, museums and libraries. Participation of disabled users needs to be made mandatory from R&D to product development, policy planning and monitoring.
- It may support projects for the development and introduction of standard national sign language to secure the freedom of expression and communication in the preferred language by deaf persons, particularly from the developing countries.
- It may encourage and facilitate surveys to document public, corporate and voluntary initiatives in the service of people with disabilities mediated by the ICT systems.
- It may facilitate comparative study of ICT laws, policies and regulations with a view to determine the extent to which the freedom of information and right to communication of people with disabilities have been promoted, protected and secured in the information age.

- It may study and analyze various models of integrating information systems and assistive devices to enlarge educational opportunities for people with disabilities at all levels of education.
- It may develop manuals, guides; multimedia and online courses for teachers, library, museums and archive staff and science lab assistants for the effective use of accessible ICTs to enable full participation of people with disabilities.
- It may promote international, regional and sub regional cooperation for sharing models of good practice, policy, law, affirmative actions, programmes and schemes that has leveraged information, media and communication systems accessible to people with disabilities.
- It may establish an information and documentation system for the dissemination of information on the ICTs and people with disabilities.
- It may facilitate production of films and television programmes documenting ICT potential in the education, employment and socialization of people with disabilities.
- It may encourage State parties to introduce a module on the use and potential of ICTs and assistive devices in the education of teachers, rehab workers, library staff, science lab assistants and health professionals.
- It may facilitate introduction of innovative approaches to non-formal and life long education and learning to people with disabilities and their service providers through distance education.
- It may support projects to evolve web based educational tools to create accessible courseware and curriculum design.
- It may institute three awards one each for an academic, a corporate and government for their outstanding contribution and performance in promoting access of people with disabilities in the knowledge based information society.
- It may cooperate with ITU, European Commission, UNESCAP, ETSI, W3C, NCAM/WGBH (USA), SIH (Sweden), Becta (UK), Trace Centre (USA), Australian Human Rights and Equal Opportunities Commission, JSRPD (Japan), DAISY Consortium, University of Toronto (Canada), Commonwealth of Learning, Rochester Institute, World Federation of the Deaf, The National Association of the Blind, Delhi (India), Inclusion International, Rehabilitation International, European Disability Forum, Microsoft, IBM and other companies exclusively dealing in specialized equipments for people with disabilities. The coordination and cooperation with these can further the UNESCO's aim of equalizing opportunities for people with disabilities in the knowledge based information society.

**UNESCO supported Workshop on
Information Literacy Competency Development
for Library & Information Science Professionals & Special Educators
Organized by SALIS and MSSW
Dates: 06-11-2006 to 10-11-2006**

REPORT OF THE WORKSHOP

It is my pleasant duty and privilege to present a report on the UNESCO supported workshop on Information Literacy and competency Development for Library & Information Science Professionals and Special Educators of the Southern States of India.

It is a known fact that Information & Communication Technology has facilitated information explosion and knowledge boom in all disciplines. Information Literacy is key to one's development, prosperity and freedom in an information society. Given the growing importance and relevance of IL, all sections of the populace including the differently abled need to be equipped to handle the information available in various forms from various sources. In this context, the workshop was conceptualized by UNESCO and entrusted to SALIS and MSSW towards its organization and implementation. The Organising Committee worked for over 2 months to fructify this workshop. The participants were carefully selected from a pool of applicants so as to maximize the learning. The workshop per se was spread over 10 technical sessions and supplemented by practical and demonstration session and field visits to ensure a holistic learning.

The workshop was formally inaugurated on 6 – 11- 06. While Dr. Fatima Vasanth, Principal, MSSW gave the welcome address, Mr. A.Hariharan, President, SALIS delivered the Presidential address. Ms. V.Sakthi Regha, Librarian, MSSW and Workshop Convener presented the objectives of the Seminar and Mr. Anup Kumar Das, Specialist, Information for All, CI sector, UNESCO gave the special address. The Inaugural address was delivered by Dr.C.K.Graiyaali, Principal Secretary to the Governor of Tamil Nadu. She highlighted that ICT had immense potential to bridge the information gaps faced by

disabled personnel. Dr.M.N.G.Mani, Secretary General, ICEVI in his Key note address, stated that while catering to the educational needs of the disabled, one had to ensure a right based, barrier free and an inclusive society. Mr.C.D.Jose offered his felicitations while Dr.S.Muralidhar, Vice-President, SALIS proposed the vote of thanks.

