Chapter-1

Introduction
CHAPTER-1
INTRODUCTION

"The man who can make hard things easy is the educator."

~Ralph W. Emerson (1803-1882)

Significant advances in the application of Information and Communication Technologies (ICTs) have become so attached to contemporary educational delivery worldwide that it has virtually become impossible to deliver or receive formal education without the application of such advanced technologies in the processes. The technology has made it possible to develop online virtual lab system to support remote and distance learning courses that require a laboratory component where internet-based control laboratory experiments such as measurement, monitoring and control applications can be accessed remotely. In line with this fact, higher educational establishments in particular have dramatically transformed their mode of operation. Today, the use of chalk and duster in seminar rooms and lecture theatres are completely extinct on some campuses. In place of that, interactive whiteboards powered by computers and projectors, learning management systems etc. came into vogue. E-learning has emerged and progressed drastically with the development of the internet and Information and Communication Technologies.

Although the term ‘E-learning’ may be a fairly recent addition to the English vocabulary, the concept of learning through electronic media is not a new one to the society. Since the adoption of International Business Machine (IBM) PC standard and the invention of the Apple Macintosh in the early 1980s, computers have been used for teaching and learning, initially in the delivering multiple choice questions in a ‘drill and practice’ environment, then moving on to more sophisticated Computer Based Learning (CBL) packages which involve text, simple graphics and interaction.

1.1 E-Learning Concept

Electronic learning mediums referred to as e-learning is increasingly becoming the established practice with a wide array of positive outcomes. Over the past
decade, e-learning, has moved from being a sheer project on the periphery to a central and integral part of some higher education operations. In fact, for some institutions it has become such an integral part of the institution that their institutional goals are reflected in their strategic plans and policies (Ellis, et. al, 2007). E-Learning means a lot of different things and it is understood differently by players with very different roles. The E-Content Report (2004)\(^1\) describes e-learning as “an umbrella term describing any type of learning that depends on or is enhanced by electronic communication using the latest Information and Communication Technologies (ICT).” It is also known as a generic term covering a wide set of ICT based applications and processes, including web-based learning, computer-based learning, virtual classrooms, digital collaboration and networking. Many institutions of higher education, educational organizations, the business community, and learners are embracing e-learning for a variety of reasons and needs. Knowledge seekers no longer need to wait for information, training or instruction. Expectations of where we learn, when we learn and how we learn have shifted from the formal training and classroom environment to an online, any time, connected network of learning (Siemens, 2006).

The popularity associated with this transformation is due in part to the recognized opportunities e-learning offers, such as increased accessibility to non-traditional students, a learning format that offers greater flexibility to students, and the increased capability of offering a “social presence” to connect students despite the physical distance between them (Elsenheimer, 2006). Digital access and digital learner changed the nature of knowledge itself because in the connected world, experts are people who know where to find information, how to make sense of it and what to do with it.

Reports on workplace practices from government and private sector concur and stress the need for new environments that provide just-in-time support and allow workers to assume greater responsibility for their own, independent

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learning and skill development (King, 2001). It refers to the key factors such as flexibility, using mixed interactive multimedia, internet research, archiving, electronic networks, telecommunications, and cost to support the idea that e-learning could serve as a viable and qualitative learning alternative.

1.2 E-Learning: Brief History

E-learning is described as fourth generation distance teaching, virtual campus, virtual teaching, flexible learning model, etc. It involved the application of two-way communication. Added to all the developments, ICT supported education quickly became the hot topic in the 1990's due to spreading use of the World Wide Web and its fast developing applications.

