CHAPTER I
INTRODUCTION TO THE STUDY

1.0 Introduction

1.0.1 Advent of ICT

The advent of information and communication technologies and its penetration into all walks of life has brought such profound changes that have never been observed before. Information and communication technology has changed our lives and the way we communicate, how we learn, how we work and spend free time, in essence – it has more or less changed every aspect of human society one can think of (Baloh& Trkman, 2003). Modern technologies such as computer and telecommunications technologies have been the most remarkable and transformative of the technologies emerging over the past 30 years.

The emergence and convergence of these technologies has been termed Information and Communication Technology (ICT). ICT has almost converted the world into a global village. ICT has caused a revolution on all fields especially the field of library and information services. The emergence of information and communication technology has repositioned the frontiers of academic library resources, operations, and services as well as expectations of user groups.

1.0.2 ICT and University Libraries

Libraries and information centers play an essential role in meeting society's information needs. In addition, university libraries are the nerve centers of their institutions and must support teaching, research, and other academic programs (Thanuskodi, 2010). These play a pivotal role in teaching and learning environment of the information society. Regarding information explosion, users’ new expectations in acquiring the needed information has made libraries and librarians to change rapidly.
Before the advent of information and communication technology (ICT), academic libraries were the sole custodians of information, which was predominantly in print. ICT brought changes necessitated by new information packaging. Academic libraries are faced with managing hybrid resources (print and electronic) and are challenged to acquire the necessary skills. With advent of new technology has brought many changes to the way libraries collect, store, retrieve, disseminate information and serve their users. Therefore, libraries are moving further and faster towards total automation and those libraries that cannot adjust to these trends will not survive (Choukhande, 2003).

Information technology has an impact over libraries as IT ultimately enables libraries to improve capabilities and enhance performances to cope with change. Today, the development in computing and telecommunications has made it possible for the library staff to provide their users with a wide range of text, image, and sound resources from around the world. The activities, which were carried out manually in libraries with so much of pain and strain, are being carried out smoothly with the help of ICT with greater effectiveness. Library organization, administration and other technical processing have become easier and more quantum of work can be done in relaxed mood. The inevitability of the application of information technologies to libraries and information systems has therefore remained incontestable and incontrovertible.

The effectiveness of communication technology depends how well it provides its clients with information rapidly, economically and authentically. A large number of ICT enabled services such as OPAC, electronic journals and books, CD-ROM, online databases etc. are available in the university library (Antherjanam & Sheeja, 2008).
The information technologies that are commonly found in libraries today can be grouped into three categories, viz. computers, storage media and telecommunications. The following are taken to be part of IT:

- Automation (online public catalogue, cataloguing, acquisition, periodicals control, circulation and reference)
- Electronic mail, electronic bulletin boards, electronic conferencing, and Internet
- Telecommunications (networks)
- Compact Disc-Read Only Memory (CD-ROM)
- Telefacsimile (fax)
- Personal computer applications

1.0.3 Impact of ICT on HRD

The performance of any organization depends heavily on the performance of its human resources. The library staff are the human resources, who provide information services using library resources. According to Peter Drucker (1999) “The most valuable asset of a 20th century company was its production equipment. The most valuable asset of a 21st century institution will be its knowledge workers and their productivity.

Chacko (2005) states ICT as an enabler for enhancing human productivity. ICT directly influences human development through access to information, knowledge and enlarging choices: The long-term impact of ICT lies in its ability to directly expand human choices through increased access to information and
knowledge. ICT breaks barriers to human development in at least three ways not possible before or with other forms of technology:

1. Breaking barriers to human knowledge
2. Breaking barriers to participation

According to Whitten et al. (2004), ICT is regarded as an enabler, which facilitates productivity and enhances quality of output. It also enhances most aspect of human activities in the information era. The power of ICTs transformation in human activities is in four stages: automation, rationalization, re-engineering and paradigm Shift.

Therefore, this study aims to investigate the ICT impact on library staff development in university libraries of India and Iran.

1.2 Definition of Concepts

1.2.1 Information and Communication Technology (ICT/IT)

Wirsiy and Shafack (2002) have defined Information Technology as a broad-based term that encompasses the gathering (acquisition) organization (packaging), storage and retrieval (dissemination) of information that can be in textual or numerical (books, documents), pictorial and vocal forms (audiovisual) or a combination of all the above (multi-media), using a combination of computers and telecommunications (telephony).

