

The book primarily addresses the impact of the Internet resources on library services. A field study has been conducted to assess how Sudanese librarians perceived and utilized the Internet resources, and what are the impact of those resources on library technical works. The study on which the book has been based aims at assessing the Sudanese librarians' Information Technology (IT) skills, their access to and frequency of IT usage, as well as examining the patterns of their usage of web-based resources. Particular emphasis has been placed on the patterns of email usage in library services and the extent to which professional web sites are utilized in helping with library technical work and the frequency of using these sites in this regard. The book also seeks to assess the Sudanese librarians' degree of awareness regarding the impact of the Internet resources on training and development, including the contribution of these resources in self-training programs, acquisition of new professional skills and dealing with budget cuts. Furthermore, the book looks at the barriers to the use of the Internet resources by Sudanese librarians and their perceptions in this respect.



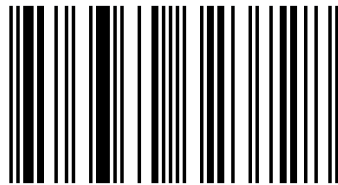
Mohamed Salah Eldin Mudawi

The impact of the Internet resources on library services

perceptions and usage among Sudanese librarians



The author is a Sudanese national with diverse experience in information and library services who has developed in-depth expertise on higher education in United Arab Emirates and Sudan. He is a graduate of the University of Khartoum. He published a number of articles in referred international journals. He is married and a father of two children.



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Preface

The objective of this book is to assess the perceptions and use of Internet resources and their impact on the library services among the Sudanese librarians. It is important to inform the readers that this book is based on an academic research submitted in 2003 as a fulfillment of a Ph.D. Degree in Information and Library Sciences awarded by the University of Khartoum, Sudan.

To achieve the objectives of the research, the patterns of Information Technology (IT) and Internet usage have been assessed. The frequency of browsing Library professional sites was observed; the use of Internet resources for library technical processes was checked. Moreover, the study attempted to assess the level of perceptions among the Sudanese librarians about the impact and use of Internet resources.

Perceptions on training needs, professional development, library technical services, priorities of libraries in Sudan, and factors affecting the IT and Internet use and application in Sudan, have been examined. In addition, the perceptions on barriers to the maximum utilization of Internet in libraries are also reviewed.

The study is based mainly on a field survey among six different types of the Sudanese libraries. Interviews and questionnaires were administered. Data was analyzed via SPSS software; findings are plotted into tables, graphs, and figures that visualize the fieldwork results.

Actually, it gives me great pleasure to get this work published in a book format, as I understand the publications on Library and Information Sciences about Sudan are very limited and rare, hoping that this book would help shed some lights on our beloved Sudan and its potentials.

Lot of people have helped in different stages of this work. The author would like to express sincere thanks and appreciation for *Professor Radia Adam Mohamed*, the research supervisor who dedicated lot of her valuable time guiding this study at its different stages.

The staff of the surveyed libraries have really showed high level of enthusiasm to this research work and responded with a high level of responsibility. I have to send special thanks and appreciation for the staff of, Khartoum University Library, Omdurman Islamic University Library, Ahfad Women University

Library, Omdurman Ahlia University Library, National Documentation and Information Center, and the British Council Library.

Sincere thanks are also sent to the senior and key persons, who have been interviewed during the early stages of the research work. (Annex No 3).

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Finally yet importantly, warm thanks for my family members Mother, Dr. Hiba, Tabna, Omer, My lovely wife Huda and our children Shahd and Awab for their continuous support and help during the different stages of this research.

Special thanks and appreciation for the reputed Publishing House, **Lambert Academic Publishing** for accepting to publish this book and make it available for the interested researchers all over the world.

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Table of Contents

List of Tables	4
List of Figures	6
Chapter One	8
Introduction and Methodology	8
1.1. Introduction	8
1.2 Statement of Research Problem:	14
1.3 Justification and Research Hypotheses:	16
1.4 Research Objectives:	19
1.5 Research Methodology:	20
1.6 Research Structure:.....	28
Chapter Two	31
Perception Studies: A Review of Trends	31
2.1. Introduction:	31
2.2. Perceptions of Librarians' Role:	33
2.3 Perceptions of Library Services:	38
2.4 User Perceptions:.....	46
2.5 Perceptions of Information Technology:.....	50
2.6 Conclusion:	57
Chapter Three.....	59
Information Technology and Library Services	59
3.1. Information:.....	59
3.2. CD-ROM Technology and Library Services:.....	61
3.3. The Internet:	67
Chapter Four	88
Library and Information Services in Sudan: A Current Situation View	88
4.1. Introduction:	88
4.2. The Surveyed Libraries: Some Major Characteristics	88
4.3 The Surveyed Libraries: Some Major Issues.....	105
Chapter Five.....	118
Internet Resources Era: New Approach, Roles and Skills.....	118
5.1 Introduction	118
5.2 Total Quality Management: New Approach for LIS Quality Services	118
5.3. Internet Resources: Reshaping Librarians' Roles:.....	134

5.4. Training and Curriculums Development:.....	143
Chapter Six	148
Patterns of Using Internet Resources.....	148
6.1 Introduction:.....	148
6.2. Information Technology Accessibility and Skills	148
6.3 Current Patterns of Using Internet Resources:	164
6.4. Using Internet Resources for Library Technical Processing:.....	170
Chapter Seven	182
Perceptions of the Impacts of Internet Resources	182
7.1. Introduction:.....	182
7.2. Perceptions of the Impact of Internet Resources on Training and	182
7.3 Perceptions of Impact of Internet Resources on Library	193
Chapter Eight	219
Summaries, Conclusions and Recommendations.....	219
8.1. Summaries:.....	219
8.2. Conclusions and Findings:.....	221
8.3. Recommendations:	228
8.3.2. IT-Oriented Training:	229
Bibliography	232
Annex.....	245

List of Tables

1.1. Sample Size and Distribution	29
4.1. Staff Qualifications at the Surveyed Sudanese Libraries	109
4.2. Age Structure of Surveyed Population.....	110
4.3. Experience Among the Surveyed Population.....	111
4.4. Volume and Size of Collection Among the Surveyed Libraries.....	112
4.5. Library Services at the Surveyed Sudanese Libraries	114
4.6. IT Budget & Facilities at the Surveyed Libraries	116
4.7 Training Activities at the Surveyed Sudanese Libraries	118
6.1. Computer & Internet Accessibility	152
6.2. Frequency of Using IT.....	153
6.3. Time Devoted for IT Usage - 2002.....	155
6.4. IT Skills Among Sudanese Librarians – 2002.....	157
6.5. Qualifications & IT Skills (%).....	159
6.6. Level of Skills and Frequency of IT Usage.....	160
6.7. Internet Skills and Frequency of IT Usage.....	161
6.8. Ways of Getting IT Training Among Sudanese Librarians	164
6.9. Current Usage of the Internet Resources	167
6.10. Using Email For Professional Activities.....	170
6.11 Using email for professional activities among Sudanese librarians – 2002 (%)	171
6.12. Frequency of Browsing Professional Web Sites – 2002	175
6.13. Using Internet Resources for Technical Processes– 2002.....	179
7.1. Training Needs Among Sudanese Librarians - 2002.....	186
7.2. Internet Resources & Training - 2002 (%).....	188
7.3. Internet Resources & Professional Development - 2002.....	189
7.4. Methods of Acquiring New Skills - 2002.....	192
7.5. Internet Resources and & self-Training – 2002.	192
7.6. Internet Training Needs & Self-Training – 2002.	197
7.7. Internet Resources & Library Services - 2002 (%).....	199

7.8. Importance of the Internet Resources - 2002.....	203
7.9. Use of Internet Resources for Technical Processes Sudanese (%).....	204
7.10. Internet Resources and Technical Processes – 2002. (%).....	208
7.11. Introduction of IT and Internet Into Libraries – 2002 (%).....	213
7.12. Priorities of Libraries in Sudan – 2002.	215
7.13. Barriers to the Usage of Internet Resources - 2002 (%).....	217
7.14. Impact of Curriculum and Academic Qualifications 2002. (%)	218
7.15. Perceptions of the English Language As A Barrier – 2002 (%).....	219

List of Figures

4.1	Staff Qualifications at Sudanese Libraries	109
4.2	Age Structure of Surveyed Population	110
4.3	Experience Among the Surveyed Population.....	111
6.1	IT Accessibility Among Sudanese Librarian.....	152
6.2	Using IT among Sudanese Librarians	153
6.3	Time Devoted for IT Usage.....	155
6.4	IT Skills Among Sudanese Librarians – 2002.....	157
6.5	Ways of Getting IT Training	165
6.6	Patterns of Current Usage of the Internet Resources	168
6.7	Using Email For Professional Activities	175
6.8	Browsing Professional Web Sites.....	185
6.9	Using Internet Resources for Technical Processes	179
7.1	Perceptions of Training Needs	186
7.2	Impact of Internet on Professional Development	189
7.3	Methods of Acquiring New Skills	191
7.4	Impact of Internet Resources and & self-Training Plans	193
7.5	Level of Internet Training Needs and Self – Training Plans	194
7.6	Perceptions of Importance of the Internet Resources	200
7.7	The Impact and Use of Internet Resources for Technical Processes	205
7.8	The Impact and Use of Internet Resources for Technical Processes	206
7.9	Factors Affecting Introduction of IT Into Sudan Libraries.....	211
7.10	Factors Affecting Introduction of Internet into Sudan Libraries.	212
7.11	Priorities of Libraries in Sudan.	214
7.12	English Language As A Barrier to Internet Usage.	215

Chapter One

Introduction and Methodology

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Introduction and Methodology

1.1. Introduction

Recent periods in our world history have been variously described as the “Industrial Age”; the “Electronic Age”, etc. Nowadays we are in the “Information Age”. That title reflects the fact that the most dominant technology in the world today is the Information Technology (IT), which in turn based on a body of information theory and includes technologies of information processing, storing, retrieval, dissemination and communication systems.

It has been argued that the importance of access to information as well as its efficient dissemination, is widely recognized in the industrialized countries and demonstrated by the new alliance that are being formed between government and enterprises in an attempt to strengthen their participation in the Global Information Network. (Roffe, 1995).

In a rapidly evolving world, information is the ultimate currency of change that influences access to resources and the method and speed of delivery, enhances the efficiency of the production process, helps to improve trade and competitiveness, and facilitates the transfer, dissemination and application of technology.

It is widely accepted that knowledge is information, which has been analyzed, interpreted and fitted into an existing pool, to provide new insight and intellectual mastery. The ultimate idea is to locate data, process it into information, and then craft this information into knowledge, to gain the intelligence and wisdom to worthwhile decisions (Turban, 2002).

Nowadays information is playing and increasingly important part in economic, social, Cultural and political life. This phenomenon is taking

place regardless of a country's size, state of development or political philosophy (Boss, 1998).

According to Moore (2001), societies, all over the world, are striving to make more efficient use of information and to catch the information societies in the developed countries. All countries, regardless of their political orientation, and state of development, share the goal of creating an information society. Moore (2001) identified the three main characteristics of the information society, which are; first, information is used as an economic resource. Organizations make greater use of information to increase their efficiency, to stimulate innovation and to increase their effectiveness and competitive position, often through improvements in the quality of the goods and services that they produce.

Secondly, it is possible to identify greater use of information among the public. People use information more intensively in their activities as consumers: to inform their choices between different products, to explore their entitlements to public services, and to take greater control over their own lives.

The third characteristic of information societies is the development of information sector to satisfy the general demand for information facilities and services. A significant part of the sector is concerned with the technological infrastructure, i.e. the networks of telecommunications and computers. Increasingly, however; the necessity is also being recognized to develop the industry generating the information that flows around the networks (Moore, 2001; 232).

The creation of individual information societies is taking place within a much greater, international process of change. Partly this is because the

developing information systems are global, or at least international in their reach.

At all levels information is always associated with the application of the technologies known as Information Technologies (IT). IT is a term used to describe the coming together of computer technology with data transmission technology. It involves other equipment and information transmission systems, not just computers; for example, there is electronic mail, facsimile transfers, cable television, telex, electronic telephone exchanges, satellite communications and data transmission using laser technology. IT therefore, involves the electronic, acquisition, storage, and dissemination of vocal, pictorial, textual and numerical information (Roffee, 1995).

According to Hanna (1995) IT is a key generic technology, whose applications span all industries and services. Its payoffs are often dramatic and are fundamentally derived from the organizational changes that it brings about. IT is an essential infrastructure that enables firms, institutions and all kinds of economic agents to share knowledge, and collect, process and transmit cost, thereby increasing productivity and improving quality and efficiency in all types of industries and services. According to Corbin (1993), today, it is mainly the networking capability of IT that has this important underpinning effect in driving the globalization of industries and services. The economy of networks generates increasing returns to investment, and thus reinforces its pervasiveness. IT, as a network technology, offers a steadily expanding range of new services, which have major economic consequences for the standardization processes of IT.

In the developed countries there is an increasing number of new information technologies that shape and change performance in areas as

diverse as microeconomic planning, and decision making, public administration, education, health care, manufacturing, finance and banking, transportation, commerce, publishing, energy conservation and environmental management.

Technological change is a major contributor to this process of development. Certainly In recent years, the rapid development of information and communication technologies has vastly increased the capacity to process information and accelerated growth in the overall economic sectors.

Moore (1999) attempted to identify the major characteristics of IT that lead to this impact as he stated, “The impact of IT arises from three of its characteristics. First, it is an enabling technology, i.e. IT can be applied in a wide range of different applications and can itself contribute to further technological change. Second, the capacity of the technology has been increasing at an exponential rate for nearly twenty years and shows no sign of slowing down. Finally, and perhaps most important, the cost of the technology has fallen rapidly over the same period and, again, seems likely to continue to do so (Moore, 1999; 245).

As far as IT and libraries are concerned, Corbin (1993) stated that, there are a number of factors having an impact on today’s libraries; one of the most important factors is the IT. The future of libraries depend, upon this technology it is inflaming how information is acquired, organized, stored, retrieved and disseminated, how services and facilities are designed, organized, staffed, and offered, and how users seek, receive and use information.

Technology also has altered library philosophy from that of collecting information to providing access to information; it is affecting policies and procedures; and it is argued that librarians should have skills and

knowledge different from that of the past. In short no aspect of library services, facilities, or other resources is or will be unaffected by IT (Corbin, 1993).

The Introduction of computer technology is one of the most important developments in the second half of the last century. With its storage and retrieval capacities, the computer paved the road for more advanced library services. By the 1980's the emergence of CD-ROM technology has become an important tool for storing and retrieving large quantities of information.

The CD-ROM Technology characterized with several advantages that enable it to serve the less developed countries and remote areas. It is considered of high storage capacity, with more durability; relatively of low cost; no telecommunication infrastructure is required and, friendly use (Keylard, 1994).

Thus, the introduction of the CD-ROM technology has added great potentials and offered an excellent opportunity to respond to the information needs of less developed countries.

From its origin as a United States Government research project, the Internet has grown to become a major change in all aspects of life. Internet has become the major network infrastructure, linking millions of networks and hundred of million of machines and users. According to Samad (2001), Internet has created a "borderless world" and a platform for mankind to interact and share knowledge with astonishing ease. As a result, interaction and communication from one corner of the globe to another could take place within seconds."

With such potential for speed, comfort and accuracy at relatively affordable cost, many people believed the world is going to be cyberized within a decade. The Internet with its huge online, free, and easy accessed resources has brought a real revolution to the libraries and information services. New

potentials, have been offered, excellent range of service have become available. New literature comes as a result of the global connectivity and networking, terms like “virtual “library” digital” library’ “Electronic library” and “wall-less library” have become very common and familiar among information professionals

New challenges face library and information professionals, in areas of education, training, technical procession, resource sharing, end user training, information needs, etc.

One of the most important feature of the Internet is the web-Based resources that become available online. These resources offer great useful tool for library services. They include not only full text databases, statistics, and images but also video, audio, powerful search engines, discussion forums, email-alerting services, and many useful hypertext links among the related sites.

This wide range of resources has created a new dimension of the library services all over the world. These resources have led to a new series of challenges and impact on the information professionals; as they are facing two complementary pressures. First, the technology of information work is vastly extending the scope of their work, and the second is those users expectations are rising constantly, creating a demand forever more sophisticated, high-quality information services. These pressures have called for more highly qualified professionals who not only understand the underlying principles of information work but also possess the technical skills needed to exploit the full potential of the technology.

1.2 Statement of Research Problem:

Since the introduction of the IT, a great impact has been brought to the library and information services. It has dictating or influencing how information is acquired, organized, stored, retired, and disseminated, how services and facilities are designed, organized, staffed and offered and how users seek, receive, and use information. (Corbin, 1993).