Early E-Learning systems based on Computer-Based Learning/Training often attempted to replicate despotic teaching styles whereby the role of the e-learning system was assumed to be for transferring knowledge, as contrasting to systems developed later based on Computer Supported Collaborative Learning (CSCL), which encouraged the shared development of knowledge. As early as 1993, Graziaidei, W. D. described an online computer-delivered lecture, tutorial and assessment project using electronic Mail, two VAX Notes conferences and Gopher/Lynx together with several software programs that allowed students and instructor to create a Virtual Instructional Classroom Environment in Science (VICES) in Research, Education, Service & Teaching (REST). In 1997 Graziaidei, et al. published an article entitled "Building Asynchronous and Synchronous Teaching-Learning Environments: Exploring a Course/Classroom Management System Solution". They described a process at the State University of New York of evaluating products and developing an overall strategy for technology-based course development and management in teaching and learning. The product(s) had to be easy to use and maintain, portable, replicable, scalable, and immediately affordable, and they had to have a high probability of success with long-term cost-effectiveness. Today many technologies can be, and are, used in e-Learning, from blogs to collaborative software, e-Portfolios, and virtual classrooms. Most e-Learning situations use combinations of these techniques.
According to Anderson (2004), E-learning can take place in two modes, synchronous and asynchronous:

(i) **Synchronous e-learning:**

It is a computer assisted learning environment, where the instructor and the learners are involved in course, class or lesson at the same time e.g. web conferencing, audio/video conferencing.

(ii) **Asynchronous e-learning:**

It is a computer assisted learning environment, where the instructor and the learners are in the course, class or lesson at different times (not synchronized) e.g. bulletin boards, blogs, and e-mail list servers.

In the recent years, the e-learning systems commonly used were e-mail, computer conferencing and/or newsgroups. Unfortunately, these generic systems were not very well suited to support educational activities as they produced significant burden on the user, lacked support for instructional activities and learning strategies such as knowledge building and multiple representations of ideas and knowledge structures. Eventually these outdated systems gave way to the more popular Learning Management Systems (LMS’s) and Content Management Systems (CMS’s) that we see today such as WebCT, Blackboard and Modular Object-Oriented Dynamic Learning Environment, (Moodle), Joomla etc. and now these systems have proliferated throughout the academic arena.

In Library and Information Science education, there has been a significant change because ICT has increased the momentum for change in traditional concepts of teaching and learning, as well as prime motivation behind the change in scholarly and professional activities. Library and Information Science (LIS) academic departments witnessed such changes and this environment has made it important for LIS Education and Training to strive to improve their quality of programmes, on the one hand to be able to participate in educational networks and develop innovative strategies in planning and administration of LIS education and on the other hand, to produce graduates whose workplace spans the whole world.
1.3 Historical Development of Library and Information Science Education

The growth of Library and Information Science education in India can be traced back in 1911 when an American disciple of Melvil Dewey named W.A. Borden for the first time started a short term training programme in Library Science at Central Library Baroda (Singh, 2003). Later in 1915, the then librarian of Punjab University Lahore (now Pakistan) Asa Don Dickinson (1876-1960) started three months apprentice training programme for working librarians and this training schools is the second known library school in the world; the first being the Ranganathan Columbia School. Dickinson was probably the first to use the term ‘Library Science’ for his training course in place of ‘Librarianship’ (Naushad & Samar, 2006). In 1929, Dr. S.R. Ranganathan, father of Library Science in India, started a certificate course in Madras University and in the year 1937, the course was converted into a post-graduate diploma in Library Science.

University of Delhi has the credit of being the first university to establish a full-fledged Department of Library and Information Science in 1946. The diploma course was changed to Master in Library Science (M.Lib.Sc) in 1951 and it is the first university to offer M.Phil and Ph.D Degree in Library Science. Between 1956 to 1959, six new LIS departments were established at Aligarh Muslim University, M.S.University of Baroda, Nagpur University, Osmania University, Pune University and Vikram University (Mangla, 1998). Since 1960’s, the number of LIS departments established has continued to increase.

Later in 1980s, LIS education through distance mode was started in Andhra Pradesh Open University and it was a great success. Many other universities like Madras University, Madurai Kamaraj University and Annamalai University launched their BLIS, MLIS and M.Phil degrees for distance learners and employed people due to the emerging information management systems and ICT developments in Library and Information Science (Kawatra & Singh, 2006). Later on, IGNOU also offered LIS courses through distance mode and today we can see various online leaning portals and
content development portals have been developed throughout the country which provides Library and Information Science education with modern ICT enabled systems.

