DIGITAL INFORMATION LITERACY TRAINING IN A VIRTUAL ENVIRONMENT

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The ability to read and write refers to literacy whereas; an ability to find, use and communicate information represents information literacy skills. Though, the concept of Information literacy emerged from traditional modes of library orientation and user education programmes, it has a broader perspectives and wider applications. American Library Association Presidential Committee on Information Literacy [1] defines 'information literates' as "those who have learned how to learn. They know how to learn because they know how knowledge is organized, how to find information, and how to use information in such a way that others can learn from them. They are people prepared for lifelong learning, because they can always find the information needed for any task or decision at hand." Information literacy therefore, refers to a lifelong ability to recognize the need for, to locate, evaluate and effectively use information [2]. Digital information literacy is a part of this which is essentially related to information literacy in a digital environment. An extension of the term information literacy is Digital information literacy which refers to access (find), interpret (evaluate) and create (use) information in a digital environment. Another related concept is Digital Information Fluency (DIF) which refers to the ability to use specialized tools for finding, to evaluate and use digital information effectively, efficiently and ethically.

In Martin's view [3] many competing literacy's confront educators, students and citizens in the digital era. These are: Computer (IT) literacy developed since the 1970s; information, media and visual literacy which are as old, although initially not focused on digital areas; and more recently the e prefix has joined many neologisms. Digital literacy according to him is "The awareness, attitude and ability of individuals to appropriately use digital tools and facilities to identify, access, manage, integrate, evaluate, analyze and synthesize digital resources, construct new knowledge, create media expressions, and communicate with others, in the context of specific life situations, in order to enable constructive social action; and to reflect upon this process".

Three components emerge from this definition: First, use of digital tool i.e. computer or ICT literacy; Second, a 'higher order' skill viz. critical thinking – evaluating, synthesizing, contextualizing i.e. information literacy; Third, a social element that involves an understanding the digital society, knowing rules for socializing or collaborating digitally and adapting to the digital environment.

2. Need for Digital Information Literacy Training

According to American Library Association and Association for Educational Communications and Technology [4], following 'Nine Information Literacy Standards for Student Learning' are

required. These are:

1. A learner is an information literate who:

- accesses information efficiently and effectively;

- evaluates information critically and competently;

- uses information accurately and creatively.

2. An independent learner is information literate who:

- pursues information related to personal interests;

- appreciates literature and other creative expressions of information;

- strives for excellence in information seeking and knowledge generation.

3. The learner who contributes positively to the learning community and to society is information literate and:

- recognizes the importance of information to a democratic society;

- practices ethical behavior in regard to information and Information Technology;

- participates effectively in groups to pursue and generate information.

Digital Information literacy does not merely refer to a particular skill, rather it is a process related to different disciplines of study and learning experiences and hence needs to be integrated throughout the curriculum. Development of digital information literacy training programme needs to be a shared responsibility of faculty and information/ library professionals.

Digital information literacy is not a stand- alone subject rather it is best learnt within subjects to provide a context. Therefore, educators need to embed digital information literacy training into subjects and research projects to provide a context. Training and guided practice of digital information skills in the long run will facilitate independent and lifelong learning. Therefore, in the present digital era educators need to provide a basic understanding of importance of gaining digital information literacy skills to their learners.

3. Digital Information Literacy in Virtual Learning Context

Open and distance learning (ODL) has evolved over the years from traditional mode of print based delivery to virtual mode of borderless education system that are crossing the boundaries of time, space and location. Borderless education system are characterized by high level of ICT dependencies, collaborative arrangements and subject spread from conventional to innovative need based vocational and professional offerings. Various modes of delivery are now in vogue ranging from individual offering to self assembly mode where learners can assemble their own curriculum requirement from bouquet of courses offered. The institution support is towards guidance and certification [5]. The extent of penetration of information and communication technology determines the level of virtual environment that a learner is

provided with. In the present era of knowledge economy, ICT is looked upon as a central requirement for any educational institution, more so in case of ODL systems.