Accordingly and based upon what we have mentioned earlier it seems that technology has also altered library philosophy, policies, and procedures. It has imposed new skills, challenges and knowledge upon librarians. In short, no aspect of library services has been unaffected.

Among all these technological developments, the Internet has provided the information and library professionals with an endless opportunities, and potentials to develop not only their services, products, and resources, but also their competencies, effectiveness and professional performance. This is through the huge electronic resources provided by the World Wide Web. These resources are providing a unique opportunity for librarians to upgrade their skills, knowledge, and training. The virtual library erases differences between types and sizes of libraries, and equalizes the accessibility to training opportunities. With the wide spread access to the same Internet electronic resources, comes the ability to create a wide range of training opportunities i.e. self-training, self-development, and continuing education programs. According to Ross (2000), it is evident that limited resources can be leveraged to broaden staff training and development opportunities. The new technologies for distance learning, give all professions, especially librarians, efficient tools for providing staff training and continuing education.

Although it seems that the challenges that face librarians are huge, it seems also that the opportunities for self-development and continuing education are very promising and fertile.

The web-base resources that deal with professional effectiveness and career development are in a growing nature. They include, tutors discussion groups, online conferencing, email groupings, full text professional journals, technical processes guides, current awareness services, policies and procedures, etc.

All these resources are almost free of charge, education oriented, with regular updates, and published by reputed professional organizations.

Web-based resources have provided also librarians with an endless list of tools, and professional resources. These resources include Full Text and Reference materials, electronic journals, online databases (bibliographic and full text). These resources could be used for different library services, e.g. customer services, collection development and technical processes. So in short, the web-based resources are playing a major role in bridging the gab between librarians in the well developed and developing countries, as they are now available online over the Internet for all librarians without any preference or discrimination.

Hence, this research is planned to assess the level and trends of usage of these resources and materials. In addition, the level of perceptions and awareness about the promising potentials provided by the web-based resources will be tackled.

It has always been stated that, the usage is influenced, judged and dedicated by perception and paradigm (McDayter, 1996). Perceptions form the pictures, images, and the way we react to different aspects of life. Therefore, the question of how Sudanese librarians perceive the image of web-based resources will definitely shed light on how they react to them. Also among the central issues of this research is, what are the major trends of the usage of the Internet web-based resources among the Sudanese

librarians? Moreover, to what extent are the Sudanese librarians aware of the professional and developmental value of the web-based resources.

In short, this study is planned to deal with these questions:

- What are the major current patterns of Internet usage among the Sudanese librarians?
- How do Sudanese librarians perceive the impact of Internet resources on library services?
- Are Sudanese librarians fully aware of the available Internet resources and their potential contribution to the professional development?
- What are the major perceptions of the Sudanese librarians about the web base resources and their impact on the technical processes?
- To what extent do the Internet resources contribute to support the technical processes, self-training, and library services?
- Do Sudanese Librarians make use of the available Internet resources? If yes, to what extent? Moreover, if no, what are the reasons that retard their use?

1.3 Justification and Research Hypotheses:

In the recent times, the development of the national, regional and international Library and Information Systems (LIS) is dominated by the development and application of the IT. This has already significantly transformed the ways of communicating information. It has been believed that the trends of the IT application will continue in the future; the totally integrated socio economic development will depend increasingly on the efficient use of information. The rapid progress in the improvement of the electronic equipment makes it more effective, cheaper and applicable in a wider range of information services, and the use of different information technologies have become a common feature of the library and information system.

By the introduction of the Internet, among the resources available to information and library profession, with its all-diverse and wide range resources, the utilization of the electronic resources was seen as unproblematic and the expectations were generally optimistic regarding the outcomes.

Although the introduction of the Electronic Resources through the Internet has aroused much optimistic attitudes towards library service effectiveness, little is known about the factors that retard the efficient utilization of these electronic resources. Among the Sudanese librarians, there is a serious need for such research. Sudanese librarians, as a part of the developing countries librarians, should avail these electronic resources to the maximum to support library services effectiveness. So doing such research among Sudanese librarians will shed lights on this matter.

Among the library perceptions studies much literature is written on the end-user perceptions, attitudes and conceptions, but very rare literature is found regarding the perceptions of the librarians themselves. Actually, there is very little literature that reflects the perception and attitudes of the librarians about the impact of the electronic resources on library services.

The major motive behind perception studies among any target group is that, they always provide first hand information about the investigated group, i.e. primary information about the concepts and understanding of that group. Moreover, perception studies are proved to be an appropriate tool for reading the mental map of a certain group of people, as they provide information on concepts, attitudes and images.

Assessing librarians' current patterns of use and perception of Internet resources will provide crucial information, which would enable librarians themselves to overcome the obstacles and humps that retard their

maximum utilization of the electronic resources for more effective library services.

By the introduction of Internet, it is true that information accessibility and provision is not like one decade ago, Internet has brought many knowledgeable, and informative resources for those who have Internet connectivity. The web-based resources are of great value to all professions, particularly librarians and information specialists. This is extremely true in the developing countries where information availability was a real problem. The availability of Internet has lead to a radical change and contribution in the area of provision of information. But it has always been questioned whether the current patterns of Internet usages serve the objectives of library and information services. This research tries to assess the current patterns of Internet usage among the Sudanese librarians. Actually, there are many issues, which have been brought by the Internet, among the Sudanese librarians. They include training, professional development, technical processing, ...etc. This research tries to deal with these issues. As far as this research is concerned, the major hypotheses to be checked are the following:

- The current patterns of Internet usage are for non-professional activities.
- Utilization of the Internet resources among Sudanese librarians is still below the required and optimum level.
- The usage of Internet resources for library technical processes is still limited.
- The usage of Internet resources for self-training programs is still limited.
- Internet skills are highly associated with the frequency of using and accessing Internet.
- There is a relationship between education qualification and IT skills among the Sudanese librarians.

- LIS curriculum and syllabuses are lagged behind as far as IT and Internet are concerned.
- There is a serious need for Internet-oriented training programs among the Sudanese librarians.
- English language proficiency is a real barrier to the maximum usage of the Internet among the Sudanese librarians.

1.4 Research Objectives:

The main objectives of this research are planned to be the following:

1. To assess the level of IT skills and accessibility among Sudanese librarians.
2. To review the frequency and skills of using computer and Internet among Sudanese librarians.
3. To assess the relationship between skills of Internet and IT among the sample with the perceptions about professional development attained through Internet resources.
4. To evaluate the relationship between the IT skills and the frequency of IT usage among the Sudanese librarians.
5. To identify the major methods of getting training on Internet and computer skills, and to assess how do Sudanese Librarians perceive Internet's impact on training and development.
6. To examine the current patterns of web-based resources usage.
7. To evaluate email patterns of usage among Sudanese libraries mainly for different library services. .
8. To assess the level of utilization of some Internet professional sites for the Library technical works and processes.
9. To assess the perceptions of Sudanese librarians about the contribution of Internet resources on self-training programs, lack

of training opportunities, acquiring news professional skills, and solving the budget cuttings.

10.To evaluate the frequency of browsing some professional sites, as well as the frequency of using these sites for library technical works.

11.To assess the perceptions about the barriers to the use of the Internet resources among the Sudanese librarians.

1.5 Research Methodology:

1.5.1. Data Collection Approach:

This study is planned to adopt a qualitative descriptive approach, although some quantitative statistical methods are used in different stages of the study. It has been argued that, the difference between quantitative and qualitative methods and approach is not just a question of quantification, but also a reflection of different perspectives on knowledge and research objectives. In some of these studies, data may be quantified, but the analysis itself is qualitative, such as with census reports. It is quite common for researchers to collect their data through observations and interviews, the methods normally related to qualitative research. Nevertheless, the research may code the data collected in such a manner that would allow statistical analysis. In other words, it is quite possible to quantify qualitative data. Qualitative and quantitative methods are therefore not mutually exclusive (Ghauri, 2002).

Dealing with perceptions, opinions attitudes and paradigms, this study depends highly upon primary data, which was collected from a questionnaire-based survey. It is argued that surveys always provide primary data that comes consistent with the research questions and objectives (Ghauri, 2002). This does not mean that this research underestimates the value and importance of the secondary data. Secondary

data is crucial for research work mainly to enrich and support research objectives as well as to avoid duplication and redundancy. Secondary data has been dealt with in the stage of theoretical framework and research conceptualization, relevant literature has been reviewed. It worth mentioning that more than 45% of the consulted materials are Internet accessed and web-based materials. These materials include different sources, i.e. books, journals, conference proceedings, and reports.

1.5.2. Scope and Coverage of Study:

For the purpose of this research, the target population for the survey is the librarians of certain selected institutions. The selection for these institutions is made upon the following criteria:

- The sampled institutions should cover reputed and/or accredited institutions.
- The sampled institutions should cover both old and new library and information institutions.
- Different types of libraries should be covered by this survey i.e. (Academic, research and public).
- Different types of sponsorship (Government, private, and NGOs) should be represented among these institutions.
- Different level of accessibility to the IT should be taken into consideration.

Having in mind these criteria, the following institutions were selected to be the surveyed for this study.

- Khartoum University Library (KUL), Main & Branch Libraries,.
- Omdurman Islamic University Library (OIUL).
- Al Ahfad Women University Library (AWUL)
- The National Center for Information and Documentation (NDIC).
- The British Council Library (BCL).
- Omdurman Ahlia University Library (OAUL).

Khartoum University is the oldest and the most reputed university in the Sudan. Khartoum University Library (KUL) is considered the biggest one among Sudanese libraries. Moreover, it acts as the Sudan National Library and serves large and diverse community of users. Omdurman Islamic University Library (OIUL) is also considered among the oldest Sudanese libraries. Moreover, the Omdurman Islamic University is characterized by the early development and establishment of the library and information sciences department, not only in Sudan, but also among the Arab World.

Al Ahfad Women University “Al-Hafeed” is one of the privately developed universities in Sudan. It has received considerable support and donation from overseas vendors and organizations. As a result, Al-Hafeed Library was established with a generous donation. Besides, this library provides services, among others, for a very specialized community and research needs, i.e. women studies.

The fourth institution is the National Information and Documentation Center (NDIC), which is considered a research library that provides specialized and sophisticated information services, for different research works that run by the different research bodies at the National Council for Research, Sudan.

The British Council Library (BCL), Khartoum functions as a public library that provides services to a wide range of user categories. Being a part of the British Council Network, this library provides its users with a unique spectrum of services and resources.

Omdurman Ahlia University Library (OAUL) is considered one of the pioneer higher education institutions that run by the private sector in Sudan. Since its foundation in 1984, it has witnessed a rapid rate of development and growth. It is characterized by a reputed library and information department, which has contributed to the graduation of a large number of librarians in Sudan. The OAUL is witnessing real progress and development as far as the application of IT is concerned.

The different financial capabilities among these institutions have led to different assessment to information resources and technology. Therefore, it seems that the six selected institutions will reflect different types of library institutions, i.e. university, research, public libraries. They also represent public and private sector in Sudan, as well as NGOs.

It is expected that these institutions provide different levels of information services and resources for a wide range of community sectors, i.e. students, graduate students, researchers, academics, and the public.

As this research is dealing with perceptions, attitudes and opinions among Sudanese librarians, it is believed that this sample will be of a great representation level to the librarians' community in Sudan.

1.5.3. The Survey and Fieldwork:

For the purpose of this study, data has been collected through a questionnaire-based survey, and personal Interviews. Survey is considered an effective tool to get information on perceptions, opinions, attitudes and descriptions as well as for getting cause and effect relationships (Ghauri 2002).

The field survey has depended highly on questionnaires. Two types of questionnaires have been designed: one questionnaire has been directed to executive management of the selected libraries. This questionnaire was used to provide information on policies, plans, budgets, staff, IT facilities and organization at the selected libraries, (Appendix No.1).

The second questionnaire has been distributed among the individual librarians at these institutions (Appendix No.2).

This questionnaire was structured into four parts. The first part is directed towards determining basic information about the surveyed population i.e. age, sex, education, qualification, experience, positions, were questioned. Data collected through this part has provided crucial information on the sample population's profile. The second part of the questionnaire is

directed towards determining the level of IT and Internet accessibility and frequency of usage among Sudanese librarians. The third part covered questions that are directed towards assessing the perceptions of the web-based resources among the Sudanese librarians. The fourth part of the questionnaire is devoted to evaluate perceptions on Internet's impact on Library professional services, as well as the barriers to the utilization of Internet resources among the Sudanese librarians. For this questionnaire, multiple-choice questions have been used.

Interviews were conducted with some of the chief librarians of the selected institutions. In addition, the researcher has interviewed some Chief librarians, Sudanese academics and experts in library and information services. (Appendix No.3). The fieldwork for this study took place during the period 27 July – 24 August 2002.

1.5.4. Sample Size Distribution:

The data was collected from the personnel records showed that the total population in the above-mentioned institutions is 126 librarians. For the purpose of this research librarian is defined as a person who holds, at least a first degree in Library and Information Sciences (LIS) or first degree in any other specialization with a proper practical experience.

Given the fact that the total number of the target population is 126 librarians, it is felt the number is manageable and as a result, all librarians in the six institutions were surveyed, without any need for sampling procedures, i.e. 100% of the population was covered. This was so to ensure a high level of data reliability and accuracy. In other words, the second questionnaire was administered and distributed to the all-126 librarians in the six institutions.

The questionnaires were designed into Arabic language that was mainly to avoid any language barrier among the respondents. To ensure a high level of reliability, consistency and understanding of the questionnaire, a pilot

survey was conducted. Ten copies of the questionnaire were administered among the librarians of the University of Khartoum. Accordingly some modifications and changes were made to the questionnaire prior to the fieldwork. A list of the librarians working in each of the surveyed libraries was maintained for distributing the questionnaires.

As shown in Table 1.1 and Figure 1.1 the total number of librarians is 126, the number is distributed as follows: Khartoum University Library (KUL) 45 librarians represent 36.3% of the sample; Omdurman Islamic University Library (O1UL) 34 librarians (27.4%); National Documentation and Information Center (NDIC), 19 librarians (15.3%); Omdurman Ahlia University Library (OAUL) 11 librarians (8.9%); Hafeed Library 10 librarians (8.1%); and the British Council Library (BCL) 5 librarians (4%).

1.5.5 Research Definitions:

For this research, different terms and terminologies have been used. To avoid any ambiguity or/and misunderstanding, some definitions were provided where the term is mentioned for the first time in the research text.

1.5.6. Data Analysis and Tabulation:

From the fieldwork results, it is evident that response rates to questionnaire differ from one institution to another. The over all return questionnaires were 111 out of 126, which means the average response rate reaches 88.1%.

The British Council Library obtained the highest response rate as the five questionnaires were collected back, i.e. 100% rate is done. Then Khartoum University Library (98%), the lowest response rate was obtained by the Ahfad Women University Library (75%), (Table 1.1).

The data analysis stage has started by encoding the questionnaire from Q1 up to Q110. Then data has been entered into computer. Statistical Package for Social Science (SPSS) software, version 11.5, (2002) was used for analyzing the data. Frequencies, mean distributions, percentages, and cross-tabulations were produced from the fieldwork data analysis.

To check research data reliability, Alpha scale analysis has been used. It is also known as "*Cronbach's alpha*". Alpha Scale is a model of internal consistency, based on the average inter-item correlation, i.e. it is a coefficient of reliability or consistency among the checked items (Carlson, 1997). The results, however, revealed that *alpha value* is 79%, which is above the minimum required value 65. It is argued that if the average inter-item correlation is low, alpha will be low. As the average inter-item correlation increases, Cronbach's alpha increases as well. This indicates that the sample structure is consistent, with high level of randomness, and it indicates that questionnaire has been well structured, balanced, and designed (Carlson, 1997). Based on the statistical tools e.g. frequencies, means, and cross-tabulations, the quantitative data is presented and illustrated in different visual formats. Tables, bar graphs, pie graphs, and column graphs were produced.

Table 1.1

Sample Size and Distribution - 2002

Institution	Type of Library	Sponsor	No. Of Librarians	No. Of Respondents	% Of Response	% Of Sample
Ahfaad Women University Library	Academic Library	Private Sector	12	9	75	8.11
Omdurman Ahlia University Library	Academic Library	Private Sector	11	10	91	9.01
British Council Library	Public Library	NGO	5	5	100	4.51
Khartoum University Library	Academic Library	Government	45	44	98	39.64
National Documentation Center	Research Library	Government	19	16	84	14.41
Omdurman Islamic Univ. Library	Academic Library	Government	34	27	79	24.32
Total	***	***	126	111	88.1	100.0

Source: Fieldwork Data (2002).