ICT is a term used to describe a range of equipment (hardware: personal computers, scanners and digital cameras) and computer programs (software: database programs and multimedia programs), and the telecommunications infrastructures (phones, faxes, modems, video conferencing equipment and web cameras) that allow us to access, retrieve, store, organize, manipulate, present,
send material and communicate locally, nationally and globally through digital media (Dunmill & Arslanagic, 2006). According to Blurton (1999), ICT is a diverse set of technological tools and resources used to communicate, and to create, disseminate, store, and manage information.

For the purpose of the study, information and communication technology is a generic term that denotes the application and use of computer and communication technologies for the acquisition, organization, storage, retrieval and dissemination of information process. And also, as Womboh and Abba (2008) notes that ICT and Information Technology (IT) are similar concepts that can be used interchangeably. According to them, IT implies communication and therefore the two terms are synonymous.

In this study, 'ICT applications' refers to library housekeeping operations, information services (e.g., Internet, e-mail, in-house database, etc.), networking (local area network), office automation (accounting or management system, documentation system), hardware infrastructure (e.g., computer or laptop, CD-ROM, facsimile, scanner, etc.), multimedia etc.

1.2.2 Human Resources

The United Nations Economic Commission for Africa (UNECA, 1990) (as cited in Ugah, 2008) conceptualizes human resources as the body of knowledge, skills, attitudes, physical, and managerial efforts required to manipulate land, capital, and technology, to produce goods and services for human consumption and welfare. Human resources include:

1. Technical skill and abilities acquired from education, training, and experience. It indicates the ability to use knowledge, methods, and techniques in the performance of library tasks.
2. Human skills, which is the ability to work with and through people. It includes the understanding of motivation and the application of effective leadership.

3. Conceptual skill, which incorporates the ability to understand the complexity of the overall organization.

Tracey (2004) (as cited in Heathfield, 2008), defines 'human resources' as "The people that staff and operate an organization"; as contrasted with the financial and material resources of an organization. 'Human resources' is also the organizational function that deals with the people and issues related to people such as compensation, hiring, performance management, and training. A human resource is a single person or employee within an organization.

For the purposes of this study, 'human resources' refers to library staff at selected university libraries in India and Iran. In this study, 'library staff' refers to professional and paraprofessional employees who work in university libraries under study. The professional is the library staff that has an undergraduate or postgraduate degree in Library and Information Science. While paraprofessional is the library staff that has an undergraduate or postgraduate degree in a field other than Library and Information Science. It should be noted that library clerks are not included in this study.

1.2.3 Human Resource Development (HRD)

Nadler (1970) (as cited in Ugah, 2008) defines human resources development as a “series of organized activities conducted within a specified time and designed to produce behavior change” in individuals and organizations

According to McLagan (1989), human resource development is the integrated use of training and development, organization development, and career development to improve individual, group, and organizational effectiveness.
Ojo (1994) stated that "human resources" includes two major activities. The first ones include recruitment, selection, compensation, discipline, appraisal, and welfare of employees whereas the second ones are working with employees to improve their efficiency and productivity. The activities that enable individuals and groups to acquire new knowledge and skills and assume new roles and responsibilities are usually referred to as human resources development.

“Human resource development” is defined as a set of formal organizational and individual practices that are designed to enhance the potential contribution of human resources to the organization” (Holton, 2000, as cites in Zhu, 2004).

According to Van Der Sluis (2007), HRD is often depicted as a development process of employees, related to better individual performance and personal growth.

Heathfield (2008) defines that human resource development is the framework for helping employees develop their personal and organizational skills, knowledge, and abilities. It includes such opportunities as employee training, employee career development, performance management and development, coaching, succession planning, key employee identification, tuition assistance, and organization development. The focus of all aspects of HRD is on developing the most superior workforce so that the organization and individual employees can accomplish their work goals in service to customers. HRD can be formal such as in classroom training, a college course, or an organizational planned change effort. Or, it can be informal as in employee coaching by a manager. Healthy organizations believe in human resource development and cover all of these bases.

For the purpose of the study, human resource development includes two following definitions. According to McLean and McLean (2001), HRD is any process or activity that, either initially or over the long term, has the potential to develop adults’ work-based knowledge, expertise, productivity, and satisfaction,
whether for personal or group/team gain, or for the benefit of an organization, community, nation, or ultimately, the whole humanity. Swanson (1995) explains human resource development as a process of developing or unleashing human expertise through organization development and personnel training and development for the purpose of improving performance.

1.2.4 Library

A library is an organization whose mission is to provide information on a wide range of topics and opinions to its users. The main functions of a library are to identify, collect, organize, and thus make accessible information to library users.

1.2.5 University Library

'University library' may be defined as academic library, departmental library or college library. According to Online Dictionary for Library and Information Science (Reitz, 2008), 'university library' is an integral part of a college, university, or other institution of postsecondary education, administered and funded by a university to meet the information, research, and curriculum needs of its students, faculty, and staff.