Following important issues however need to be addressed before venturing into a virtual learning environment for learners.

1. Problem of digital divide - Statistics suggests that 90% users of internet are from developed country which together comprises 16% of the world population [6]. In the e-learning context access to internet is most crucial component requiring serious attention to provision of optimum bandwidth reaching out to the learners located at remotest corners of the world.

2. Technology requirement - virtual learning environments essentially begin and end with technology. Fast obsolescence of technology is a major issue that needs serious attention while planning for ICT enabled education. Sustainability and scalability are other important aspects that need to be addressed.

3. Challenges of Open Source and Open Access- Open source applications based on free exchange of ideas and collaborative creation model is revolutionizing ODL scenario and paving a way for innovative models for teaching and learning. Many ODL institutions are now adopting open source applications as a major part of their development strategy. Open source applications in educational context can be categorized as knowledgeware and courseware [7]. On the knowledgeware front, LMS and CMS applications like Moodle, A Tutor etc. are becoming very popular and many ODL systems are adopting them. On the courseware front, the concept of open access is gradually gaining ground. It is gradually being felt that to facilitate and nurture flexible learning communities, education system needs to draw on the collective intellectual capital and wisdom of educators. MIT, COL and many other institutions all over the world are now working towards the development of Open Educational Resources (OER) which is revolutionizing the content creation and delivery process.

Marshall [et al] [8] have categorized e-learning tools into three types:

- Curriculum tools comprising instructional tools (curriculum design, online quizzes, automated grading), administrative tools (file management, authentication and authorization) and student tools (browsing of course content, collaboration and sharing through synchronous and asynchronous modes of communication, progress mapping and tracking).
- Digital library tools that support learners to access right information amidst huge amount of digital information resources available at the right time. Digital library features generally include search, browsing, or discovering special collection. While curriculum tools support class functions, digital library tools focus on locating resources.
- The knowledge representation or concept mapping tools that help learners visually review, capture or develop knowledge. Concept maps and other forms of spatial semantic
- displays are evolving as alternative to traditional linear representation of information and as the basis of effective learning strategies.

Most of the virtual learning solutions focus on the curriculum tools. Digital library tools are now being embedded with the e-learning systems. The current trend is towards integrating digital libraries and learning object repositories in the e-learning platforms. The knowledge mapping or concept mapping tools are also gradually being adopted to provide customized resources and services suited to different learning styles. Intelligent systems are being developed that are capable of mapping skills of learners based on their profiles generated through tracking report and providing customized packages accordingly. Present day requirement is to develop tools that enables learners to create their own solutions rather than responding to the framed curriculum which restricts the learners from thinking critically.

In a virtual environment learner is central, wherein digital literacy and resource-based learning are two processes which should be used together [9]. Teacher is the facilitator who guides learners in finding, evaluating and using information. In such an environment learner's use:

- Text-based resources (self instructional learning material, course guides, manuals, textbooks, lecture notes);
- Computer-based resources (computer-based tutorials, on-line multimedia);
- Networked-learning resources (on-line tutorials, networked study programs);
- Media-based materials (audio/ video resources).

In the present knowledge era, abundance of information available for learners require them to be adept in information finding skills to enable them keep up to date. The Digital Information Literacy skills can best be acquired through subject based Information Literacy courses. Starting with basic library skills and developing toward cognitive skills such as synthesizing and evaluating information, learner's can achieve Information literacy goals.

Digital Information literacy skills need to cover following aspects in a virtual learning environment:

- Basic knowledge of computers and application software like office tools;
- Knowledge of library procedures, special services, different types of knowledge resources and how these are organized (classification, cataloguing and shelving aspects);
- Use of computerized catalogue, and techniques for searching for information both online and offline mode.
- Scientific reference techniques, selection, analysis, interpretation, systematization of information and storing compiled information for reference.
- Cognitive skills such as synthesizing and evaluating information. It is concerned with understanding various concepts of the process of scholarly communication and information retrieval tools and types.