1.6 Research Structure:

This research has been structured into eight chapters. Chapter one is devoted to introduction and Methodology Framework. It includes introduction, statement of the problem, justification and hypothesis of the research, objectives of the study, research methodology, and structure of the study.

Chapter two provides theoretical framework. Special concentration has been made on perception studies. The relevant literature has been reviewed for conceptualizing this research. This section reviewed literature on issues like perceptions of librarians' role; library services; users' need; and the IT impact on library services

Chapter three investigates the role of IT into the library and information services. This chapter examines mainly the role of the CD-ROM, and Internet in library and information services. Special considerations have been directed to the web-based resources i.e. online databases, OPAC, training oriented materials, as well as policies and procedures. Besides, an elaboration has been made on the contribution of these resources to library services and profession.

Chapter four sheds light on the current situations of library and information profession in Sudan. This part reviews, in brief, the development and history of the surveyed institutions. It reviews also the major services and products provided by these information institutions. Staff age structure, experience, and educational qualifications have been drawn to shed light on the major demographic characteristics of the surveyed population.

Chapter Five is devoted to some new challenges come to the LIS through the availability of the Internet resources. This chapter deals mainly with issues like Total Quality Management as an approach for LIS integrated and comprehensive management. In addition, this chapter reviews some of

the new roles that should be played by librarians in the Internet resources era. Moreover, chapter five discusses the issue of curriculums development in Sudanese LIS to meet the new changes in the profession and the career.

Chapter six investigates the current major patterns of Internet resources usage among the Sudanese librarians. The frequency of using Internet resources for library services, technical processes have been checked.

Chapter seven questions the perceptions on the Internet's impact on library services, training opportunities, financial problems and usage barriers.

Chapter eight has been devoted to provide some summaries, conclusions, and the study recommendations. The bibliography and some relevant annexes have been attached at the end of the thesis.

Chapter Two

**Perception Studies: A Review of
Trends**

Chapter Two

Perception Studies: A Review of Trends

2.1. Introduction:

According to McDayter (1996), the notions of perceptions, paradigms and personal filters have been years in development. They can be complex, and have been much argued by psychologists, sociologists and philosophers.

Perceptions are simply what our senses provide us. They are what we see, hear, smell touch and taste. Perception allows you to select, organize and interpret information. It is the process of bringing together information, then giving meaning to it. Although the information is gathered through one or more of the five senses or hearing, seeing, tasting, touching or smelling, it is the mind that must process the received data, in order to make sense of it (Covey, 1989).

While perception is primarily a three-fold process -- receiving stimuli through your perception, organizing sensory stimulations and then interpreting the sensory stimulations -- a paradigm can more properly be considered the product, the result from a particular way of looking at the world (McDayter, 1996).

According to McDayter (1996), paradigms are like maps of a person's psychological territories. They show a person's biases and the value judgments he or she imposes on the world perceived. They also, consciously and unconsciously, filter out parts of the reality of the world.

Perception is selective, and it locks out different incoming stimuli.

That is why filters have also been described as selective inattention, because on some level, our minds are acting for us, choosing what we will perceive, but we are not necessarily conscious of that process.

Perceptions, paradigms and personal filters are all part of an elaborate psychological framework comprising the information you get, the assumptions you make about the world, what model you have of the world and what you permit yourself to perceive (McDayter, 1996; 215).

In fact, perceptions, paradigms and personal filters are very necessary. They form pictures of the way you think things are, and the way you think things should be. Nobody could manage without this kind of shorthand, especially in today's world (Covey, 1989).

We use paradigms all the time, and they often have an impact on the outcome of the situations we meet.

It is argued that people's expectations do have an effect on the outcome of interactions. Expectations may govern more than outcome. There is a saying that goes, "some things have to be believed to be seen." Certainly, in dealing with perceptions and paradigms this is true. Unless people are flexible, they will be boxed in by their paradigms, unable to see anything but what they permit themselves to see (Covey, 1989).

The Internet Encyclopedia of Psychology (2002) stated, "in philosophy, perception is defined as the complex method of obtaining information about our surrounding world, specifically through our senses, and apprehending this information as beliefs. The main philosophical problem with this notion of perception is that we should not accept our perceptions as being reliable, since (1) it is possible for us to misperceive objects in the world, (2) our senses are susceptible to illusions (e.g. hallucinations), and (3) it is unclear how much epistemological value perceptions have, or how much belief, if any, should be rooted in that which we perceive".

Moreover, Max Planck Society (2002) argued, "Perception is something that must be learned. As we recognize things in our environment, we gather experience and this experience in turn colors our perception. Our

perception of objects depends on our prior experience with them. What most people would call a bird is "obviously" a sparrow, sandpiper, or cockatiel for a birdwatcher. Expertise sharpens our ability to notice details". The more we learn about objects and the more familiar they become, the more details we recognize. Thus, we continue to generalize, but these generalizations get better and more accurate all the time.

On the other hand, the website "importanceofphilosophy.com" (2002) provides the following definition for the term perception: "Perception is the automatic integration of sensory stimulus. It is not a form of thinking, in that one's ideas do not affect the process. Perception is automatic and independent of volition. Perception is an integration of stimulus. It combines different sensory effects over time into a single unified whole. The result is the awareness of entities. We do not see a mass of different colors and brightness. Instead, we see a computer monitor, a book, or a cup of grape Kool-Aid, we see things. Though that knowledge is not automatic, perception is the base of all knowledge. We acquire raw information about the world around us through perception. We can then take that information, integrate, and try to understand it. All knowledge, though, is derived from this common root. What we perceive, it is our link to the outside world".

2.2. Perceptions of Librarians' Role:

Library professionals have been working for long time among public, including academic staff, library users, researchers, etc. Different groups have differently perceived the role played by librarians. This depends upon a number of factors that shaping these images and perceptions. Here we try to review how different groups perceive the role of librarians and what shapes these perceptions.

However, Green (1994) conducted a study to identify where and how images and perceptions form barriers to library use he stated that " If the image of librarians is a negative stereotype of either unapproachable,

authoritarian characters or weak, incompetent hideaways, doing no more than shelving or stamping books, while saying “shush”. It is hardly surprising that this would prove a barrier to people seeing the usefulness of librarians.”

It is believed that the image that is not portrayed is a barrier to use. People are left with no clear impressions of librarians or their profession. They are given nothing to replace the stereotyping that librarians, along with other professions, suffer in adverts. It is also said that librarians, in trying to be neutral on issues of, say censorship or funding, will only be seen at best as passive and at worst to have no opinion, therefore becoming irrelevant and unimportant. People think of librarians as “trained” or “skilled” but not necessarily as “professionals” and have no idea of qualifications or training requirements (Edgar, 1976).

Not being perceived as a profession or, low professional image, leads to lower status, which forms barriers to the use and importance of librarians within an organization. It leads to school librarians not being given head of department appointments; to academic librarians not being recognized as equal to faculty; and to librarians in the commercial sector having lower rankings than other colleagues. Librarians placed at these levels cannot contribute to the overall organization as effectively, nor be involved in policy setting or important committees. This fuels the vicious circle of poor professional image, low status, low value and ineffective usage. (Schumann, 1990).

In 1990, Rothwell conducted a field survey to assess the image of librarians among the users and non-users of the library, his survey results showed that, while positive overall, showed that non-users of libraries were the least positive about librarians, suggesting a link with image and use.

Rothwell also found that the lowest overall image level of librarians and of the profession was held by the 16-24 age group. The same survey showed that Librarians can take heart that 48.8 per cent of the public used the words “helpful” “efficient”, “Pleasant”, “polite”, or “friendly” to describe librarians as individuals, with a further 19.2 percent using other positive words, and only 22.7 per cent using negative words such as “condescending”, “unhelpful”, “gray” or “formal”.

Rothwell found most people felt librarians in a library were “useful”, which is hardly and overwhelmingly strong statement of the importance perceived in the role of librarians and their skills.

Schumann stated that the lack of awareness about the potential of librarians and libraries, not the stereotype about how librarians look, are formidable barriers to equitable access to information, (it is why) increased recognition of the value of information (has) not brought with it increased recognition of the librarian as an information profession. Schumann goes on; what we must communicate is that librarians can do more than just fill information needs; librarians can help solve information problems.

While reviewing the role and work of librarians as perceived by university student, Heron (1977) mentioned that, there is little realization of the work of librarians behind the scenes. University students, saw librarians in a service role, to help locate information needs and could not differentiate between professional and support staff (apart from by age). A difference between “active and “non-users” in this case was that active users thought librarians were capable of handling queries in the language of the subject, suggesting that non-users see librarians as even less useful or skilled.

Given that a national consumer council (NCC) survey in Cambridge Shire found 15 per cent of public library users on a given day were using the library to borrow books, and that many users only have contact with non-professional staff, a clerical image of book stamping / shelving is fostered rather than an organizing or disseminating one. A significant proportion of users do use the reference services as well, and if they have been offered, or approached for assistance, this would enhance the image. However, the majority planning to use the reference or information facilities in the NCC survey was planning to use books, not staff.

It is also found that 12 percent who had used the library for reference purposes asked staff for information – that is, the librarian’s information-finding abilities and role at the public desk are not perceived.

Heron (1977) found that Perceptions of being unwelcome or librarians being unapproachable form a barrier to using librarians, by hindering the asking of initial or follow-up queries for help or information.

While reviewing perceptions of teachers and school librarians, Valantine (1988) concluded that, in school libraries, although librarians are valued over the library itself, there is poor communication between librarians and teachers so that the librarians’ skills in “maximizing learning resources” remained unknown or underused. Trainee teachers hold similar limited perceptions of the potential role of librarians:

The supporting services of a librarian were seen as more valuable than the mere existence of a collection of books and materials by both primary and secondary students, but not as an equal partner in the discussion of education and curriculum matters.

Hence, while a school librarian might be called on the help the teacher with displays for classrooms and updating the teacher’s own subject awareness,

involvement with teaching the children, even information skills, was not envisaged.

According to Majid *et al* (2001), it is evident that the image of the library services is highly influenced by the role of librarians and the help and assistance they offer to the library users. It is stated that Respondents were asked to indicate how frequently they sought assistance from library staff for using library collections, services and facilities. It was found that those participants who often sought help from the library staff in finding the needed materials perceived their library as “very effective” in meeting their information needs. Almost the same trend was observed for other categories of assistance where those respondents who sought assistance from library staff gave better assessment to their library. It appears that the availability of assistance from library staff for various purposes is likely to enhance the image of the library for effectively meeting the information needs of its users.

Accordingly, Green (1994) tried to deal with these perceptions and images about librarians as he stated that, these images and perceptions could be altered and controlled to increase the use of libraries and librarians, but not just by title changes to library units. Marketing and promotion activities applied effectively will increase value, status and awareness, and will create realistic expectations and use of services and staff. Other options are outreach, liaison and user education schemes and campaigns like the American Library Association’s “ask a librarian”. It may reduce the lack of awareness and understanding of marketing among chief librarians. Through the planned national opinion poll, it will provide an up-to-date picture of people’s views and perceptions of libraries on which solutions can be based.

2.3 Perceptions of Library Services:

With regard to library services, many studies have been conducted and achieved to assess and measure the quality of library services. These studies tried to assess the level of relevancy and efficiency of these services. The importance of library services perceptions is that, they would play major role in reshaping efficiency, relevancy of services provided by libraries to their users.

In 2000, Lilley & Usherwood examined relationship between library user perceptions and expectations of public library services. Emphasis is not on what expectations and perceptions of the library services are but rather they examined how these expectations and perceptions are formed, what influences them, and how they interact. Among their interesting findings, they stated that, users' experience has emerged as the most important factor influencing the way that they form expectations and perceptions of the service. As a theme, it can be considered on several levels. The most basic of which is the idea of the "snapshot".

Lilley (2000) argued that the role of staff in the creation of perceptions and meeting of expectations could not be underestimated. Staff form the first point of contact with the library service and a bad experience with a staff member may prevent continued service use. They further added that the attitudes of staff are integral to the service experience of the library user. This means staff perhaps need reminding how important they are to the service, and the power that they have in promoting the service to the people that come through the doors and use it.

Green (1994) also added some more factors that shape the perception about librarians, given the predominance of women in librarianship (and that this is the dominant portrayed media image), lower status as a profession, the credibility and value of the service, even the nature of the operations of the

service, may well result from perceptions and images held of women by society. This is raised here as further evidence of the pervasive importance of images and perceptions, as well as in its own right.

Edger (1976) put a further set of factors that is caused by librarians' images of themselves and of their users, and by perceptions held by library institutions about what user needs are and the services that should be offered. For instance, low self-image of librarians and their profession has reinforced, perhaps created, the perceived low status and value of the professions and its unclear image.

Moreover, McDonald (1988) stated the image of certain user groups such as the young as rowdy and disruptive, lead to this user group feeling unwelcome, a barrier to use. The young also suffer from poor perception of their information needs. Where this leads to services being denied, such as interlibrary loans or reference help for homework, or audiovisual loan collections for recreation, there is a danger that the library will not "be viewed as a place of answers when adulthood is reached "especially as" information-seeking patterns are formed during young adult years.

By "snapshots" they referred to the personal image that the user develops from the first time he requires a library service. This personal image or "snapshots" have great influence on shaping the users' perceptions and attitude towards library services.

The dilemma that is faced by library is how to ensure that all the "snapshots" of individual user's service experience create a positive perception. This "snapshot" problem is reflected in the recent emphasis on quality in service delivery. According to Lilley (2000), the idea of the "snapshot" of experience can be extended to illustrate the impact of personal knowledge, on the perceptions that are formed of a given service.

Knowledge of what the service does and what it offers will differ depending on what an individual uses the service for, which service point they use, and so on. This is something of which staff is painfully aware. Individual knowledge, however, extends beyond knowledge of the public library service to include knowledge of other library services. Staff expressed particular concern about this with regard to libraries in educational establishments. They were worried that the public library service is increasingly expected to fill the gaps left by other institutions. Most often referred to be university libraries and the fact those students are expecting a similar service from their public library. This is an expectation that the service cannot meet (Lilley, 2000).

Personal experience influences perception creation. Similarly there are factors that impact on personal experience that can further influence the way that an individual's perceptions of the library service are formed, past experience, language and present motivational state or goals for the future, influence our perceptions of the present. Our past learning has a significant influence on perception (Hastorf *etal*, 1970).

Slovic *etal* (1980) stated, "Factors affecting perception formation are either internal or external. Internal includes family, schooling and the area lived in. It is found that most of the frequent user interviewed had formed the library habit as children, largely under the influence of a family member. However, something as simple as whether, as a child, the local library was located five minutes' walk away or required a half-hour bus ride, can affect an individual's present perceptions of the service" (Slovic *etal*, 1980).

Identifying external factors that affect users' perceptions of the library service is more complicated. They include outside agencies, newspapers and television. According to Rice (1997), "it is true that very few of us can

escape images and inputs from television, radio, magazines and newspapers. Inevitably, these will give a particular vision of reality, and it seems unrealistic to suppose that the media will not affect people's perceptions".

The National Consumer Council (NCC) survey found that perception of libraries' full range of services, reflected by level of awareness, expectations and assumptions of the services, are barriers to users and non-users. Lack of awareness, poor expectations and negative assumptions of services were found to be the major barriers to the use of commercial Industrial libraries. Moreover, it was also evident that non-users thought of public libraries exclusively in term of books, not as information providers and had no comprehension of the diverse services offered.

A study of USA public libraries by ASLA/Gallup also showed limited perception of what was on offer. Ten per cent of non-users did not expect to find any non-reading services in their local library and 31 per cent could think of no additional services to books. Unprompted awareness of services was less than among users- 19 per cent of non-users mentioned reference services and 13 per cent magazine/newspapers services, compared to 37 per cent and 27 per cent of users respectively. One in five non-users named services already on offer, which might convince them to use a library. "Typical non users" are less likely to see public libraries as a source of information than other groups.

While assessing the young people attitudes and reading habits, Hill and Pain (1992) conducted a teenagers' survey; they found that low awareness forming a barrier to library use. This survey showed that all non-users thought the public library was for borrowing books, for reading, finding information or studying. "Two-thirds of the non-users thought they might

use the library if it provided the kinds of things they would like to see. But it was discouraging that several of their suggestions are in fact already provided but that these young people were unaware of it”.

ASLA/Gallup survey showed that lack of awareness even among users of additional services is a barrier to fuller library use. An awareness of service, such as interlibrary loans, book clubs, foreign language tapes and various reading and adult learning classes, was found in less than a third of US public library users, and usage of these services was even lower.