For the purpose of this study, the term 'university libraries' refers to those libraries established and maintained in university campus (including central and constituent libraries) in Hyderabad and Bangalore Universities in India and Ferdowsi University of Mashhad and Shiraz University in Iran. 'Constituent libraries' refers to libraries of colleges, departments, and schools affiliated to central libraries of the universities under study.

1.2.6 Training

'Training' is a process of acquiring specific skills. It is a continuous process after basic education (Udoh-Ilomechine, 2009). In this study, 'training' is defined
as the systematic development of employees' knowledge, skills, and attitudes that are required for an organization to meet its goals (Antai, 2002).

1.2.7 Performance

In this study, 'performance' is defined as the skill and competence with which an employee executes the duties and responsibilities associated with the position filled (Reitz, 2011).

1.2.8 Productivity

According to Hannula and Ionnqvist (2002), 'productivity' can be defined simply as output divided by the input that is used to generate the output. Output consists of products and services and input consists of materials, labor, capital, energy, etc. It is important to notice that in addition to the quantity of the output also the quality of the output matters here. This is also valid when measuring the input component of the productivity ratio.

1.2.9 Job Satisfaction

Many definitions of job satisfaction exist, such as:

- Job satisfaction is a dynamic changing idea that reflects an individual’s attitudes and expectations toward his work and goals in life (Sherrer, 1985).

- Job satisfaction is the feeling an employee has about his pay, work, promotion opportunities, coworkers, and supervisor (Vaughn & Dunn, 1974).

- Job satisfaction refers to the feelings and emotional aspects of individuals’ experiences toward their jobs, as different from intellectual or rational aspects (Nandy, 1985).
The most-used research definition of job satisfaction is by Locke (1976), who defined it as “. . . a pleasurable or positive emotional state resulting from the appraisal of one’s job or job experiences”.

1.3 Need of the Study

Employees are critical for success of any organization. How well the services are provided depends on how well the human resources are motivated and developed (Ugah, 2008). Further, it is imperative to recognize that factors that impact the library employee as an individual can impact his or her performance as a service provider as well (Murray, 1999).

Further, review of literature shows that there are some studies on the application of ICT in libraries, impact of ICT on job satisfaction of library staff and necessity of ICT training for them. While no studies investigated the impact of ICT on library human resource development and related issues (including training, productivity, performance, and job satisfaction of library human resources). To this extent, it is justified that the present study is the first of its kind and it reveals the importance of the study.

The results of this study could help library and information center administrators and country planners to assess their current and previous goals regarding the implementation of information technologies in their libraries. Therefore, this study is of importance to library administrators and to the field of library and information science in India and Iran.

The results of study will help policy makers to allocate adequate budget to libraries for implementing ICT in their day-to-day operations. Therefore, this study aims to investigate the role of ICT on human resources development in university libraries of India and Iran.
1.4 Statement of the Problem

Globally, any university is faced with great challenges in developing an efficient university library. The importance of adequate library services for effective performance of researchers, faculty and students are evident and must be facilitated by the concerned institution. Development of library services depends on up to date equipment and systems, satisfactory allowances for purchase of books, journals and access to electronic and full text resources, and specially sufficient grants to secure adequate and competent library staff.

On the other hand, Information and Communication Technology (ICT) in libraries is having a remarkable impact worldwide. It has become a phenomenon that is so pervasive that nearly all academic libraries have begun applying ICT (Osinulu & Amusa, 2010). Over the past few decades developments in information technology have brought many changes to university library services and infrastructures (Antherjanam & Sheeja, 2008).

In addition, Information and communication technology has not affected only the IT professionals and those employees that use IT for their work on a regular basis but also the environment of the organization, organization itself and the "social universe" (Drucker, 2001). Undoubtedly, ICT also affected organizations' employees and their workplaces in job design, conditions of work and other (numerous) ways:

"Future prosperity is likely to hinge on the use of scientific and technical knowledge, the management of information and the provision of services. The future will depend more on brains than brawn," (Barley, 1996 as cited in Baloh & Trkman, 2003).

What is sometimes forgotten is that information providers are not machines; in spite of predictions to the contrary, the day has not come in which computers have taken the place of human beings in providing information services
to patrons. As such, librarians and information professionals of all types should remember that the organizational psychology that affects all other fields applies to them, too (Murray, 1999).

Furthermore, it has also been noted that when a change occurs in the way employees handle information materials, services, and their users, there is bound to be some change in their perception of their work. Siggins (1992) supports this view, arguing that the automation of operations and changes in stock or equipment and in the organization of work have a direct impact on jobs and staff.