There has been a historical development in taking the education to higher levels using latest ICT enables tools and technology in India and for this reason, the National Task Force on Information Technology and Software Development was constituted by the then Prime Minister of India in 1998. Various National level initiatives have been taken by the University Grants Commission (UGC) and the Ministry of Human Resource Development (MHRD), Government of India in this perspective (Mishra, 2009).

In order to promote technology driven education, a dedicated education satellite EDUSAT was launched on September 20, 2004 to bring in qualitative and quantitative revolution in e-learning. Government also came with the idea of effective use of ICTs in education in its Eleventh five year plan (2007-2012) and set up a National Mission in Education through ICT (NME-ICT) (Thakur, Kumar & Pallavi, 2013). Presently, several projects are in operation to promote education in the field of Library and Information Science and other areas of knowledge. Some of the major projects are eGyanKosh, Flexilearn, NPTEL, CEC, Institute of Lifelong Learning (ILLL), e-PGPathshala. Thus, it is an inevitable truth that ICT is momentous in the achievement of LIS educational goals and objectives through e-learning and the fulfillment of the primary tasks of LIS schools.

Recent educational statistics and forecasts also revealed that e-learning is gaining ground in colleges, universities and institutions of higher education. Investigating and assessing the planning and implementation process of e-learning courses and programs at the institutions of higher education is necessary to determine the quality of e-learning environment. Quality e-learning is a web-based learning environment designed, developed, and delivered based on several principles, such as institutional support, course development, teaching/learning, course structure, student support, faculty support, and evaluation and assessment (Phipps & Merisotis, 2000). Ensuring a
quality e-learning environment is essential to provide students with the full range of benefits that e-learning entails. E-learning is a specific type of education that when combined with other means of learning delivery expands the capability, reach, and frequency of learning. Most e-learning programs include a computer-based training system, electronic text, images, e-mails, video conferencing, audio conferencing, and communication tools to produce a vital classroom. As Internet and World Wide Web are accessible from virtually all computer platforms, they serve as a foundation for many e-learning systems.

E-learning provides unprecedented availability, response time, and scalability to learning systems. While many institutions have chosen to embrace web-based instruction, obstacles, whether expectedly or unexpectedly, have threatened the viability and effectiveness of e-learning. Such obstacles include "exorbitant amounts of time" needed for faculty to design effective learning content, the "cost of quality assurance", and the need for faculty "training and support" (Husson & Waterman, 2002). But, Open Source Softwares like Joomla, Dokeos, Adobe green, Claroline, ILIAS, Sakai, OLAT, Fie3 and MOODLE etc. have, in a way, tried to overcome these obstacles by eliminating the designing time for institutions and by reducing the costs in quality assurance. One such open source software is 'Joomla', which is used by the investigator for designing of an e-learning prototype. Joomla is a Content Management System (CMS) - a software package designed to help educators create quality online courses and manage learner outcomes. Such e-learning systems are sometimes also called Learning Management Systems (LMS), Virtual Learning Environments (VLE) and Learning Content Management Systems (LCMS). Joomla is an open source software, which means we are free to download it, use it, modify it and even distribute it (under the terms of the GNU General Public License). Joomla runs without any modification on Unix, Linux, Windows, Mac OS X, Netware and any other system that supports PHP, including most web host providers. Data is stored in a single database: MySQL and uses object oriented programming (OOP) techniques and includes features such as page caching, RSS feeds, printable
versions of pages, news flashes, blogs, polls, search, and support for language internationalization.

The Internet and the combination of cognitive task analysis, activity theory, and information technology is advancement in knowledge will identify new ways to view learning and develop new paradigms for the world, now and in future.

Keeping that perspective in mind, the investigator tried to understand the applications and utilization of e-learning system in the country, especially in the field of Library and Information Science.

An evaluation of the existing select e-learning systems is done to know about the objectivity, coverage, effectiveness and suitability of online learning delivery systems so as to perceive the new possibilities because of e-learning and design and develop an e-learning prototype that will expand the possibilities of improving professional caliber and quality of education in Library and Information Science. The study will be helpful for future researchers and students to foothold their knowledge base and will provide roadmap in guiding them in the areas of e-learning that impinge their interests.