Erens (1994) indicated that thirty per cent of UK academic researchers did not know whether their central library has access to an external database service or not. Ten percent of teenage users of public libraries were unaware of a teenage collection in their library, a figure that raised to 21 per cent of 16-year olds the group holding the least favorable image of libraries and librarians (Hill and pain, 1988). On the other hand, Valentine (1988) stated that over generous perceptions of what libraries can offer could also form a barrier. The introduction of information technology products and services had led to false and unrealistic expectations, resulting in bad experiences and dissatisfaction. At the same time, it has created a more favorable impression of libraries and the range of services on offer – paradoxically leading to simultaneous growth in use, non-use and under-use of libraries’ services collections and staff skills.

ASLA/Gallup survey revealed that despite the majority using public libraries for book borrowing, some users use libraries in multiple ways so they increase their awareness of services offered. Users can name a wider range of services provided by their library than non-users. Regular users of non-print material were found to start using print material, and vice versa, in a library where the stock and catalogues of each type of material were not integrated.

Freedman (1985) found that in a specialist multidisciplinary hospital library, physicians were the core group of users, who use most of the library's collection and services. The lowest user group, nurses, had low awareness of the library because of initial barring in their first year and, in general, may had low expectations of libraries and assumptions of their relevance. Although now image may have changed very much, still this reflects that sometimes occupation, level of education, and the need for information may lead to great variation in using libraries.

To assess the level of user perceptions of library services effectiveness in Malaysian agricultural libraries, Majid *etal* (2001), investigated several factors, which are considered important in determining services effectiveness. The study investigated users' perception of library effectiveness with regard to a wide range of factors covering resources, services, and activities. It was found that libraries with adequate collections, equipment and physical facilities were considered more effective. Those respondents who kept in touch with scientific literature gave a better assessment to their library. Libraries involving respondents in the selection of library materials received a better assessment for effectively meeting the information needs of their users.

As stated by Majid *etal* (2001) respondents receiving notification of new library materials considered their library as effective. Similarly, respondents getting information on library services and facilities perceived their library as more effective. A relationship was also found between perception of library effectiveness and availability of materials, assistance sought in using library facilities, and communication problems with non-subject specialist library staff. Those respondents who had participated in user education programs gave slightly better assessments to their library.

No relationship was found between frequency of library visits and library use skills of the respondents with their perception of library effectiveness. Conveniently, located libraries were considered more effective in meeting the information needs of their users.

This study put more emphasis on information charge and user feedback studies as it stated that, information needs and expectations of library are continuously changing in the rapidly changing information scenario. Libraries need to re orient their collections, services and facilities to keep pace with these advancements. A shift to a user-oriented approach is quite evident from the recent library evaluation studies. User feedback is considered as a more reliable factor in measuring the utility and effectiveness of any library. The study concluded with some useful suggestions regarding the improvement of the user perceptions. The factors that influence the perception of library effectiveness are closely linked and interdependent, and, therefore, should not be studied in isolation. Investigating one or a few selected factors may lead to misleading results. It will be more appropriate to study all the related factors simultaneously to reach more reliable and dependable conclusions. Therefore, in order to improve user satisfaction and their overall perception of library effectiveness, libraries should exert more efforts to consider all possible factors associated with user satisfaction. Concentrating on or putting too much emphasis on a particular type of collection, service or facility may not lead to improved perception of library effectiveness (Majid, *etal* 2001).

At a regional level, there are some studies that dealt with the issue of users' satisfaction, Al Salim (1994) conducted a research in Saudi Arabia to assess and evaluate the reference services at the King Fahad Public Library, Riyadh. The study aimed at measuring the user perception and satisfaction about the reference services, and tried to point out the major problems that

encounter these services and recommend solution to improve this service. It was a field survey based on questionnaires and personal interview. The study revealed that the majority of the surveyed sample (83.63%) perceived this service as very effective, while only a small proportion of the sample (8-91%) believed that reference service at King Fahad public library as not satisfactory. The reasons behind this notion are the lack of qualified staff, the weakness of the reference collection. On the other hand, the reference section staff reported some difficulties they face, as that users inaccuracy in determining their information needs, and the short time they provide to reference desk staff to replay their queries. Most important recommendation of this study was; the need for more efficient bibliographic and promotional activities, intensify co-operation with other libraries and the adoption of the proper regulation for reference service.

In (1999) Al-Salim achieved another study to assess user services in the university libraries in Saudi Arabia. The study listed a number of problems that face user services, among them are the following: Lack of promotional and marketing activities of libraries in Kingdom of Saudi Arabia (KSA), especially those directed to user services; Low level of cooperation and coordination between KSA libraries. It is evident that most of the users are unaware of the services and facilities offered by the KSA university libraries. The study concluded with a number of recommendations. In this regards, library services promotional and marketing activities, improve the available services, i.e. to concentrate on user-oriented services, and to increase user orientation programs and encourage university staff to explain the library's role in research.

Al-Saree and *etal* (2002) conducted a field survey study among the KSA libraries to evaluate the present situation, assess user satisfaction, and to suggest some future trends. The study showed that the majority of the frequent users come to library to use library materials, namely books, check

out books, and read newspapers. Most of the frequent users showed their satisfaction with library working hours. Among the university library users, the majority stated that they face difficulty in finding information sources, they showed that this difficulty stems from the lack of qualified staff, lack of proper catalogues, poor library collections, and inappropriate library working hours. Regarding the perception of the users about staff effectiveness, more than 57% of the sample perceived staff as effective and 34% perceived staff as satisfactory, about 9% of the sample perceived the performance of the library staff as in effective.

2.4 User Perceptions:

User perceptions studies play a prominent role in keeping libraries aware about the level of their services as perceived by users. User Perception survey is an effective way to gather information about respondents' previous or current behaviors, attitudes, beliefs, and feelings. They are the preferred method to gather information about sensitive topics because respondents are less likely to try to please the researcher or to feel pressured to provide socially acceptable responses than they would in a face-to-face interview. Surveys are an effective method to identify problem areas and, if repeated over time, to identify trends. User perceptions studies are conducted in libraries to show mainly patterns, frequency, ease, and success of use. In addition, they provide information on user needs, expectations, perspectives, priorities, and preferences for library collections, services, and systems. Moreover, they highlight issues like user satisfaction with vendor products, library collections, services, staff, and facilities. Also and above all, they shed light on service quality and relevancy (Covey, 2002).

These studies are highly associated with the introduction and application of new services and technologies. Actually these studies are not a recent trends among the library literature, it dated back to the days of Shiyali R. Ranganathan (1892 –1972) and his well-known Five Laws of Library Science: Books are for use, Every book its reader, Every reader his book, Save the time of the user, Library is a growing organism. The first four laws reflect how important is the library users to the library. Some scholars called this trend of user studies as “ Userism” (Garlick, 2001). According to these laws, the library’s professionalism lies highly upon the satisfaction of the users, and in the relationship between library and its users. These five laws and many other studies are only examples of a quite user-orientated services and commitment among the librarianship profession. Therefore, there is a long tradition of “userism” in how the library field perceives itself and how users have perceived it. This trend of studies has grown stronger in recent decades, and reflected the development of a more general cultural and societal perception.

Libraries share survey results with the people empowered to decide how those results will be applied. The formality of the survey and the sample size also determine who will see the results and participate in interpreting them and determining how they will be used. High profile, potentially contentious survey topics or research purposes tend to be treated more formally. They entail the use of larger samples and generate more interest. Survey results of user satisfaction with the library Web site might be presented to the library governing council, which will decide how the results will be used. Data from more informal surveys might be shared strictly within the department that conducted the survey (Covey, 2002).

While measuring perceptions of customer services at the Australian public libraries, Garlick (2001) found results “clearly demonstrates the feasibility of gathering a great deal of useful and statistically significant data at

reasonable cost by means of a simple questionnaire administered as an exit survey at randomly selected times during the survey period”.

It was to assess public libraries from the user viewpoint that the Australian public libraries evaluation group was established in 1989. The group began collecting several output measures as a possible means of comparison, as well as providing an information exchange about best practice.

This customer satisfaction study provides an invaluable tool for valid performance measurement. The success of such studies, and of initiatives such as the public libraries benchmarking database, depends on a climate of trust and cooperation in which information is shared. Public libraries have been able to improve and develop their services on this basis over decades. It is to be hoped that they can continue to do so (Garlick, 2001).

Comparing the perception of the quality services at the US libraries, Michael and *etal* (2001), concluded, “there seems to be surprisingly little difference in the perceptions of the two groups of users as to the quality of library service received”.

Duke University Libraries in 2002 conducted a field survey to assess how faculty do and students perceive the quality of the service they receive at Perkins Library?

The survey depended highly on LIBQUAL+ as a research instrument. The LibQUAL+ is a research and development project undertaken to define and measure library service quality across institutions and to create useful quality-assessment tools for local planning. Service quality has always been a value for libraries. The ServQual instrument identifies three customer service quality perceptions: minimal, current, and optimal. The ranking of the current level of service relative to the minimal and optimal levels provides a gap, which is the basis for service quality analysis. Like

ServQual, LibQUAL+ focuses on user perceptions of the current level of service as well as the minimal acceptable level of service and what would constitute service excellence (McGovern, 2002).

Service quality was measured in the spring survey of Perkins Library users: Service affect-the human dimension of service quality; Library as a Place-physical facilities and the library as center of intellectual activity; Personal Control- interaction with the modern library, digital personalization, and navigation; Access to Information- the ubiquity of access, comprehensive collections, and formats of information. The survey results showed that “the more research intensive library use is, the higher the expectations and the lower the perceptions of service quality; of the four survey metrics, personal control is the one which respondents rate as most important; effect of service is the metric that registers the greatest degree of participant satisfaction” (Duke University Libraries Website, 2002).

The Cerritos Library puts a very high priority on meeting customer needs and providing experiences relevant to their lives, the information garnered shows the importance of continuing to collect customer input.

When Cerritos Library conducted a customer satisfaction survey, the responses paint a clear picture of what the library means to its users and what they would like to see changed so their future library experiences will be even more memorable and relevant. The major findings were: Customers emphasized the value of the wide variety of books and other materials as much as they did that of the computers and high speed Internet access.

Customers were amazed at how well the library provides a learning environment for both children and adults, customers also put the highest priority on its atmosphere, aquarium, book collection, children’s area, computers, comfort level, and wide variety of learning experiences (McGovern, 2002).

As always, customer surveys provide a mean to solicit views on issues about which even loyal customers remain less satisfied. Those issues mentioned most often were noise, parking difficulties, more convenient outside book return locations and the availability of onsite relevant services.

Al-Gahtani (2002) did a research, which focused on how potential users' perceptions of the information technology (IT) innovation influence its adoption. He investigated issues like why do users accept or reject information systems? How user acceptance is affected by system characteristics, perceived usefulness, perceived ease of use, and attitude toward acceptance behavior? The study findings indicate, "System features variable has the largest influence on IT acceptance, followed by perceived usefulness". Not only that but" ease of use and attitude towards acceptance were found to have an equivalent influence on IT acceptance".

According to Fernandez (2002), faculty members were asked about their research interests and the kinds of developments in current awareness they expect to see in the future. It is found that there is overall satisfaction with the way things are. Users also feel that they should not be expected to pay for these services. Results also indicate a tacit acceptance that there is useful information to be gleaned by using Internet search engines. User perceptions of future developments in current awareness services, particularly with regard to online journals, are well appreciated by the staff members. In summary, web resources have achieved prominence as faculty struggle to keep up with the literature. Results of this survey provide a snapshot of how faculty perceives current awareness services.

2.5 Perceptions of Information Technology:

Since the first introduction of the Information Technology (IT), it has been argued that all aspects of life have witnessed a wide spectrum of change and development; IT has led all professionals to rethink and reshape their

professional concepts, and attitudes. In the area of information services, a huge and unpredictable change and development have taken place by the introduction and application of the IT in the areas of information collection, storage, processing and dissemination. The impact of perceptions on IT application should not be underestimated. Although the impact of IT is generally considered positive and promising, but it also imposes some new challenges and conflicts, which need to be dealt with.

According to Lilley (2000), there is a conflict in the way that the library is perceived in the minds of both staff and users. This conflict, between the traditional role of the service and the new directions it is taking, is most evident in the consideration of IT. The sheer volume of references made to IT by both user and staff respondents illustrates the importance of this issue to the public library service both now and in the future. Users expect the service to provide more IT (and overall they think it is a valid role for the service), even if they themselves do not like it very much.

While Lilley (2000) studied the relationship between expectations and the public perceptions of public library services, he stated that, the feeling that IT is good for the service and the expectation that it should be provided was almost universal. He added further, the introduction of the IT is always associated with more expectations in the provision of IT and services; however once expectations are raised, particularly it would appear in terms of the provision of IT, those expectations increase rapidly. Once one computer appears in the library another is expected. One CD-ROM starts to materialize, it is expected that the Internet will follow. At least this is what staff perceived user expectations in particular could be raised by outside agencies.

On the other hand, if IT expectations are easily created when they are not met, a negative deception may well result. Moreover, IT poses a dilemma for the service. There is a potential conflict, between traditional and future

directions for the service. The impact of this, in terms of expectations and perceptions, cannot be underestimated (Zeithaml and Bitner, 1996).

It is also evident that librarians' perception of the IT is somewhat confused about which direction the service needs to take. The development of IT is regarded inevitable but the forms and degree with which it should be embraced were only debated. Most of librarians stated that "IT is a challenge that library world needs to face if it wants to be relevant to the next generation". It is revealed that librarians like users, expect IT to be a part of the library service. In addition, regard it as a valid role for the library to fulfill however, the definitions of IT and the levels at which it should be provided differs vastly between individuals (Lilley, 2000).

The IT is not only seen as an independent factor that influences library future and development, but also it has been perceived as one of the major factors that increase library effectiveness. While assessing user perceptions of library effectiveness in Malaysian agricultural libraries, Majid *etal* (2001) found that, those respondents who gave the highest assessment for the adequacy of Online Public Access Catalogue (OPAC) terminals considered their library as very effective. Perception of library effectiveness declined steadily with the decrease of assessment for OPAC terminals adequacy. Majid went further to state that, on contrary, those respondents who gave low assessment to the adequacy of various library equipment considered their library as "ineffective" or "very ineffective". Therefore, it appeared that the availability of appropriate types of library equipment in adequate numbers contributes in shaping the opinion and perception of users about the effectiveness of their library.

Coles' study of IT in UK public libraries (Coles, 1998) identified evidence of a wide and disparate group of library users who in turn displayed a

variety of attitudes toward IT. The study revealed that although attitudes were generally positive towards the use of computers, people were concerned that without regular access to computers they would be unable to keep abreast of technology. The study identifies public libraries as being the only viable option of access to IT for some. Coles concludes that public libraries have successfully promoted the book and reading since their inception. A continuation of that success must be in the promotion of the benefits of computers, in particular digital information sources and community networks.

Research that is more recent carried out by Sheffield University and Somerset Training and Enterprise council has suggested that developments in IT have resulted in some confused perceptions of the public library service (Lilley and Usherwood, 2000).

The Value and Impact of Information Technology Access in Libraries Project (VITAL), funded at the beginning of 1999 by the then UK Library and Information Commission, set out to design a methodology for assessing the impact of information and Communication Technology services in public libraries. The aims of the project as cited on the project website (2000) were: to develop and implement methodologies suited to the evaluation of end-user, IT based services offered by public libraries; to gather and disseminate information on the value of such services and their impacts and; to advise policy makers on the value and impacts of different services and of how values and impacts can be measured.

Out of the 1500 distributed questionnaires, 1041 were returned (Eve & Brophy, 2000). Regarding the attitudes to IT, provision all respondents were asked to sample rate the importance of providing computer facilities in public libraries; 96% across the sample rated this as very or quite important. When asked to consider whether IT facilities are: a) vital; b) an

add-on service; or c) an unnecessary expense again very few users. Around 4% across the sample considered them unnecessary, mostly due to the belief that people already had their own PCs, and therefore did not need to access such services in the library.

This study showed that half of those answering overall considered IT facilities as a vital service. Aside from the 3% regarding facilities as unnecessary, the remainder (47%) considered provision of facilities and add-on service.

According to Eve and Brophy (2000), the interesting results found is the level of importance placed on IT provision by library users who, for various reasons, do not actually use those services themselves. Among IT users, as would be expected, IT was perceived as vital by the majority of the sample.

Non – IT users were also supportive of the provision of IT facilities. Just over half across the sample considered IT as an add-on service, but a significant proportion of the sample considered it vital. Despite the regional differences, the figures indicate a high level of support for IT facilities in libraries by both users and, significantly, non-users.

Eve and Brophy (2000) tried to get answers to the question: what are the factors that affect IT usage inside libraries? It is found that very few respondents indicated that a lack of available help was the reason for non-use. The study showed that the majority of IT users also had access to facilities outside the library mostly at home, although access was also available at work or at an educational institution. Therefore, although non-users of IT in the library were most likely to find access elsewhere as their reason for non-use, the majority of those using library IT facilities do so despite having access to IT at other locations.