Since – in today's work environment – employees and their knowledge are each institution's key assets, it is obvious and expected of each institution to be aware and prepared for such changes. Managers need to be aware of these changes, try to sense them in advance and adapt to them appropriately. At the time of rapid change in the use of technology in libraries, it is therefore, very important to consider what impact ICT has on library staff.

Since, there is not a clear picture about impact of ICT on library human resources in India and Iran, the present research theme is conceived under the title "The Impact of Information and Communication Technology on Human Resource Development in University Libraries of India and Iran - A Comparative Study".

This study will attempt to investigate impact of ICT on HRD from the Indian and Iranian library staff perspectives. It will broaden our knowledge of the real impact of ICT on library staff.

1.5 Scope and Limitations of the Study

Geographically the present study is limited to the university libraries of Hyderabad of Andhra Pradesh, Bangalore University of Karnataka in India and
Ferdowsi University of Mashhad and Shiraz University of Fars in Iran and covers the library staff at the following libraries:

A) India:

1. Bangalore University Libraries:

(1) Bangalore University Library
(2) Central College Campus Library;
(3) University Visvesvaraya College of Engineering (UVCE) Library
(4) University Law College Library;
(5) Physical Education Library.

2. Hyderabad University Libraries:

(1) Indira Gandhi Memorial Library
(2) Centre for Integrated Studies (CIS) Library
(3) School of Physics Library
(4) School of Social Sciences Library
(5) Advanced Centre of Research in High Energy Materials (ACRHEM) Library

B) Iran:

1. Ferdowsi University of Mashhad Libraries

(01) Information Centre and Central Library
(02) College of Agriculture Library
(03) Faculty of Architecture and Urban Planning Library
(04) Faculty of Economics and Business Administration Library
(05) Faculty of Education and Psychology Library
(06) Faculty of Engineering Library
(07) Faculty of Letters and Humanities Library
(08) School of Mathematical Sciences Library
1.6 Objectives of the Study

The main objective of the study is to assess and compare the impact of information and communication technology on human resource development in university libraries of India and Iran. The specific objectives of the study are as follows:

1. To assess and compare the extent of ICT applications in university libraries of India and Iran.

2. To identify and compare the impact of ICT on library staff training in university libraries of India and Iran.

3. To identify and compare the impact of ICT on library staff productivity in university libraries of India and Iran.
4. To examine and compare the impact of ICT on library staff performance in university libraries of India and Iran.

5. To assess and compare the impact of ICT on job satisfaction among library staff in university libraries of India and Iran.

6. To give suggestions for adopting ICT and to improve the efficiency in delivering library services and development of human resources.

1.7 Hypotheses of the Study

Regarding the objectives of the study, the following hypotheses have been framed:

1. ICT application in university libraries of India and Iran is not similar.

2. The Impact of ICT on library staff training in India and Iran is not similar.

3. The impact of ICT on library staff productivity in India and Iran is not similar.

4. The impact of ICT on library staff performance in India and Iran is not similar.

5. The impact of ICT on job satisfaction among library staff in India and Iran is not similar.

1.8 Methodology

For carrying out the present survey, the researcher conducted a complete literature search by browsing the online databases such as LISA, LISTA, EBSCOhost, Emerald, Wiley InterScience, ScienceDirect, Vidyanidhi and Internet. All of the useable references were arranged in a classified order.
In this study primary and secondary data/information from various sources were used. Primary data/information was collected through structured questionnaire distributed to all the library staff at selected university libraries in India and Iran. Further, the data was collected by personal observation and discussion with all concerned to the libraries. While secondary data/information was collected from various published / unpublished books/ journals / magazines/ reports and the like and also from electronic media like Internet, websites and the like on various aspects of the present study. Furthermore, Information regarding libraries’ collection and their ICT facilities were collected through personal visit and with the use of a checklist (Appendix C and Appendix D).

Based on a comprehensive literature review and in the light of the study objectives, a well-structured questionnaire was designed and revised by the research guide. Before finalizing the questionnaire, an attempt was made to get it reviewed by an expert in the field. The expert made valuable suggestions which were incorporated into the questionnaire to enhance the validity of the questionnaire.

In order to improve the content of the questionnaire and to eliminate probable ambiguity in some questions, the questionnaire was pretested through a pilot study. The pilot study consisting of 10 library staff from India and Iran was carried out. Having incorporated the necessary data after pilot study the final questionnaire was designed. Moreover, the final questionnaire was translated into Persian to be administered to the library staff in Iran. The English and Persian questionnaires are given in Appendix A and Appendix B.