1.4 Statement of Problem

The study undertaken entitled “Design and Development of E-learning Solutions in Library and Information Science” is an initiative to bring together all the library and information science professional community on one platform, so that they can share their valuable expertise, ideas and views. The prototype of an e-learning portal envisages a space for teachers and other professionals to express their thoughts on any subject that touches their professional lives. It also involves the uploading of material and content created by and for library professionals in English language.

The e-learning market is booming up world over and is predicted to follow an upward swing with more and more institutions, organizations and individuals implementing and adapting to this mode. The power of e-learning lies in its potential to provide the right information to the right people at the right time and place irrespective of any geographical or physical boundaries.
There is a lack of full-fledged E-learning system in Library and Information Science. Here is the need to develop an e-learning system in LIS education after evaluating some of the select well known web-based e-learning systems, which provides free access to professionals, teachers and students. It is an attempt to subside the shortage of contact class programmes due to the phenomenal growth in the number of students. LIS learners of distance mode do not have sufficient exposure on the subject.

1.4.1 Definition of Research Terms

Design:

*Oxford English Dictionary* (2012) defines ‘Design’ as the art or action of conceiving of and producing a plan or drawing of something before it is made. Design is the systematic development of instructional specifications using learning and instructional theory to ensure the quality of instruction (Berger & Kam, 1996). It is the entire process of analysis of learning needs and goals and the development of a delivery system to meet those needs. It includes development of instructional materials and activities; and tryout and evaluation of all instruction and learner activities. Content, discussions, interactions, etc. can all be evaluated and reviewed by persons other than the instructor (Molenda, Reigeluth & Nelson, 2003). It seeks to ensure that critical concepts are explored through content presentation and learning activities. The resulting benefits - reduced design costs, consistent look and feel, transparency, quality control, standardization - make organizational investment in Instructional Design (ID) a simple decision.

Development:

*Merriam Webster Dictionary* (2012a) defines ‘Development’ as the state of being created or made more advanced.

E-Learning development is the use of digital technology to empower and enhance learning and training (San Francisco State University, 2007). The development of e-learning focuses on identifying subject matter experts, creating the development timeline, exploring skill sets needed for completing the project, and doing the actual work of creating the learning.
E-Learning:

*MacMillan Dictionary Thesaurus* (2012) defines “E-Learning as the methods of learning that involves the use of computers and the Internet.”

*Commission of the European Communities* (2001) defines E-Learning as “the use of new multimedia technologies and the Internet to improve the quality of learning by facilitating access to resources and services as well as remote exchanges and collaboration.”

Solutions:

According to *Merriam Webster dictionary* (2012b), solution is something that is used or done to deal with and end a problem: something that solves a problem.

E-Learning Solutions:

There is as such no definition given so far by any of the dictionary or encyclopedia for e-learning solutions. However, as per the investigator’s perspective, e-learning solutions are the custom instructional design principles and assessments for creating an effective and efficient e-learning course out of it using various authoring tools. These include Learning Management Systems, Learning Content Management Systems and Content Management Systems. They can be both proprietary and open source which help to create unique solutions and improves performance through better learning options.

Library and Information Science:

*Online Dictionary for Library & Information Science* (2012) defines Library and Information science as an interdisciplinary field that applies the principles and practices of various disciplines like management, information technology, education, and other areas to libraries like accumulation of recorded information, organization, maintenance and dissemination of that information for its effective use.

The core function of the libraries is to make humans informed via intermediation between instrumental records and inquirers. It educates to create reader’s advisory resources to encourage young students to develop a lifelong love of reading and learning and help scholars locate archival and other
resources crucial to their work (Information School, University of Washington\(^2\)).

1.5 Objectives of the Study

The aim of the study undertaken is to look at the already designed e-learning portals and services they offer, their flaws and drawbacks, efficiency of the system, platform of design and development and the policies they follow.