According to Eve & Brophy (2000) the question, “How would the withdrawal of computer facilities affect you?” yielded answers which gave

greater insights into the value and impact of IT access for this group of users. Over 80% of IT, users answered this question, and although some indicated that loss of the facilities would not affect them particularly badly, many would be quite negatively affected either having to find access elsewhere, paying more for access, or having to travel to find access.

According to Eve & Brophy, the VITAL project illustrated that libraries are increasingly becoming important locations for accessing IT to support a range of activities, from formal study to job seeking to building and maintaining social networks using the Internet. Patterns of usage will probably continue to vary as the needs and priorities of different regions and users are accounted for.

Evidence suggests that libraries are popular locations for IT facilities and that support for fulfilling this role is very high amongst public library users, whether or not personal use is made of the services on offer.

As Prado (2000) examined the issue of how users perceive and use IT devices, he stated that, “the first contact takes place at the information desk in the cyber library, where many screens of community information, machines for electronic cards, optical pencils and winches with access control. Probably, the user is forced to spend time reading instructions about machinery that he does not need. In addition, if the instructions are not clear then he/she will overlook the presence of a person there who can alleviate his fears. User might even turn around and leave the library before entering.

Prado argued that the introduction of the IT might perceive as a source of confusion to the traditional library users as he stated, “the use of OPAC as an important tool for searching the collection causes three types of problems to the traditional library user”. According to Prado, “the use of OPAC requires certain techniques such as how to open the computer, or

choose screen, to use the keyboard, and the mouse, etc. Users are not only required to learn these skills, but also they have to inform the system about what they want, so the computer can locate the answer". If the system is badly informed, the user will be "punished" with huge amount of irrelevant information. Prado calls the problem a "technical Problem", another problem presented by library users when they use the IT is known as "terminological problems". This problem stems from the fact that search into OPAC should be executed with what is known among librarians the controlled language. Nevertheless, library users, on the other hand, are not familiar with this language. The selection of search terms constitutes the key to one of the most serious problems, which the users face; search terms should only be in a coincidence with the controlled language to get satisfactory results. By the strategic, confusion, Prado referred to the last stage of the use of OPAC, i.e. what search strategies, should the user apply. It is always said that there are as many strategies of searches as people. At higher levels of training, skill and experience enable more sophisticated strategies to be produced. Some users apply title search, others use author search, and others use key words, which means that the strategy varies according to the knowledge, and experience and training. Another search strategy is browsing, which allows one to browse the database in the same manner as is done with the bookshelves. The advantage of browsing is that it is exhaustive, and the drawback is that it is too noisy (i.e. leads to irrelevant documents) and redundant.

Peh (2001) conducted a research to evaluate the students' perceptions of online learning at Singapore Temasek Polytechnic's Virtual School of Business Project. (VBUS).

This study attempted to examine the perception of students regarding online learning through the VBUS project to determine if it indeed helps students learn and perform better. The findings support the observation that

VBUS helps only a certain profile of students, specifically those who place a strong emphasis and effort on their studies. These students are characterized by their higher frequencies of access to VBUS, spending more time interacting with VBUS, and studying more for their subjects than other students. Weaker students appear to perceive VBUS less favorable, some even viewing it as an added burden to their workload.

The key variables that may contribute to a positive perception of VBUS are likely to be familiarity and competency. Students who frequently access VBUS become familiar with the system. Once accustomed to VBUS, they are able to navigate through the course materials with ease, and, in turn enjoy a higher level of appreciation and satisfaction in using the systems and learning from it.

2.6 Conclusion:

With regard to all above cited studies, it is obvious that perceptions play an important role in shaping judgment and reactions, it is found that, in some cases, misperception is forming barriers to library use. Moreover, the role of librarianship as a profession is highly affected by the way the users receive the library services. Lack of awareness about library roles and potentials is always affecting the image of librarians among users. Frequent interactions between librarians and users also lead to positive images and perceptions about library services and librarians' position among users. It is also found that library services are highly affected by the concept of "snapshots". Furthermore, the self-image of librarians about their role is also found important in shaping the perceptions of the users about the librarians' role. In addition, it is evident that age group, cultural, social, as well as personal backgrounds, have major impacts on the perceptions of library services. Furthermore, the introduction of IT is proved to be highly associated with more services expectations, and it is found that library users are highly supporting the introduction of IT in libraries.

Chapter Three
Information Technology and
Library Services

Chapter Three

Information Technology and Library Services

3.1. Information:

It has always been argued that IT has led to real charges in library services all over the world, new dimensions have been explored, and new challenges have been faced. The impact of IT on library services is seen in almost all aspects of library work. Here are only some examples for these impacts. The lack of space was a critical problem that faces libraries since long time age. Computer technology has opened up tremendous possibilities for reduction because of the storage capacities of computers in or outside the institutions.

Another feature of computer technology is the speed with which large quantities of data can be manipulated. This offers a possible solution to the problem of retrieving a small number of relevant documents from among the thousands available on the subject of interest to the user. The efficiency of communication channels means that the content of documents may be accessed in a very short time regardless of their physical location and the opening hours in different time zones.

According to Herbo (2001), one of the first uses of computerization in libraries was for the compilation of library catalogues. At first computers were used as a part of the printing process, and later they entered into the process of designing online catalogues. Large indexes and abstract publication have followed a similar path, going from print, to print via computer, to online and to CD-ROM. Computer technology has also led to the development of search tools such as citation indexes and concordances, which are produced automatically.

The data storage capacity of computers has made it possible to store not only the bibliographic data on a publication, but the full text of the publication itself. Moreover, the originally printed or even hand written texts are scanned and digitized, thereby making the works of great authors available to all. The texts can be read page by page or, by searching with a combination of words, certain parts can be selected.

Not only the storage, space and search tools, but also Herbo, (2001) argued that IT might contribute to some of the daily routine and technical works of libraries. Circulation Desk, pricing documents, ordering books, and cataloguing as well as classifying documents can be achieved with high level of computer assistance. If we consider the use of computers in libraries as a revolution, the networking of computer networks, as known as the Internet, is also considered as a revolution of similar importance, with more impacts and implications.

The system of e-mail provides a communication facility, which largely replaces the traditional mail and fax systems formerly used by institutions, thus saving time for the user. Internet can be regarded as a huge reference base, with all types of information available, either as metadata or full text, sound and images.

The Internet is useful in many daily activities involving the transmitting of information. There are many kinds of useful sources of information for education and research on the Internet. Such activities can be said to have laid the foundation for the worldwide electronic information and communication networks. Individual institutions also have the opportunity to create their own websites to inform users about their services and to

guide them through the organization. Different Web sites are linked together so that an entry or access point will lead on to several others.

Moreover, the Internet has made new activities possible, Electronic conferences or informal discussion groups can be arranged with limited or open access, and surfing on the net has become the equivalent of zapping on the television or browsing through the shelves in the library.

However, all these diverse web-based resources the Internet is considered of great educational and training value to the librarians. Many full text professional materials, conference proceedings, manuals, directories, and procedures as well as policies are available online for users (Chen, 1998).

This chapter will review the major features of information technology, and the major impact of this technology on library services.

3.2. CD-ROM Technology and Library Services:

CD-ROM has been defined by Levey (1994) as compact Disc-Read Only Memory. A disc similar in form to a music compact disc, which stores and reads large amounts of data. Once a compact disc is produced, the data cannot be changed in any way nor can new data be written on to the disc.

CD-ROM has been considered by the site: "whatIs.com" as an adaptation of the CD that is designed to store computer data in the form of text and graphics, as well as hi-fi stereo sound. Philips and Sony in the 1983 Yellow Book defined the original data format standard. Other standards are used in conjunction with it to define directory and file structures, HFS (Hierarchal File System, for Macintosh computers), and Hybrid HFS-ISO. Format of the CD-ROM is the same as for audio CDs: a standard CD is 120 mm (4.75 inches) in diameter and 1.2 mm (0.05 inches) thick and is composed of a polycarbonate plastic substrate (under layer - this is the main body of the disc), one or more thin reflective metal (usually aluminum) layers, and a lacquer coating (whatIs.com, 2002).

CD-ROM disk needs a special drive, called CD-ROM drive, to transform the data recorded on the disk to human readable form. The CD-ROM drive is connected to a computer, most often to a microcomputer. The laser beam, as the read head of the drive, reads the data. CD-ROM is a read only memory (ROM); the user cannot store his own data or change the data on the disk. The data on disk is in digital form. It can be a collection of text, graphics and images (whatIs.com, 2002).

The introduction and implementation of the CD-ROM technology in library and information services have brought some major impacts on service delivery for libraries and information centers.

According to Keylard (1994) In the academic world, lack of access to scientific literature generally results in duplication of research efforts. For researchers working in industry, not consulting scientific information can have disastrous consequences; think of inadequate patent information or investing in research strategies that have been proven to fail in the past. Estimates on the losses directly resulting from duplication of research are difficult to obtain, for no research institute or company has great appetite for publishing these figures. Now and then, however, estimated are published, with illuminating results; in the European Community's private sector, it is estimated that 15 billion US Dollars are lost annually because of duplication research.

Because of the information explosion, the industrialized world has been saturated with huge amounts of readily available information. Information seekers in many developing countries, however, had virtually no access to the large computerized information sources, which had resulted in the emergence of an information gap between the North and the South. Online access not only involves high costs in accessing and searching a particular

database, but also includes telecommunications costs. In additions, in many developing countries, the lack of an appropriate telecommunication infrastructure has made it difficult or impossible to establish online connections (Compton, 1994).

The compact disc had been successfully launched in the audio industry in the early 1980s. The same disc, however, was also capable of storing enormous amounts of data. Thus, database producers who generally distribute their information products in two ways on paper and through an online connection were confronted with an opportunity to offer their information products in two ways on paper and through an online connection were confronted with an opportunity to offer their clients a new way to access their products; the compact disc. Entire databases could be stored on one, or in the case of extremely large files multiple discs, at a relatively low cost. The economics of producing these CD-ROMs are favorable because the discs can be manufactured using the same facilities as those used for producing audio compact discs. Consequently, all kinds of databases in the fields of health and medicine, agriculture, sciences, and humanities have been published on CD-ROM (Keylard, 1994).

CD-ROM technology provides great impact on the library materials storage. One of the most obvious uses of CD-ROM is the direct replacement of large reference publications, such as directories, bibliographies, dictionaries, medical reference books, statistical studies, encyclopedias, etc. All reference publications have been made available through CD-ROM for users in academic, public and special libraries. It seems that not only library services that make use of the CD-ROM technology but it is also evident that professionals in many areas were able to use CD-ROM in the storage and retrieval of information databases. Lawyers, for example with their enormous legal reference libraries and indexed references are ideally suited to CD-ROM. The same applies to

doctors, for example, Occupational Health and Safety (OHS-ROM) contains databases from National Institute for Occupational Health and Safety and Health Information Center of International Labor Organization. OSH-ROM is a bibliographic database with abstracts covering toxicology, epidemiology, chemistry, industrial hygiene, ergonomics and control technology (Heimburgen, 1988). Figure (1) shows the wide range of applications provided by CD-ROM technology, as well as the list of users. Compton (1994) has reviewed the major advantages of the CD-ROM technology. The first advantage is storage capacity, as a CD-ROM disc can store up to 660 megabytes of data, which would fill more than 1800 floppy disks or store the amount of text that fills 330,000 pages of paper.

CD-ROM gets merits by its durability, as only severe damage can make a disc unreadable, as ROM means read only memory, the data on a disc cannot be tampered with, changed, overwritten or erased. That means CD-ROM discs are not susceptible to computer viruses.

Furthermore, CD-ROM technology is characterized by low mailing costs.

A CD-ROM disc weights 20 grams. The 1,800 floppy disks would take up about 1/10 of a cubic meter, and those 330,00 pages would weigh almost two metric tons. Certainly, the shipping cost of a single CD-ROM disc is less expensive. In addition, CD-ROM discs do not require special handling or packaging. In addition, to use the CD-ROM no telecommunications are needed. Access to computer databases by telephone links can range from impossible to prohibitively expensive in many countries. A computer modem is necessary, as well as telecommunications software, an adequate phone line, and considerable phone charges. CD-ROM bypasses all these problems as the CD-ROM disc can be accessed directly by the computer (Compton, 1994; 2).

One more advantage of the CD-ROM is accurate budgeting, as the CD-ROM subscription is usually made on annual basis, which gives the user an unlimited access to that database. The last advantage of the CD-ROM is the user-friendly format i.e. it can be used directly by an end-user researcher, who actually needs the information. A CD-ROM system offers direct access to a database that, if accessed by a librarian via telecommunications, would be very costly (Compton; 1994; 3).

In the same area of concern, Dr. Radia Adam (1990) made a comparison between the CD-ROM, printed and online formats. She stated that CD-ROM has many merits over the print text and perhaps online services. CD-ROM is stylish and relatively easy to use, once a few basic ideas and concepts are mastered.

CD-ROM is user friendly: Menu driven systems are designed for ordinary users, while the command driven alternatives are there for the sophisticated users. CD-ROM is far superior to use of the printed media in terms of speed, immediate presentation of result, versatility, effort, time, comprehensive coverage and the value of the end product- the result obtained (Adam, 1990; 26)

Adam (1990) raised some major points in that comparison as she mentioned, CD-ROM, however, does not fare as well in comparison with online searching. Amount of material accessible through online searching gives access to dozens or hundreds of databases whereas CD-ROM usually gives access to only one database per subscription. Currency of information: online services usually are up-to -date, being only days or weeks behind the initial processing of new information, but with CD-ROM subscribers quarterly updates. Method of payment: With online searches, you pay following use and then you start crying, as the services are very expensive, especially for remote areas: with CD-ROM, you pay first and can use it as much as you like with the result that the cost per use can be much lower than online searching. Equipment: online searching requires

only one computer or terminal with a modem and printer; CD-ROM, on the other hand, requires a computer, CD-ROM player, and computer interface card for each workstation.

Number of persons served at any time- both serves only one user at a time unless multiple machines are supplied (Adam, 1990; 26).

Still, overall, CD-ROM has many positive merits and the potential for an overwhelming positive impact.

On the other hand when investigated the major disadvantages of the CD-ROM technology, Compton (1994), mentioned that the subscription to the CD-ROM databases is expensive. In addition, the cost of the CD-ROM drive is an initial cost, also he mentioned that CD-ROM with time will get obsolete and compared to the online search they are little slow.

In addition, Adam (1990) mentioned cost, queuing, standardization, variety of instructions, and quality of indexing as the major limitations that face CD-ROM application in library services.

Having in mind that this article was written in 1994, there are major differences in the CD-ROM capabilities and facilities, and there is a considerable difference in the cost of CD-ROM devices and databases as prices of the information technology are witnessing a rapidly drop.

When evaluating the role of the CD-ROM technology in library and information services in the third world it is evident that this technology has contributed positively to closing the gabs between the scientific and research community in the developed and developing countries.

3.3. The Internet:

3.3.1. What is the Internet?

The Internet is a sort of worldwide co-operative society composed of a multitude of dispersed networks, in which individuals and social groups develop independently of any specific place, culture or country. Boss (1998) described the Internet as “a worldwide network of networks connecting hundreds-of-thousands of computers with a common set of communications protocols. Of these protocols, the most important is Transmission Control Protocol/Internet Protocol (TCP/IP), which is used as the standard for connecting computers within organizations”.

The earliest experiments in what later became the Internet began in 1966 with the United States Department of Defense Advanced Research Projects Agency (DARPA). The first node in the resultant ARPANET were created in 1969. In 1977, the TCP/IP protocols were demonstrated for the first time. In 1989, the National Science Foundation (NSF) created the first NSFNET backbone and allowed regional networks, mostly supporting universities, to feed into this backbone. By 1990, the Internet was supporting the commercial activities. Even after all this growth and development, the basic TCP/IP protocols remain in use and still serve to unify the Internet. In March 1989, the first World Wide Web (WWW) proposal was elaborated and circulated at European Laboratory for Particle Physics (CERN) in Geneva, Switzerland, and in November 1990 the first prototype Web browser was created (Boss, 1998).

The Internet has no owner. It is managed by a community of users, and finances its operating costs via its members, who pay connection fees to *hubs* (or network nodes). The Internet has become a tool for use by the public and by private users, whereas it was initially designed to provide a communication medium for military and, subsequently, academic use

(UNESCO, 1999). Internet has witnessed an explosive growth. It is said that the number of users is increasing every minute.