In order to get the reliability of the questionnaire, Cronbach’s Alpha was done on the collected data by the preliminary questionnaire in the pilot test. Cronbach’s Alpha obtained as 0.83. Cronbach’s Alpha is a value between zero and
Values near zero indicate low reliability; values near one indicate high reliability (Cronbach, 1951).

A total number of 235 structured questionnaires were distributed to all the library staff in selected university libraries in India and Iran in person or via e-mail. The researcher completed data gathering process by e-mail reminders and making telephone calls. Of total 95 distributed questionnaires to the library staff in India, 78 usable questionnaires were received giving 82% response rate. Similarly, of total 140 distributed questionnaires to the library staff in Iran, 117 usable questionnaires were received giving 84% response rate.

The 195 useable questionnaires were coded after data collection. The data obtained are tabulated and analyzed using the Statistical Package for the Social Sciences (SPSS) Version 16. Hypotheses are tested and findings are drawn in the light of the objectives of the investigation. Necessary statistical techniques such as Frequencies, Percentages, Mean, Independent-Samples t-test, Chi-Square ($\chi^2$) test and Contingency Coefficient (CC) are used in the analysis of the data. Finally, the results are reported in the form of thesis. Tables, charts and figures are used to make the presentation clear and simple. Conclusions on the basis of findings have been drawn and constructive suggestions wherever necessary have been made. The significance values that fall below the 0.05 level are accepted.

1.8.1 Data Collection Instrument

The questionnaire has six parts and each of these parts is covered by several questions to elicit information. Generally, there are thirty questions in these parts. The questions contained different types of question format: two-way questions (yes/no), multiple choice questions, Likert scale and open-ended questions. The Likert scale questions are on a five-point scale. The final questionnaire mainly concerns with the aspects as noted below.
Part I: Background information

This part of the questionnaire consists of individual bio-data qualifications, computer literacy, income level, professional experience, and library section where they work.

Part II: Application of ICT in Library

This part of the questionnaire includes six questions. It deals with library automation, use of ICT facilities in library operations, effect of ICT in extending library information services, length of using ICT facilities in the job, frequency of using ICT facilities and ICT applications in the library.

Part III: Impact of ICT on Training

The third part of the questionnaire includes seven questions. It deals with IT-based training with thirteen statements, effect of ICT on training needs, long-term plan for staff training in using ICT, training on using ICT, means of training, need for training, preferred mode of training, and obstacles of ICT training.

Part IV: Impact of ICT on Productivity

The fourth part of the questionnaire consists of a question regarding impact of ICT on productivity with nine statements.

Part V: Impact of ICT on Performance

In this part of the questionnaire, there is one question about impact of ICT on performance with eleven statements.

Part VI: Impact of ICT on Job Satisfaction

The last part of the questionnaire has three questions. This part deals with presence or absence of ICT effect on job satisfaction; ICT and different aspects of job satisfaction with eleven statements.
1.9 Organization of the Thesis

The final report will consist of six chapters.

Chapter I - Introduction to the Study

This chapter contains introduction, statement of the problem, need for the study, definition of concepts, objectives, hypotheses, methodology, scope and limitations of the study.

Chapter II – Theoretical Concepts

The second chapter explains evolution of ICT in libraries, changing environment of university libraries, advantages of ICT in libraries, ICT in libraries, library automation, necessity of library automation, library automation software, role of INFLIBNET Center in automation of university libraries of India, ICT application in libraries, necessity of training, use of ICT in training, theories of job satisfaction and measurement of job satisfaction.

Chapter III – Review of Literature

This chapter presents a review of related literature. According to the objectives of the study, this review is presented in five main parts viz., application of ICT; impact of ICT on training; impact of ICT on productivity; impact of ICT on performance; and impact of ICT on job satisfaction

Chapter IV – Profile of the Study Area

In the fourth chapter an overview of India and Iran, ICT and higher education in both countries, a brief description of the universities location, and the profile of the universities under study with an emphasis on their central libraries are presented.
Chapter V – Analysis and Interpretation of Data

This chapter devotes to the analysis and interpretation of primary and secondary data. The issues analyzed in the light of the data obtained through questionnaire and observation are grouped into the following six parts: (i) Background of respondents, (ii) Application of ICT in library, (iii) Impact of ICT on training, (iv) Impact of ICT on productivity, (v) Impact of ICT on performance and (vi) Impact of ICT on job satisfaction.

Chapter VI – Findings and Conclusion

This chapter provides the summary of findings. Further, it gives recommendations, suggestions for further studies and conclusion.

Bibliography of the references; English and Persian questionnaires; and English and Persian checklist of library collection and ICT facilities are provided at the end.