It is an attempt to provide a better e-learning solution in Library and Information Science discipline whereby the insights gained have been used to improve pedagogical practices in online learning.

The study under purview is formulated and carried out on the following laid down objectives:

- To have a careful study of online learning experience of the faculty members of various universities in the field of Library and Information Science in India.
- To evaluate the select e-learning web-portals of various select universities so as to ascertain various pros and cons in their design and development.
- To find out the technological infrastructure used in the existing web-based select e-learning systems in the country.
- To understand the shortcomings in the designed e-learning portals of the select universities that already exist from various subject fields.
- To design and develop a state-of-art model e-learning prototype for LIS professionals and students in India.
- To provide necessary suggestions to facilitate, extend and improve the quality of online LIS education.

1.6 Hypotheses

On the basis of the objectives drafted, the following hypotheses have been formulated:

1. There is adequate infrastructure and expertise available in all the

\(^2\) Information School, University of Washington (https://school.uw.edu/academics/mlis/what-is-library-science)
universities under study for providing e-learning.

2. There is no significant difference in the opinions of e-learning proficient staff and students with regard to weakening of student-faculty relationship in e-learning environment.

3. There is no significant difference among faculty members with regard to the apprehension due to adoption of e-learning for delivering education.

4. Private universities are far ahead in delivering online instructions efficiently with innovative technologies than the government universities and institutions in India.

5. Students are more satisfied with the content delivery speed of e-learning mode of teaching than the proficient staff members.

1.7 Scope and Limitations of the Study

E-learning is about the learning and teaching practices in a creatively different way by changing roles from online teacher to online student. This is moving beyond traditional paradigms that tells us how to improve online practice and or prescribe online teaching practices.

The work entitled “Design and Development of E-learning Solutions in Library and Information Science” is an attempt to look at the already designed e-learning portals, services they offer, their flaws and drawbacks, efficiency of the system, platform of design and development and the policies they follow.

There are a large number of universities, institutions and academic organizations throughout the country which offer various degrees in Library and Information Science. So, the investigator has restricted its scope to the oldest top ranking twenty universities in India, having adequate infrastructure to support e-learning system and substantial faculty, which are offering education in this field of knowledge. They are as follows:

(i) Aligarh Muslim University (1875), Aligarh, Uttar Pradesh
(ii) Banaras Hindu University (1915), Varanasi, Uttar Pradesh
(iii) Bangalore University (1886), Bengaluru, Karnataka
(iv) Calcutta University (1857), Kolkata, West Bengal
(v) Delhi University (1922), New Delhi
(vi) Guru Nanak Dev University (1969), Amritsar, Punjab
(vii) Indira Gandhi National Open University (1985), New Delhi
(ix) Kashmir University (1956), Srinagar, Jammu and Kashmir
(x) Karnataka University (1949), Dharwad, Karnataka
(xi) Kerala University (1937), Thiruvananthapuram, Kerala
(xii) Kurukshetra University (1956), Kurukshetra, Haryana
(xiii) Madras University (1857), Chennai, Tamil Nadu
(xiv) Mangalore University (1980), Mangalagangotri, Karnataka
(xv) North-Eastern Hill University (1973), Shillong, Meghalaya
(xvi) Osmania University (1908), Telangana, Hyderabad
(xvii) Punjabi University (1962), Patiala, Punjab
(xviii) Rajasthan University (1947), Jaipur, Rajasthan
(xix) University of Mumbai (1857), Mumbai, Maharashtra
(xx) University of Mysore (1916), Mysore, Karnataka

The investigator also selected eight other universities for survey which provide e-learning in various subject fields in India. The universities have been selected on the basis of online delivery of learning and these are the only universities that apply most of the online learning objects and online methods of delivery of education and learning. These are the top universities which provide full fledged E-learning courses in Library and Information Science and Management fields. The list is given as under:

(i) Amity University (2002), Noida U.P
(ii) Delhi University (ILL, 2007), New Delhi
(iii) Don Bosco University (2007), Azara, Guwahati
(iv) Indira Gandhi National Open University (IGNOU, 2009)
(v) Kashmir University (EMMRC, 1987), Jammu and Kashmir
(vi) Mumbai University (DILLE, 1994), Mumbai, Maharashtra
(vii) Symbiosis International University (2002), Pune, Maharashtra
(viii) The Global Open University (2006), Nagaland
Field research has been so designed that within and according to these universities, both the faculty members and student community have been taken into consideration.