Telcordia Technologies website (2002) has established online real time counter to watch the growing number of the Internet users and hosts. At the time of writing this sentence (23/05/2002) the number of the Internet users is “788,968,157” and the number of Internet hosts is “194,134,091”. However, there are three major Internet capabilities: electronic mail; remote login (telnet); and file transfer.

3.3.1.1. Electronic Mail Services:

By enabling the immediate exchange of information with colleagues and participation in online interest groups, electronic mail facilitates formal and informal communication and enhances cooperation and collaboration in research and writing efforts. In addition to electronic correspondence capabilities, network users have access to hundreds of news and interest groups on a host of subjects. Network interest groups offer an outlet for ideas and opinions and serve as a resource for posing questions to others on the Internet. The electronic mail standard used by the Internet is SMTP (Simple Message Transfer Protocol). Increasingly the vendors of automated library systems are incorporating SMTP into their products so that they can interface with the Internet's e-mail function (Boss, 1998).

The UNESCO's Information and Communication Report (2001) cited a few figures that give some idea of the use of the electronic mail and its scale: between 2 and 3 billion messages are exchanged every month around the world. Approximately 75 million people are equipped with an electronic mailbox.

3.3.1.2. Remote Login (Telnet):

The Internet telnet protocol allows a network user to access a remote computer and use it interactively as if the local computer were a terminal of the remote host. Telnet requires minimal bandwidth; a 14.4 Kbps modem is sufficient. Telnet provides access to online library catalogues, online reference services, and other online resources; however, the increasing use of graphics on the Internet means that telnet users are at a distinct disadvantage (Boss, 1998).

3.3.1.3. File Transfer:

The site (whatIs.com, 2002) defined the File Transfer Protocol (FTP), as a standard Internet protocol that forms the simplest way to exchange files between computers on the Internet. Like the Hypertext Transfer Protocol (HTTP), which transfers displayable Web pages and related files, and the Simple Mail Transfer Protocol (SMTP), which transfers e-mail, FTP is an application protocol that uses the Internet's TCP/IP protocols. FTP is commonly used to transfer Web page files from their creator to the computer that acts as their server for everyone on the Internet. It is also commonly used to download programs and other files to your computer from other servers.

A user can use FTP with a simple command line interface (for example, from the Windows MS-DOS Prompt window) or with a commercial program, that offers a graphical user interface. The Web browser can also make FTP requests to download programs, as selected by a user, from a Web page. Using FTP, a user can also update (delete, rename, move, and copy) files at a server. Just the user has to logon to an FTP server (Boss, 1998).

The Internet File Transfer Protocol (FTP) allows network users to download files from databases residing at other sites. With any anonymous connection, users gain access to valuable data in "archives" on a wide variety of topics. Supreme Court decisions and opinions, public domain

computer software, medical resources, and public polling data are examples of the sort of information that can be obtained via FTP.

3.3.2 World Wide Web:

The most significant aspect of the Internet beginning in the mid-1990s was the World Wide Web (WWW). The Web refers both to servers on the Internet and to a body of information--an abstract space of knowledge. The Web has been described as a wide-area hypermedia information retrieval initiative aiming to give unlimited access to a large universe of documents. Web operation relies on hypertext as its means of interacting with commercial users.

According to Turban (2002), hypertext is the same as regular text; it can be stored, read, searched, or edited--with one important exception: hypertext contains connections within the text to other documents.

In a hypertext system, the user could then retrieve one or more documents related to hypertext, such as a history of hypertext or Webster's definition of hypertext. These new texts would, themselves, have links and connections to other documents. Continually selecting text would take the user on a free-associative tour of information. In this way, hypertext links, called "hyperlinks," create a complex virtual web of connections.

Hypermedia is hypertext with one difference: hypermedia documents contain links to other not only pieces of text, but also to other forms of media, for example, sound, image, and video. Moreover, images themselves can be selected to link to sounds or documents.

There were tens-of-thousands of Web servers in use throughout the world in late 1997. The number was growing at the rate of hundreds per month.

Each server has a "home page" to which are linked other Web pages containing information (Turban *et al*, 2002).

3.3.3 Web Browsers and Search Engines:

There are two major software products, which facilitate access to the Web: Netscape's Navigator and Microsoft's Explorer. These Web browsers, which build on the earlier gophers, provide a common user interface for accessing the wide range of web servers. These user interfaces have proved to be so popular that a number of vendors of automated library systems are offering Web user interfaces to their online patron access catalogs (Boss, 1998).

Navigating one's way through tens-of-millions of Web pages requires more than a browser. Search engines facilitate identification of information on the Web.

Search engines are the key to finding specific information on the vast expanse of the World Wide Web. Without the use of sophisticated search engines, it would be virtually impossible to locate anything on the Web without knowing a specific URL, especially as the Internet grows exponentially every day.

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 (Turban, 2002; 215).

There are three types of search engines: Those that are powered by crawlers, or spiders; those that are powered by human submissions; and those that are a combination of the two.

Crawler-based engines send crawlers, or spiders, out into cyberspace. These crawlers visit a Web site, read the information on the actual site, read the sites Meta tags and follow the links that the site connects to. The crawler returns all that information back to a central depository where the data is indexed. The crawler will periodically return to the sites to check for any information that has changed, and the administrators of the search engine determine the frequency with which this happens. Human-powered search engines rely on humans to submit information that is subsequently indexed and catalogued. Only information that is submitted is put into the index (Turban, 2002).

In both cases, when you query a search engine to locate information, you are actually searching through the index that the search engine has created; you are not actually searching the Web (Ziener, 2001).

Actually, there are many known search engines highly used by Internet users. Most common are Google, Yahoo, InfoSeek, AltaVista, Exite, Alltheweb, DogPile, and Copernic.

According to Cathro (2002) the quantity of information on the World Wide Web multiplies rapidly, it will become increasingly difficult to retrieve information, with reasonable precision and recall, using the major search and harvesting engines. The use of metadata, combined with the use of improved harvesting processes, has the potential to improve retrieval of these information resources.

The Dublin Core standard has been developed as a universal general metadata set, which will support retrieval of a wide range of information resources. There is an active, current process to develop and refine the Dublin Core standard, and a number of projects, which deploy the standard, are now underway. There is a lively debate about the extent to which the

standard needs to develop more rules about the content and structure of its data elements (Cathro, 2002).

In the mid-1990s, some large organizations began to use Web browsers and search engines on their local networks, leading to the coining of the term "Intranet." While this offered experienced Web users a familiar user interface, it also meant that frequently more powerful search software fell into disuse.

3.3. 4. Web-Based Resources:

For the purpose of this research, by the term "Web-Based Resources" we refer to all web sites and web pages that containing useful information relevant to librarians, and information specialists. These resources are ranging from directories, manuals, full text journals, guides, policies, procedures, as well as the materials from the professional associations and organization. Actually, it is impractical and almost impossible to cover all these resources, rather we will provide some examples for these resources to shed some light about their value and importance to library services effectiveness.

3.3.4.1. Online Public Access Catalogues (OPAC):

It has always been argued that the Internet is representing a true revolution regarding information access and retrieval. For the first time in history, users in any part of the world can access all types of information independent of its physical storage or of computer system used.

The Internet with its huge web based resources provided a wide range of potentials for the users. In the field of library and information service, a large number of resources are made available to the librarians and library

professionals. The long list includes the Online Public Access Catalogue (OPAC), databases, Electronic journals, electronic books, manuals, reference materials, mailing services, etc.

The World Wide Web is perhaps the most notable example of a far-reaching element that librarians neither predicted nor planned for. Not available before the early 1990s, but impossible to ignore by the late 1990s. From 1989, when Tim Berners Lee and other at CERN developed a hypertext system, the Web grew from about one percent of backbone traffic in September 1993 to about 20 percent by 1995 and has continued to expand dramatically even since. The web became the focus of the Internet in 1993 when the graphical browser Mosaic was introduced and followed by Netscape Navigator and Microsoft's Internet Explorer. By January 1996, there were an estimated 90,000 web sites on the Internet, and the Web is doubling in size every fifty days with a home page added every four seconds". An OCLC announcement in September 1999 states that there are 3.6 million Web sites of which 2.2 million are accessible to the public (Miller, 2000).

One of the best examples for the web-based resources is the Online Public Access Catalogue (OPAC), which provides access to library catalogues and enables users to search them interactively. The implementation of automated OPACs has clearly been influenced by developments in IT, much in keeping with the OPACs' status as information resources. In principle, any innovative environment is expected to produce innovative products, in form as well as in function.

First generation OPACs adapted a new technology, but did not improve upon traditional manual catalogues, of which they were a true reflection (Ortiz-Repiso, 1999).

Ortiz-Repiso, (1999) argued that the recent generation of the OPACs has been in more user-friendly formats. This through the use of simple options that do not require command language or function keys that can be difficult to understand. User does not need to memorize instructions or learn the rules of a complex syntax. Likewise, users encounter interfaces that are governed by uniform criteria, although they may have different designs. This is especially apparent when web based catalogues are compared to the multiplicity of interfaces that give access to the same catalogues via telnet. In the latter, form screens, menus, and commands coexist, giving way to what have been aptly called “docu-islands,” in reference to the incompatibility of electronic documents (Gorman, 1999).

The catalogue, when integrated into the global information system of the library as well as into that of the organization or center to which the library belongs, becomes a subsystem of a system. In turn, this system is a subsystem of another larger system thus leading to the globalization of information, the basic principle of the Internet. On the other hand, the catalogue available via telnet has become an isolated resource, incapable of being completely integrated into its surroundings.

In addition, web-based catalogues are accessible from different points within the network, thereby giving users access without their needing to know a specific address and its respective password. This flexibility certainly contributes toward a wider use of the catalogue and, the greater the use, the more familiar users will become with the system thereby, and aiding in minimizing frequently cited mechanical and conceptual problems. Using different catalogues also helps on to understand their structure and organization. (Ortiz-Repiso, 1999).

Users of Web based catalogues find themselves more familiar with interfaces, since a large part of this public is also using the Internet. Therefore, they find Web pages to be comfortable, easy, and familiar to them. This uniform access to different types of information available in the Internet leads to a greater use of these catalogues. (Gorman, 1999)

In addition, the possibility of using the very tools of the Web to facilitate operations such as downloading records and sending results and messages electronically reinforces the usefulness of the catalogue as well as the positive perception that the end user has of it.

Ortiz-Repiso (1999) elaborate in the features of the Internet and its impact on the OPAC as he stated one of the most distinguishing characteristics of the Web is the ability to use hypertext links. This nonlinear access to information that hypertext permits is a very valuable feature in library catalogues, where creating associations is present even in the traditional manual catalogues through “See” and See also” cross-references. The use of electronic links enriches the access to information, makes information retrieval multidimensional, and allows for a greater comprehensiveness through established headings.

Web-based OPACs offer a simplified access to different documents related to another by a common feature, such as author, title, subject, or classification number. Nevertheless, these links are only on a surface level, since the structure of the formats in which the database is created remains unchanged. The OPACs themselves were not conceived within a true hypertext environment, but rather they maintain the structure of their original formats, principally Machine Readable Catalogue (MARC), and therefore impede the generation of a structure of nodes and links. Even in cases in which links between authors, subjects, and titles exist, there is no

hope for any linking other than mere matching for example, books of the same author, subject, or similar words in the title (Gorman, 1999).

OPACs do not offer only what mentioned but also they have many other features, Gorman (1999) stated that in OPAC users do not need to search with the “main entry” concept, OPACs have provided a wide range of indexable terms with same level of importance. It is evident that any of the title, author, ISBN, or key word, can act as a search query for finding a document. The introduction of the new technology enables users to recall a bibliographic record with multiple access points of equal importance for information retrieval.

Actually the introduction of web based OPACs has made real contribution in accelerating resource sharing among libraries and librarians, it has put a real push to the interlibrary loans programs, document delivery services, export and import of bibliographic records, and above all the wide spread existence of OPACs has contributed lot the production of a high quality level of the technical processing. It is argued that in the era of the web based resources; it is very rare for librarians, in developing countries to practice original processing i.e. classification, cataloging, indexing and abstracting. Most of librarians now tend to download, import and purchase and, if these are not available, they at least can copy and paste the bibliographic records form the web-based OPACs.

Having in mind that the large national and university libraries are employed a highly qualified and experienced staff; this would lead at the end to produce a high quality technical processing, which will be available for all librarians over the world.

3.3.4.2. Professional Associations:

The Internet provides large number of website of the professional associations and organizations with the interest of developing the library services worldwide. Actually, it is very difficult to list all these organizations, rather we provide two examples:

3.3.4.2.1. Online Computer Library Center (OCLC): www.oclc.org

OCLC founded in 1967 by university presidents in US to share library resources and reduce library costs. OCLC introduced an online-shared cataloguing system for libraries in 1971 that today is used by libraries around the world. The Interlibrary Loan service was introduced in 1979 and since then it has been used for more than 118 million loans among 6,928 libraries around the world. The FirstSearch service was introduced as a reference tool in 1991 and is now used by 19,246 libraries. OCLC is a nonprofit membership organization serving 41,000 libraries in 82 countries and territories around the world. The main objective of OCLC is to further access to the world's information and reduces library costs by offering services for libraries and their users. Membership in OCLC is a unique cooperative venture, giving your library global access to all services and databases, including WorldCat. Together OCLC member libraries make up the world's largest consortium.

OCLC offers a full range of services to meet the needs of libraries of all sizes: Cataloguing tools, Reference databases and online searching services, Resource Sharing tools, Preservation services, etc.

OCLC services include access to WorldCat database. WorldCat is the most consulted database in higher education worldwide, it holds over 47 million cataloging records created by libraries around the world, with a new record added every 15 seconds, spans over 4,000 years of recorded knowledge with 400 languages represented, and Includes 852,109,449 location listings.

3.3.4.2.2. IFLA Website: <http://www.ifla.org>

The International Federation of Library Associations and Institutions (IFLA), is the leading international body representing the interests of library and information profession, i.e. it is the global voice of the library and information profession.

IFLA was founded in Edinburgh, Scotland, in 1927 at an international conference. It has 1622 Members in 143 countries around the world.

The realization and results of the research, projects and activities and IFLA's professional groups are reflected in the publications of IFLA. The series, IFLA Professional Reports, features guidelines such as School Libraries: Guidelines for Competency Requirements and Library Services to Deaf People, reports of professional meetings and bibliographies of IFLA Conference papers. Various professional topics make up the themes of the IFLA Publications. Most of these publications are available online at the IFLA's web site.

3.3.4.3. Electronic Discussion Lists:

An electronic discussion list is the name for a worldwide group of people with a common interest who conduct an ongoing discussion over the Internet using email. New discoveries and research are often discussed on these lists, which tend to be populated by enthusiasts and experts in the field.

Discussion lists are also known as email lists, mailing lists, electronic conferences or listservs. There are a number of different computer programs under which discussion lists are run. The best known is ListServ, ListProc, Majordomo and Lyris.

Membership of such lists is free. Once you have joined (or "subscribed") every message that you send to a list automatically goes to everyone who is a member of the group and every message that anyone else sends to the list will automatically come into your mailbox. One word of warning - some

of these lists can generate many messages a day and you need to be disciplined about checking your mailbox regularly and using the delete button.

Throughout the Internet there are thousands of Discussion groups that connect people of same interest together to share and exchange information. One of the best examples in the library profession is the Federal Libraries Information Technology Discussion List (FEDLIBIT). It is a service of the Federal Library and Information Center Committee (FLICC) and its operating network, FEDLINK. FLICC/FEDLINK is both a division of the Library of Congress and an interagency advisory committee that provides leadership, assistance, training, and support to the more than 2000 libraries and information centers of the United States Federal Government.

FEDLIBIT's mission includes, finding ways to share information about current library automation and new automation methods; explore the use of the Internet in the context of libraries and information services; and negotiate CD-ROM and database licensing contracts. FEDLIBIT provides a forum for general discussion of information technology in libraries and is intended to be a means of seeking and providing information. The purpose of the list is to provide information that will help Libraries and librarians cope with day-to-day issues of Information Technology as they are encountered (FEDLIBIT's website, 2002).

It is evident that these discussion lists are of great value to the librarian as you receive emails from all over the world that discuss recent professional and practical issues in the library services. One of its unique features is that it is of an interactive nature so one receives emails from others and at the same time, he is able to reply comments and even ask others on the profession matters. At end, a huge professional experience has been

exposed and exchanged among librarians worldwide through this effective web-based channel.

3.3.4.4. Online Collection:

The Internet holds an extensive collection of material on librarianship and information science, which covers both current practice and the history of libraries. Information retrieval, computer applications, library management and archives management are amongst topics covered in depth. Publishing, new information storage techniques and traditional and modern printing practices are examples of related subjects collected more selectively.