The first technical session was handled by DR.M.N.G. Mani on 'Life Skill Development'. He called for IT literacy among the persons with disabilities so as to harness the applications of IT for the welfare of the persons with disability. Dr.D.Rajalakshmi, HOD – DLIS, RTM Nagpur University presented about the 'Library and Information Services for differently abled persons'. She dealt at length about the literacy activities of the disabled, emphasized the role of libraries vis a vis information centers and highlighted the various Information Literacy programmes for the disabled both nationally and internationally. The first day's programme came to an end with the session on "Assistive technologies for differently abled persons' by Dr.J.Vijayalakshmi, Guest Faculty, NIEPMD wherein information on various assistive technologies for different kinds of disablement were clearly spelt out.

Day II commenced with a session on 'Overview of IL' by Dr.Harish Chandra, Librarian, IITM. Dr.Chandra not only gave an overview of IL but also presented the IL standards and the performance Indicators. He also highlighted the limitation in the Indian context.

The second session on 'ICT Skills, Technologies, Internet and WWW' was presented by Mr.S.Raja Samuel, Lecturer, MSSW. Prof.Raja Samuel explained what it meant to be ICT literate and how to harness ICT including the WWW. The afternoon was devoted for a demonstration and practical session on ICT, Internet and WWW. The session was facilitated by Mr.Hariharan, SALIS and Ms.V.Sakthi Regha, MSSW.

On Day – III, Dr.Doreen Gnanam, Lecturer- SG in Special Education, Meston College was the resource person for the session on "Learning Assessment". She gave an Overview of Learning Assessment in the context of IL and traced the types, criteria and methodologies of assessment. The day's technical session came to an end with Dr.S.Ramesh Babu's session on IL competency standards, performance indicators and Outcomes. Dr.S.Ramesh Babu, Professor, Dept. of Information Science, University of

Madras. He made an in depth presentation on IL standards of select organizations and their performance indicators and traced the status of IL abroad and in India. The afternoon was devoted for a field visit to National Institute of Visually Handicapped. At NIVH, the delegates were oriented about various training courses like typewriting, computer, electronics, etc. conducted for the visually challenged students.

A vibrant presentation on 'Right to information Act, 2005' was made by Ms.Shri Harini Narayanan, Consumer Action Group. She highlighted the salient features, provisions and gray areas of the Act. The next session on 'Development of IL programs for the differently abled at Schools and Vocational Institutions' was handled by Mr.S.Swaminathan, Librarian, Sri Ramakrishna Mission Vidhyalaya College of Education. Mr.S.Swaminathan reiterated that it was important to develop IL programs according to the needs and requirements of the differently abled. He presented various case studies from different countries including India in this regard. In the afternoon, the participants had a library tour to the Central Library of IIT M. In the central library of IIT M, participants were taken to various sections of it and lectured by Dr.Harish Chandra, librarian, IITM about various technologies used, services offered, programmes organised in IIT library.

The final day's session was on select IL models namely Big Six Model, Empowering 8 Problem Solving Model and SCONUL 7 pillars model. Dr.Devika P.Madalli, Documentation Research and Training Center, Indian Statistical Institute made the presentation. This was followed by an Interaction session among participants facilitated by Mr.C.A.R.Shridharan, Placement Officer, Office of the Commissioner of Disabled. During the post lunch session, the participants presented their Institutions' unique initiatives towards IL for the disabled.

On the whole, the workshop has been a good learning experience not only the participants but also to the workshop organizers. It has helped widen our horizon's on the subject and also our approach towards the differently abled. We are indebted to one and all for the same. Thank you.