1.8 Research Methodology

Methodology is a general approach to empirical research of a particular discipline. Objectivity in any research investigation comes only through a planned and systematic way of investigation. This is achieved through the process of research methodology applied and adopted with a careful way of identifying and applying various techniques and choosing samples using appropriate sampling techniques.

The investigator has adopted the following methods for conducting the study:

- Questionnaire Method
- E-learning Website/Web portal Evaluation

(i) Questionnaire Method

To collect the necessary data for the study, the investigator designed two sets of questionnaires, one for Library & Information Science faculty members, second for the e-learning proficient staff and students pursuing various e-learning courses in the same institutes.

The questionnaire for the faculty members is designed to know the necessary requirements for the development and design of an e-learning system, the techniques and means of communication in a delivering system, which is best suited to the general interests of all the faculty members, and the strategies for effective assessment from online instruction.

The second category of questionnaire for the proficient staff and students includes the most preferred type of software platform, the versatile infrastructure and cost for delivering learning, the features and assessment techniques and the problems and intricacy faced during resource creation, content management and delivering of an online instruction. The questionnaire is designed to understand the needs and expectations of students from online instruction, the techniques and methods of delivering which suits them, the
technological constraints or complexities they face during the course and the effectiveness of online delivering system.

(iii) E-learning Website/Web portal evaluation
A comprehensive study and evaluation of the select university e-learning websites and/or web portals has also been conducted in order to find out the pros and cons of the e-learning systems developed by them so that a complete state-of-art prototype shall be developed without any problems and loopholes.

1.9 Variables Taken
In order to achieve the objectives of the study, three variables were taken for detailed analysis:
- Library & Information Science Faculty Members
- E-Learning Proficient Staff
- Students

1.9.1 Population and Sampling
As the name implies, a sample is the smaller representation of the large population. The observation of population as a whole would involve a mess of data that analysis would be slow and tedious. Moreover, the analysis of large quantities of data is wasteful when a smaller portion would suffice (Goode and Hatt, 2006).

In view of the large number of universities across India that provide learning in Library and Information Science, stratified sampling technique is chosen to select the universities on the basis of;

(i) the year of establishment of the Library and Information Science departments.
(ii) number of faculty members in these departments (not less than three).
(iii) infrastructure ample for undergoing or planning to initiate any e-learning project and
(iv) the universities which comes under the scheme of NME-ICT.
(v) universities which are providing full fledged e-learning courses in Library and Information Science and Management fields.
The other eight universities in India were selected systematically for being the well established and reputed institutions in providing their courses completely online.

A total of 108 online questionnaires were administered among the faculty members of Library and Information Science in the month of May, 2011. The responses received were 84 out of which three were incomplete and one of the questionnaires was rejected. So, a total of 80 questionnaires were selected for the study.

A total of 64 online questionnaires were administered for the e-learning proficient staff of eight universities providing e-learning in the month of November 2011. The responses received were 52 and none of them was incomplete.

For students pursuing various online courses, a total of 480 online questionnaires were distributed in the month of November 2011, out of which 60 did not respond, 2 were left incomplete by the students. Thus, the total responses taken for study were 418. The total response rate of faculty members, proficient staff and students was found to be 77.7%, 81.25% and 87.5% respectively while the average response rate for all three was 82.15%.