Many manuals, proceedings, guides are published online and in most cases, they are available free of charge for librarians and information professionals. Aslib, for example, has built very useful directories, manuals to help librarians develop their skills and professional practices. Aslib publications aim to produce practical, informative titles to help everyone in the practical and strategic use of knowledge.

Moreover, the list for the full text journals in information and library sciences is very long and in a continuous growth. Most of these journals provide free access to full text materials. In some cases one can access these resources on trial basis that offered for a considerable periods ranging from weeks up to months.

When reviewing online collection materials, special attention should be directed to the Reference materials, which are available on full text format, and one can make access them freely and at any time. Most of the necessary References are now made available online. Encyclopedias, Dictionaries, Fact Books, Almanac, Directories, Bibliographies, Atlases, Statistical Data, Biographical Dictionaries etc.

All these types of full text materials are of great value and importance to librarians both to strengthen their daily professional work, as well as to improve their career, professional practices, and keeping themselves up-to date in a very fast changing area of work.

3.3.4.5. Technical Processing Sites:

It is proved that the Internet has made real contributions to the career development. The web-based resources that deal with the technical processing of library materials are also of a growing nature. The prominent features of these web-based resources are that they offer great technical help for librarians as far as the library technical processing is concerned. One of the most reputed sites is the library of congress, which provides the technically needed tools for using the LC classification, starting from the outlines, developments, latest updates, and rules as well as procedures.

The Online Technical Processing Tools is one of the highly recommended sites for technical assistance. This site has been developed and maintained by the University of California Library. It includes information on most of the needed technical processing, starting from the acquisitions, serials, publishers' information, cataloguing, vendors, etc.

Not only that, but also most of these resources have developed their own mailing lists and groups to provide regular updates to members and the interested professionals.

3.3.5 Internet and Library Services:

With the application of the Internet and its related technological products, it has been argued that library services would face new series of challenges and opportunities. New literature and terminology have been used. Terms like Virtual Library, Digital Library, and Electronic Library have become

very common among librarians and library literature. Not only that, but also the role of librarians, the nature of library services, the range of library products, and the library organization have been under continuous discussion and debate.

Librarians are professionals trained in the acquisition, organization, retrieval, and dissemination of information. In essence, the practice of librarianship in the Internet era and a digitalized environment will not be very different from that in the traditional print-based library. The librarian's role will continue to include selection of suitable resources, providing access to such resources, offering instruction and assistance to patrons in interpreting resources, and preserving both the medium and the information contained therein. Librarians will also continue their role in the broader arena of society in representing issues of access to information to governments and other decision-making bodies.

Issues that are new to librarians in Internet times are related to the new technologies making digital libraries possible, and the techniques necessary to deliver new forms of information resources and services. In providing access to information, the librarian in the digital environment must consider the requirements of any digital resources -- any hardware or software necessary, the most effective way to refer patrons to the resource, and whether availability is limited to a defined user group.

Young (1998) called this the 'knowledge navigator' role. In navigating access to knowledge, librarians in the Internet era are confronted with the repercussions of the shift from 'ownership to access', and the resulting rights to access considerations, which must be specified and negotiated in contracts and licenses.

The library in the era of the Internet requires a new technical set of competencies for librarians, which were not previously required. Skills

such as creating web pages, building and maintaining computer networks, designing search interfaces are sought after in today's library employment market. Indeed, Burke (2002) advises, 'the next librarian you hire should have significant web skills'. The level of technical sophistication required by librarians in Internet led environment is already leading to a blurring of distinctions with computing professionals. As this environment continues to develop there may be an even greater demand for professional staff with either computing or librarian qualifications.

Along with the need for technical skills is the ability 'to cultivate a level of comfort with ambiguity and change. One characteristic of the Internet environment, which librarians must accommodate, is the rapidly changing and evolving nature of the environment. This environment is subject to immense change very quickly, and a key role for the librarian in the future will be the ability to adapt and to work effectively in such an environment. Ya-ning Chen (1998) A library's collection development is a continuous process and responds to the needs and goals of its users. It includes not just the policy of collection development itself but also the procedures of selection, acquisition and evaluation. With the use of the Internet, the new direction in collection development has become a number one issue. With the advance of technology and the use of the Internet, the so-called "virtual library" has been created.

In light of this, one priority is to discuss the effects on collection development in libraries; the change itself, the problems and the solutions. Chen (1998) considered future directions for collection development taking into account the virtual library environment - the means of acquisition; related problems; and future directions. Chen argued the major changes that took place in libraries under the virtual environment. Firstly, he mentioned, *Local vs. Global*: the library's scope is in both collection and service and is no longer local but global. *Ownership vs. Access; Accelerating Information*

Flow: The flow of information is so quick that it becomes a great challenge for the library to plan a strategy of collection development on the Internet. Chen also mentioned, *Type of Media*: from single media to multimedia and hypermedia; acquisition and Possession has changed tremendously from *real ownership to virtual access*: Traditionally, the library housed the materials physically. Now the information is electronic. Moreover, Chen argued that *Information has witnessed radical change as it change from fee to free now* so many resources available online.

However, on the same level, Internet has brought some limitations to the library services and collections, Chen (1998) mentioned the following as major limitations: *Difficulty in Copy Control; Restrictions on Intellectual Property and Privacy; Interactive Balance between Quality Control and Censorship; Difficulty in Updating the Accuracy of Data; Accuracy of Publication Time* (Chen, 1998; 156).

Bu Maarfi (1999) stated that one of the major features of the Internet are the search engines, which enable user to navigate and browse the web. She counted some of the Internet services like the retrieving and exchanging information, text, pictures, and documents between individuals, groups, and institutions. Communication, coordination and resource sharing are also among the facilities provided by the Internet for its users all over the globe. As far as library applications are concerned, Bu Maarfi argued that collection development, technical processing, document delivery are considered among the major library applications through the Internet. She also reviewed the major limitation of Internet resources, which include the lack of accuracy, lack of proper documentation, lack of quality control, lack of regular updating of information, copyright and intellectual property issues.

Omer El Sherif (1999) tried to count the major usages of Internet in libraries. He mentioned browsing the newspapers, acquiring basic

information on countries and institutions, retrieving bibliographic information from the OPACs and online databases, joining discussion groups, and making use of the distance learning facilities.

Osman and Tabidi (1999) conducted a survey among some of the Sudanese libraries to draw an outline for National Information System and a framework plan for Internet utilization in Sudan. They mentioned that there is serious information gap in Sudan, and especially in the lack of utilization of information technology and the low level of governmental awareness about the significance of information in development. According to Osman and Tabidi, the major advancement in information technology application in libraries in Sudan was introduced in 1990 by the introduction and installation of the “*LifeSat*” link in the Medical library at the University of Khartoum. This service provides lot of quality information services for medical and science researchers in Sudan. It provided facilities of teleconferencing, document delivery, email services, and online access to medical and science remote databases.

The introduction of Internet in Sudan approved in 1995 by the Sudan Government, and since then Internet comes to serve as a major source of information in Sudan. The survey among the Internet users in Sudan showed that 48% of the sample has used Internet for different purposes. It is found that about 36% uses the Internet for checking email, and about 27.9% of the sample for requesting documents. At the end of their research paper Osman and Tabidi recommended some measures to improve the level of Internet utilization in for research in Sudan> they called for a more attention for Internet connectivity in Sudanese educational institutions; to establish a coordination center for Internet services; to reduce the charge for Internet subscription, Osman and Tabidi (1999).

Chapter Four

Library and Information Services
in Sudan: A Current Situation
View

Chapter Four

Library and Information Services in Sudan: A Current Situation View

4.1. Introduction:

The objective of this chapter is to review the current situation of library and information services (LIS) among the six selected institutions. The history and developments of these institutions have been briefly reviewed.

The major services and products provided in these institutions have been assessed. The major demographic features of working force and the staff of these institutions have also been reviewed. Types of collection and services the budgets, training, and IT facilities in these institutions have been examined.

4.2. The Surveyed Libraries: Some Major Characteristics

4.2.1. Khartoum University Library (KUL):

The history of the University of Khartoum (U of K) dates back to 1898, when Lord Kitchener conceived the idea of founding a college in memory of General Gordon. On August 1, 1899, control of the college was vested by an act of the British parliament. The involvement of the Sudan government in the project started early in the 1900 when Mr. James Curie was appointed Director of Education and principal of the college. In 1918, the college was still small, with a total student population of 86 boys.

In 1924, the college was converted into a higher secondary institution. In 1930, the college was educating 555 boys, studying for two years general subjects followed by two years training in such fields as engineering, teaching, science and Islamic law (University of Khartoum website, 1999)

The year 1938 witnessed the beginning of higher education in the Sudan with the establishment of the law Schools, which was followed in 1940 by the schools of Agriculture, Arts, Science, and Engineering and Veterinary

science. In 1947, all these schools were brought under one administration with special relationship with the University of London.

Khartoum University College was formally brought into being on September 1, 1951 when an ordinance was issued to bring together the medical school and the schools of Gordon memorial collage under the control, of one council. The U. of K. came into being on 24 July 1956 by an act of the Sudanese parliament. Now the U. of K. served as a model and a mother of higher education in the Sudan, over a hundred years this University has gained a reputation of academic excellence.

Nowadays U of K comprises of around 40 academic units including faculties, schools, centers and institutes. With more than 1300 teaching staff member, 6000 post graduate studies, with a student body of thirty thousand enrolled into over 300 programs, using regular tuition or distance learning.

When the Gordon Memorial College started university level studies in 1945 some 3000 volumes of books were collected from schools to act as the library for this college. Not far from that, Mr. Douglas Newbold the administrative secretary of the Sudan government donated his library to the university library. Newbold library was a unique collection; it includes books on Sudan and Africa. After his death, his own personal library has been donated to the university website Library, with a collection of 15,000 volumes.

Khartoum University Library (KUL) started to accept donation from different intellectuals and scholars from Sudan. According to Afaf Karoom (2000) stated that the first qualified librarian, Mr. Golf was appointed to manage the library in 1947, and in 1965 professor Abdel Rahman El Nasri was appointed as the first Sudanese librarian. Khartoum University Library (KUL) serves Sudan's academic and scientific community for long time; it

has a very bright record in this regard. KUL serves all types of research works, development and planning (Karoom, 2000).

Radia Adam (1985) identified the strength of KUL as like university libraries in most of the previous British colonies, is attributed to their good foundation. It was the tradition for the British to start special educational programs, mainly when their colonies were approaching the state of Independence. These institutions, because of the high caliber of graduates expected, were supplied with good libraries and good expatriate qualified librarians to administer them. They were stimulated by outside encouragement and financial support. Eventually they grew into research centers and constituted exception when compared with other libraries, even after nationalization of the parent institutions.

The Khartoum University Library, apart from meeting academic demands very successfully also shoulders a national responsibility. It accommodates the big well-organized Sudan collection "Sudan Library". The spacious separate new building devoted to this purpose has brought great potentials for use of this collection. Sudan Library is an integral part of the university library system.

Under the provision of the work deposit act 1966 (as amended in 1971) copies of all work published in the Sudan and publication by Sudanese nationals abroad, must be deposited at Sudan library along with some other libraries.

KUL also is a depositary center for UN publications. According to Radia Adam (1985) up to 1973 KUL was the solely responsible for bibliographic work in the Sudan. Sudan Library Classified Catalogue was published firstly in 1971 with two other supplements, in 1972 and 1973. In addition, Shambat library, a branch of the KUL serving Agricultural Faculties, produced the bibliography of agriculture and veterinary research in Sudan 1974.

Moreover, KUL has played a leading and prominent role in promotion of librarianship profession (Adam, 1985).

Khartoum University library system consists of the Main (Central) Library Sudan Library, Law library, Engineering library, Medical Library, Shambat agriculture Library and Education library. Recently more faculties were attached to the KUL system. The libraries of the faculty of arts Library, school of Mathematical Sciences Library, Afro-Asian Studies Institute Library, were attached to KUL System.

Regarding the KUL collection, it is noticed that there is a severe lack of accurate library statistics. For example, Radia Adam (1985) reported that the total number of periodical titles is 5,144. El Fahal and El Mahadi (1994) stated that the periodical titles are 2529, most of which are only back issues, with no current subscription, nowadays KUL periodical section receives only periodical on donation basis.

Radia Adam (1985) stated that the university of Khartoum library stands out as an exception in all respects when compared to other existing libraries; all experts who visit the Sudan to advice on the establishment of libraries indicate the adequacy of KUL. This was true and all reports prepared by those experts indicate that the KUL is the best among the Sudanese libraries. The picture has started to change rapidly; consequently, the KUL has witnessed a real deterioration in collection, staff, services, and professional contribution.

The KUL faces a series of problems, which mainly stems from the limited financial resources allocated for the University Library. These problems include lack of qualified staff, continuous budget cuts, and lack of strategic planning.

Having in mind all these problems, and many others, some efforts have been done for staff training and development. Training is highly associated with financial resources. According to University Chief Librarian Dr. Al Tayeb H. Ateeyah, in an interview with the researcher on, 14/8/2002, he

believes that there is a serious effort for providing IT training among the KUL staff. A new training plan has been developed and approved in 2001. Certain concentration is made on CDS/ISIS for its availability and compatibility with many Sudanese libraries.

With regard to the library budget and finance, KUL experiences lack of proper and sufficient fund to meet the library service requirements. On the library level, some serious efforts have been made to initiate some self-financing and income generating activities. In 1993 KUL has started has started the issuance of Library Cards for fees. The income generated from the library cards has been used in running the daily library needs and it contributed to pushing the wheel a little onwards. According to Dr. Ateeyah, the University Administration has approved 10% of the Student registration fee to be allocated to the University library. The University administration is also looking for a share from the Graduate College. If this money comes to the KUL, it will definitely furnish the library services very much and will put real difference in these services.

As a part of Khartoum university web site, KUL has an empty hyperlink in that site. "Under Construction" has been written since 1999. KUL has no email address or account, with no Internet connections. KUL staff still manages collection and services in a manual format. The large collection coupled with a large number of users, is being served only with 45 librarians. None of the vacant positions were replaced since 1998.

It has been found that 35 persons are qualified librarians with LIS qualifications. Some 10 persons are non-LIS graduates. During the two years 2001-2002 only three training courses were made available for KUL staff, in this period about 30 librarians attended these courses. Most of these courses are about CDS/ISIS database creation, Management, and Introduction to Computers.

Regarding IT application and library automation projects, Dr. Tayeb H. Ateeyah mentioned, at his interview with the researcher, that Khartoum

University administration has decided to solve the problem for the whole university. Khartoum University has started a very promising project for networking all of the university campuses. This project will cost the university about 643,000 US Dollars. This project, as stated by Dr. Sami Shareef (2002), will provide the university with an Intranet, which includes the intercampus network, interfaculty network (within each campus), and gate to the Internet. Moreover, the University of Khartoum Network (UofKnet) will also provide the university community with Internet browsing, email system, e- publishing facilities, and e-library (Shareef, 2000).

Dr. Ateeyah believes that this project will solve the whole problem of the KUL automation. As it will provide the library with all needed infrastructure. According to Shareef (2000), the e library project includes library catalogues, CD-ROM Services, online service, remote access services and small databases. It is proposed that the location of this project will be Sudan Library buildings.

It is believed that this project will provide KUL with great potentials as far library service is concerned.

4.2.2. Omdurman Islamic University Library (OIUL):

Omdurman Islamic University was founded in 1912 as a religious scientific institute in the Omdurman Big Mosque. In 1923, the first principle clerk and librarian were appointed in the institute. In 1965, the institute had been promoted to be Omdurman Islamic University. The university composed of thirteen faculties plus the female complex (Saleem, 2001).

Omdurman Islamic University Library (OIUL) has witnessed continuous development and change since it was a small one to serve the Islamic institute, up to the new and recent developments and expansions

However, OIUL is composed of the central library and a number of branch libraries. Branch libraries include: College of *Esool Eldin* Library; *Sharia*

law and economic sciences library; Faculty of medicine library; Faculty of agriculture science library; Faculty of arts library; Faculty of education library; Faculty of Media library and; Female students complex library

The change and developments of the University have influenced the development of the library. In 1966 when the Islamic Institute was promoted as University, the library had considerable attention. More space and resources were allocated. A professional librarian was appointed and serious efforts were exerted to develop the library and Its Services.

The technical processes are centralized at the main and its central library. i.e. Acquisition, registration cataloguing, and classification are done at the central library. Then copies of the processed books are sent to the relevant branch libraries. OIUL is the only library found reported as overstaff. (Saleem, 2001)

Saleem (2001), mentioned that the prominent changes and development witnessed by the OIUL are the increase in library collection; new extensions of library building; new branches were opened; the number of working staff has increases; more relationships both internally and externally have been maintained, more number of the working staff has been trained; library catalogues were developed, CD/ISIS databases were created, and the establishment of a new audio visual department.