Information literacy advocacy in the 1980s and the early 1990s began with a skills-oriented, competencies-based approach [10]. The complexities of the current digital information environment requires a complex and broad form of literacy. Skill-based literacies are part of it, but it cannot be restricted to them, nor to any particular technology or set of technologies. Understanding, meaning and context must be central to information literacy

training [11]. This also means that instead of concentrating on information as a thing, the way that leads to it should be emphasized [12].

Digital Literacy offers a framework for integrating various other literacies, such as the presentation, evaluation and organization of information [13]. It also includes awareness of the value of traditional tools in conjunction with networked media and social networks.

Further, it is interesting to note that Web 2.0 has brought in a visible growth of user-generated content, which in turn has given rise to an amateur, do-it-yourself culture. This may challenge conventional thinking on how we possess knowledge and has direct implications for digital information literacy training [14].

4. Suggested Strategies :

The need for training for digital literacy and information literacy has been deliberated separately by various forums and user groups. ICT trainers focus on digital literacy, whereas library professional have been active in propagating information literacy skills. Learner in a virtual environment needs to be adept in both digital and information literacy skills. An integrated approach with a comprehensive, structured training, encompassing all types of literacies (digital, information, media etc.) will be worth offering.

In the recent past there has been great emphasis on integrating soft skill training programmes as part of course curriculum and are being adopted by many educational institutions. In the same line digital information literacy skills need to be made part and parcel of curriculum, especially where virtual or e-learning mode of delivery is concerned.

Digital information skill training therefore, needs to cover following aspects:

-Knowledge of a personal computer system

- Connecting to the Internet

- Navigation skills using a browser and retrieving information through search engines

- Knowledge of electronic resources (both bibliographic and full text) and online library facilities and services.

- Information competency skills in searching, evaluating and citing information; synthesis of information collected, writing research papers and posting them on the net.

- Use social bookmarking and RSS feed to store and retrieve information

- Knowledge of copyright issues

- Knowledge of web sharing applications like flicker, blogs, twitter, wiki etc.

- Using social networking tools for interacting and collaborating with peer group.

Two pronged approach may possibly be adopted, one is to integrated the digital information literacy course as part the curriculum and the other is to make it an essential

component of the orientation programme. For post graduate and research students it will be preferable to make it part the course curriculum. Whereas, in case of under graduate students this can be essential component of orientation programme

For online learners it will be worthwhile to create online educational resources and tutorials in this direction. Rich multimedia content can be created with audio, video, animation and simulations. Learning objects on different aspects can be created for self learning purposes and these can form as supplementary material along with text based self instructional learning material. Developing learning resource bank/ repository for digital information literacy skills may be worth considering. Already many tutorials on different aspects of digital and information literacy skills are available as open access material. Collating such material and mapping them with the digital information literacy skill training programme will be a possible way ahead, which can cut down the duplication of efforts. What may be required is customization of available resources as per local requirement. Online delivery of the programme must have integrated approach. Learning content in multimedia format may be supplemented with online interaction with peer group, tutors and experts in the field, through synchronous and asynchronous modes. Online training must be supported with group activities and hands on practices. Possible inclusion of immersive learning and gaming environment may be explored. Second life kind of virtual environment may be created for rich learning experience.

Conclusion :

Digital Information Literacy training has been realized as an essential requirement in the present knowledge society. Digital literacy and information literacy programmes have been running parallel for quite some time. With explosion of digital information it has become essential to integrate these two parallel streams and make it essential requirement for life- long learning process. Digital information literacy skills may be required as essential component for post graduate and research students, but it is important to remember that one time training may not be good enough. It has to be made part of continuous learning process and essential component of life- long learning programme.

With major thrust in ICT in education by the government of India it is pertinent that digital information skills are made important component of all educational programmes. For a virtual learner, all training needs to start with essential component of digital information literacy programme, either as an orientation tutorial or as a part of course curriculum. A consorted effort is required from the information professionals and ICT experts to make virtual learning a meaningful experience.

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