<table>
<thead>
<tr>
<th>Categories</th>
<th>LIS Faculty Members of 20 Select Universities</th>
<th>E-Learning Proficient Staff of 8 Select Universities providing E-Learning</th>
<th>Students and Learners from 8 Select Universities providing E-Learning</th>
</tr>
</thead>
<tbody>
<tr>
<td>Questionnaires Administered</td>
<td>108</td>
<td>64</td>
<td>480</td>
</tr>
<tr>
<td>Questionnaires Received</td>
<td>84</td>
<td>52</td>
<td>420</td>
</tr>
<tr>
<td>Incomplete Questionnaires</td>
<td>4</td>
<td>0</td>
<td>2</td>
</tr>
<tr>
<td>Questionnaires Analyzed</td>
<td>80 (77.7%)</td>
<td>52 (81.25%)</td>
<td>418 (87.5%)</td>
</tr>
</tbody>
</table>

*Table-1 Sample Distribution*
1.10 Data Collection and Analysis
The investigator personally visited various universities and evaluated various e-
learning portals and thoroughly examined the softwares to collect necessary
data and to choose a strong platform for e-learning solutions. Questionnaires
were administered to the faculty members, professional staff and students
personally and via e-mail using online questionnaire developer tool 'Kwik
survey'. Duly filled questionnaires were received in the months of July and
December 2011 through emails.
The collected data is analyzed and tabulated according to the responses sought
in the questionnaires. For analyzing data, Simple Percentage and Chi- Square
methods have been used.
1.11 Standard Followed
For providing the bibliographical references, American Psychological
Association (APA, 2010) format has been followed. Some examples are given as under-

Single Author
Asynchronous Learning Networks, 5*(2), 75-96

Two Authors
Voci, E., & Young, K. (2001). Blended learning working in a leadership
development programme. *Industrial and Commercial Training, 33*(4/5),
157-161

Two or More Works by the Same Author in the Same Year
Berndt, T. J. (1981a). Age changes and changes over time in prosocial
intentions and behavior between friends. *Developmental Psychology, 17*,
408-416.
Berndt, T. J. (1981b). Effects of friendship on prosocial intentions and

Article in Journal Paginated by Volume
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Basic Format for Books

Conference Proceedings

Online Resources

1.12 Chapterization
The study comprises of seven chapters. Each chapter deals with different aspects of the research work, as explained below:

Chapter- 1: Introduction
The chapter includes the prelude of the whole study undertaken along with the concepts and modes of e-learning. The chapter begins with the introduction explaining the background behind the research. It includes the historical background of e-learning. It explains the terms used in the statement of the problem in addition to objectives, hypotheses, scope and limitations of the study. Research methodology used for the collection of data and methods of data analysis have also been explained.

Chapter- 2: Review of Related Literature
This chapter reviews the pertaining literature that was examined to study the various trends of the study. It deals with the various aspects of e-learning with respect to the design & development, tools & technology, e-learning standards & softwares, role, impact and success of various e-learning projects, e-learning in higher education and e-learning in Indian and International perspective.

Chapter- 3 E-Learning in LIS-Education
This chapter describes in detail about e-learning, its need, key drivers, challenges, pre-requisites, advantages/ disadvantages, various e-learning
initiatives in the country and the suitability of e-learning in Library and Information Science education in India.

Chapter- 4 E-Learning Content Management Systems
The chapter deals with the understanding, characteristics and components of learning management systems and learning content management systems. The detailed account of various e-learning softwares has been given and the e-learning platform (Joomla) on which this portal is designed has been dealt in depth. It also includes core features and issues in the integration of LMS & LCMS in an organization.

Chapter- 5 Data Analysis and Interpretation
In this chapter, data analysis and interpretation is provided. Various tables and graphs have also been made to explain the different aspects and activities in e-learning throughout the world and in India along with the analysis of responses received from the respondent groups.

Chapter- 6 Design and Development of E-learning Prototype
This chapter provides the insights about the security, design & development, strengths and weaknesses, content management and the database model of the e-learning prototype designed in the field of Library and Information Science.

Chapter- 7 Major Findings, Recommendations and Discussion
This chapter provides the summary of major findings and recommendations needed for improving the status of e-learning in Library and Information Science. The findings are deduced from the study undertaken and are based from the results of data collected.

Bibliography/Webliography

Appendices

(a) Appendix I (Questionnaire for LIS Faculty Members)

(b) Appendix II (Questionnaire for E-Learning Proficient Staff and Students)
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