According to Saleem (2001), the collection of OIUL is unevenly distributed among the different branch libraries. The central library holds about 58% of the collection, while the rest 42% of the collection is distributed among almost 10 branch libraries with an average percentage of 4.2% of the total collection.

Regarding the volume of collection, it is found very difficult to determine a definite number of volumes. Different sources provided different number of volumes. Saleem (2001) stated the faced lot of statistics regarding the correct number of volume. He mentioned that the total number of titles is 36,935 of which only 7,566 titles are in English language. (2001).

Table 4.4 shows that the library holding is about 110,000 Arabic, and 35,000 foreign volumes.

It is also observed that the use and application of IT is very nominal as there are some PCS used for clerk works and some CDS/ISIS databases. Out of the 11 PCs, there is no one connected to the Internet.

Regarding OIUL finance, Saleem (2001) stated that the library suggests the proposed annual budgets and submits it to the University Administration. The proposed budget should include book purchasing and periodical subscription based on academic staff recommendation.

The staff of the OIUL is about 101 persons those who do library professional works are about 34 qualifies librarians. They have appointed centrally and they work on circulation shift system.

4.2.3. Omdurman Ahlia University Library (OAUL)

Omdurman Ahlia University has been established in 1984, and approved by the Ministry of Higher Education Scientific Research as a University College with six colleges. Omdurman Ahlia University Library (OAUL) is a backbone to the University mission and vision. It is considered the main nucleus for the education and research activities in the university. The Library has been established in 1987 simultaneously with the four University colleges. OAUL was located at a small place, which was a room with a reading hall. The building was able to accommodate around 5000 titles. Canadian government, Sudan American foundation, the British Council, UNESCO, and some regional universities and individuals have donated most of the collection. (OAUL brochure, 2002)

The plan of the OAUL was to increase the collection with 5,000 titles manually. The growth of the students and the increase in demand for library services, have led to rent a new building with two floors. That could seat about 150 students. The collection of the library reached to 10,000

titles in 1991. In the year 1993, the university was moved to its new campus at Hamad El Niel District - Omdurman. (OAUL Brochure, 2001)

At that time, the library collection reached 14,000 titles accommodated into two reading halls, with a capacity of 200 students.

In 1995, the library has been moved to its recent building. The new building consists of four halls beside two rooms. The collection of the library has reached nowadays to about 18,000 titles and 24,000 volumes with a capacity of 300 seats. The developments in the buildings and collection have also accompanied with an important administrative change. The library has been upgraded to a deanship status under the management of a Ph.D. holder degree in libraries and information sciences. Nowadays OAUL is the only among the Sudanese libraries that managed by a highly qualified professional librarian. The library also is expected to witness a new extension by inauguration of the new building very soon.

Library departments include Acquisition, technical processes, post-graduate studies, customer services, information technology Sections.

Acquisition department takes all of the responsibility of acquiring material and developing library collection. This is done mainly with staff recommendation. At the technical department, all technical processes are done i.e. registration cataloguing, indexing, and accession lists. User services section provides photocopying, circulation, and user orientations. Graduate Section is a newly developed section; it has been established to meet the new information needs that took place at the University. It is planned and intended that this section will be the backbone for the Sudan Studies section.

The major objective of Information Technology section is to assure that the library would be able to cope with IT developments and changes. A computer laboratory has been installed with computers, connected together into a Local Area Network (LAN). Some bibliographic databases have been developed to facilitate the use of library materials. The library

collection is fully automated and Internet services are provided. IT section plans for developing an electronic publication for the library some training courses were conducted for the library staff in the area of Information Technology application in libraries. The training courses covered topics like Introduction to Computer, CDS/ISIS databases, and Internet.

The OAUL staff is composed of 20 persons 11 of them are trained librarians, 5 are secondary graduates with some training, and the others are labors. With the continuous development and growth of the University, the library nowadays serves a community of more than 4,000 users. The library has a very good Internet connectivity; ten terminals are made available for online search and web browsing.

4.2.4. National Documentation and Information Center:

The National Documentation and Information Center (NDIC) of the Sudan National Research Council, is considered one of the well-developed research libraries in Sudan. The NDIC provides information services to all research bodies of the Sudan National Research Council.

Objectives of the NDIC are set to be as follows:

- Provision of information through collecting, organizing, and disseminating information for researchers.
- Publishing reports, studies, and research works on Sudan.
- Create links and channel, for communicating with regional and international networks.
- To support efforts for developing National Information System (NIS), and encourage cooperation between Sudanese libraries of information central.

The NDIC functions are to develop specialized library; compile specialized bibliographies; publish Sudan Science abstracts, to inform the concerned institutions about the Sudanese research works; publish Sudan national

research in progress; to function as a focal point for several regional and international information systems e.g. PADIS, UNESIST. In addition, to compile union catalogues and conduct surveys that support resource sharing and cooperation between libraries. (NDIC Brochure, 2001)

The collection is located into two libraries one is the public library and second is the Sudan library the overall collection of the NDIC is around 28,000 volumes in all formats books, thesis, conference proceeding, microforms, provides also NDIC has got periodical collection around 241 titles IT in NDIC the CD-ROM collection is about 83 titles covering different areas of concern. The major fields covered by CD-ROM databases are Medline, of the national medical Library of Washington. (Diab, 2001)

ERIC a bibliographic database on education produced by national Institute for education. CAS: Chemical Abstract Services produced by FAO – *Infoline, Agris, Agricola, Popline*. The NDIC provides Internet connection for users and staff. Ten terminals are connected to the World Wide Web.

The NDIC provides 21 seats for the libraries users and the total number of target users is estimated to be 5,500 persons, and the average number of users is about 14 persons.

A wide range of library services characterizes the NDIC among the surveyed institutions. Table 4.5 shows that out of the 14 surveyed services, it is found that all of the services are provided by the NDIC. These services include orientation, book circulation reference services, document delivery services, photocopying, CD-ROM search, selective dissemination of information, bibliographies library bulletin, Accession lists, Internet services, current Awareness periodical indexing and printing facilities.

The NDIC has different departments, which include translation and scientific publications section, microform Unit, exchange gift section, scientific information, Information networks service, section, Sudan library and the public library.

The NDIC has received a considerable attention from the International and regional organizations in the area of training. Most of the professional staff has proper training through study and short courses in and outside the Sudan. The fund for these training opportunities has been provided by organizations like IGAAD, UNESCO, and PADIS. (NDIC, Brochure, 2001)

The NDIC has also received Donation from in terms of hardware as well as software. The information services of the NDIC include the production of some publications like Sudan Science Abstract, Sudan Research in Progress, and some specialized bibliographies. In addition, NDIC has achieved good coverage of the Sudanese thesis and Dissertations in microforms. The NDIC has an automated library system (CDS/ ISIS) for all of collection available for users.

4.2.5. The British Council Library:

The British Council (BC) is a global network for educational, cultural and technical co-operation assistance. The British Council was founded as a voluntary association in 1934. The objectives are set to be building appreciation of the UK's creativity and scientific innovation among people overseas, and strengthening their engagement with the diversity of UK culture. BC opens doors to a new creative Britain at the forefront of technological research and development, creativity in art, design and music, an open society, youth culture, improved communications, and exciting markets and products; and, of course, educational opportunities. (BC web site, 2003)

The British Council has served continuously the Sudan for over years since Khartoum in 1947 and in the Sudan ever since. The British Council had operated in different Sudanese cities like Omdurman, Wad-Madani, Al-Obied, and Juba. Since 1992, the BC has operated only in Khartoum. The

BC offers a range of services and facilities including Library and Information Services; English Language Development; Chevening Scholarship administration; Gender and Development; a modest Arts program and; Education Information about Britain.

The BC has got a large library including, books, tapes, videos, BBC TV, an Open Learning Center, English Teachers' Resource Center and Information Services - full of new technology including the Internet. It provides the Sudanese public with up-to-date knowledge of English language, education, research, civil reform, medicine, the environment and the arts. (Elhaj, 1997)

The British Council Library (BCL) has a wide variety of resources. A visitor to the BCL would find a range of fiction, from classics to the most modern publications. Non-fiction section includes materials on business, science, technology and the environment and collection of works on the history and culture of Sudan. The BCL provides also a new children's section with a collection of over 1000 children's books and other resources.

Library membership is available for public through filling application form. Members can borrow books as well as videos. The BCL collection is around 12,000 volumes.

The BCL also has developed a good Reference Collection. This section includes a wide range of encyclopedias, dictionaries, yearbooks and general reference books on the UK. It also contains a unique collection of books on Sudanese history and archaeology. About 80 periodical titles received on regular basis. They include leading British newspapers and magazines on Medicine, Engineering, Agriculture, Law, Sports, Arts and Design.

Computers are widely used in the BCL for both the staff and library users. Table 4.6 shows that some 15 PCs are available for users. The library

collection is administered by a reputed automated library system known as ALICE. The system functions very effectively in information retrieval.

The BCL also provides CD-ROM services. This service enables enquirers and researchers to locate information from different databases. The CD-ROM collection contains about 100 different titles, including the following: *Medline*: Medical; *CAB*: Abstracts Agriculture; *AGRIS*: Food and Human Nutrition; *ICONDA*: Database of Engineering and Architecture; *SIGLE*: System for information on gray literature in Europe; *ERIC*: Educational Resource Information Center; *ERIC*: Educational Resource Information Center; Phone Disc; ECCTIS 2000: gives information about Education and; English Courses in Britain. (BC website, 2003)

The British Council was the first to provide the public in the Sudan with access to the Internet. This allows members to view a wide range of information, including daily newspapers worldwide. Nowadays the BCL has 15 terminals connected to the Internet and available for library users. The Internet services are widely used by the public for browsing, searching and for email service.

The British Council Library has an audio-visual collection of 2,000 VHS documentaries and home videos as well as some 1,000 audiocassettes for improving English language skills. The audio-visual collection is available for circulation to the library members. This audio-visual collection is widely used by library users to improve their English language. In addition, the BCL show BBC World News throughout opening hours.

Qualified and trained staff runs the library. They concentrate mainly on customer services. Out of the five library staff, two are LIS graduates and the other are graduates of other specializations with proper training in library works. The library provides 60 seats for the users and the target

number of users is around 3,000, while the average number of daily user is estimated to be around 150 persons.

As a public library, BCL has been functioning in Sudan since 1940's and it provides the public with a very sophisticated, developed, and appreciated range of services. In the area of library and information services, the BCL provided Sudanese academicians, researchers, and intellectuals with an early access to IT applications like computers, CD-ROM email, and Internet.

BCL provides photocopying services for the comprehensive collection of books and periodicals available at the British Library Document Supply Center in the UK.

Book Aid International and information is fundamental to lifelong education overall development and the eradication of poverty.

Book Aid international in Sudan work in partnership with the British Council to supply free books for local institutions to enable them to support local initiatives in literacy, education, training and development of local communities.

The book resale scheme was established by the BC to overcome foreign exchange problems. Institutions could benefit from the scheme by ordering books/ periodicals from UK through the British Council while payments are made in Sudanese local currency.

4.2.6. Ahfad Women University Library (AWUL)

The Ahfad University for Women is the oldest and one of the large private universities in Sudan. It may be the only private women's university in Africa. It is dedicated to educating women, strengthening women's roles in national and rural development, and achieving equity for women in Sudan. (Ahfad Website, 2003)

The goal of Ahfad University has been cited at the University website as to prepare women to assume responsible roles in families, communities, and in the nation. In keeping with this objective, "the Ahfad experience" embraces a combination of well-articulated academic courses, on-the-job training, individual research, and community extension activities. This combination of activities is designed to prepare women from all parts of Sudan to become change agents in their families and communities and to assume leadership positions in society.

Ahfad institutions (schools, college, and university) have started paving the road for women education in Sudan since early 1960's. This role was originally initiated by Sheikh Babiker Badri, who had struggled for a long time in 1904-1907 to get the license for the first women secular school in Sudan. From this humble beginning, the Badri family has nurtured private education in Sudan over three generations. Babiker's son, Yusuf, carried on his father's work, and in 1966 established the Ahfad College for Women in Omdurman. Begun with only 23 students and a faculty of three, now Ahfad University has an enrollment of over 5,000 students and 187 faculty members. Based on the expansion of its curriculum and student body, the Sudan National Council for Higher Education granted full university status to Ahfad in 1995. (Ahfad Website, 2003)

Ahfad faculties are encouraged to conduct research on topics affecting women and families in Sudan. In addition, all students must complete an independent research project. The purpose of these projects is two-fold: (1) to motivate students to examine some issue in detail and through this process to learn the conceptual and analytical skills of research and critical analysis; and (2) to produce new information and knowledge for addressing problems facing women and communities in Sudan.

Ahfad Women University Library was established and named as Hafeed Library. Hafeed Library, was built and furnished with funds from the Royal Netherlands Government, began serving Ahfad faculty and students in 1991. With its modern technology and standby generator (a necessity due to frequent electrical blackouts), the Ahfad Library is one of the most modern and functional in the country. The Library contains approximately 100,000 titles in English and Arabic, 128 periodical titles, and other materials covering all the fields of disciplines related to the courses of study at Ahfad. Seating is provided for nearly 500 students at a time, with the capacity to expand to 1,000 users. In addition, there are 12 study rooms reserved for faculty. The Library staff consists of the director (a non-professional Ph.D. holder) and a staff of 31 persons; most of them have library degrees or certificates. The Sudan American Foundation for Education and other charitable organizations are the main sources of books donation.

El Hafeed Library also includes a new computer-based information center. The IC is being developed to provide Computer-based access to information, including data from CD-ROM discs; to provide audio-visual training for Ahfad faculty and students; to assist in multi-media demonstrations; and providing Internet and email services for faculty and students. (Brochure, 2003)

Currently, the IC can accommodate 12 users at a time at six workstations connected on a LAN with access to a multiple CD-ROM tower and two printers. Both English and Arabic languages are supported. Plans call for expanding the IC to accommodate 28 users at a time. The staff of three persons has already provided computer training for staff at Ahfad and other institutions.

4.3 The Surveyed Libraries: Some Major Issues

4.3.1 Staff and Qualifications:

From the fieldwork survey, it has been found that the total number of the LIS degree holders is 104 (35.7%); about 7.6% of the total labor force are holder of degrees in other subjects than LIS. The secondary education certificate holders constitute about 34% of the total labor force. While the other categories, which include qualification below secondary education, reaches about 22.7% of the total labor force Table 4.1, Figure 4.1.

The field survey has covered those who qualified with university degrees in the selected libraries. The total number of librarians who received questionnaires were 126, the returned questionnaires are 111, constituting 88% of the sample.

Fieldwork results show that of the 111 surveyed librarians, 62 (55.9%) are males and 49 librarians (44.1%) are females.

As far as age structure is concerned, it is found that the age group (25-35) is the largest segment among the surveyed librarians; it represents 45% of the sample. Then the group (36-45) represents 32.4% of the sample. In other words, the overwhelming majority of the sample (77.4%) is aged between 25-45 years, Table 4.2, Figure 4.2.

Regarding academic qualifications attained among the Sudanese librarians, the fieldwork results show that about 35.1% of the sample holds B.A, 41.4% of the sample has postgraduate diploma in library and information sciences and 23.4% of the surveyed librarians has an M.A degree in library and information Sciences.

As far as library work experience is concerned, Table 4.3 shows that about 18% of the sample has less than five years' experience, 27% with 5-10 years of experience, 28.8% of the sample ranges between 11-15 years of experience and about 19.8% of the sample has got more than twenty years' experience, Figure 4.2.

In addition, the fieldwork results show results that about three fourths of the sample (75.7%) has been taught in Arabic Language and 24.3% of the sample had been taught in English Language.

4.3.2 Collection and Services:

The comparison between fieldwork results and the available relevant literature shows that there is a lack of accurate library statistics, mainly in KUL and OIUL. Saleem (2001) has mentioned that for OIUL there is a high level of data in accuracy.

Saleem also had cited different figures regarding the number of volumes in Omdurman Islamic central and branch libraries. He had consulted the library official records against his returned questionnaires.

Table 4.1 Staff Qualifications at the Surveyed Sudanese Libraries - 2002

No. Of Staff	KUL.*	OIUL*	AWUL	NDIC	BCL	OAUL	Total	
							No	%
LIS Graduates	35	33	10	14	2	10	104	35.7
Non LIS Graduates	10	1	2	5	3	1	22	7.6
Secondary Education	22	54	11	6	1	5	99	34.0
Others	40	13	8	1	0	4	66	22.7
Total	107	101	31	26	6	20	291	100

Source: Fieldwork Data (2002)

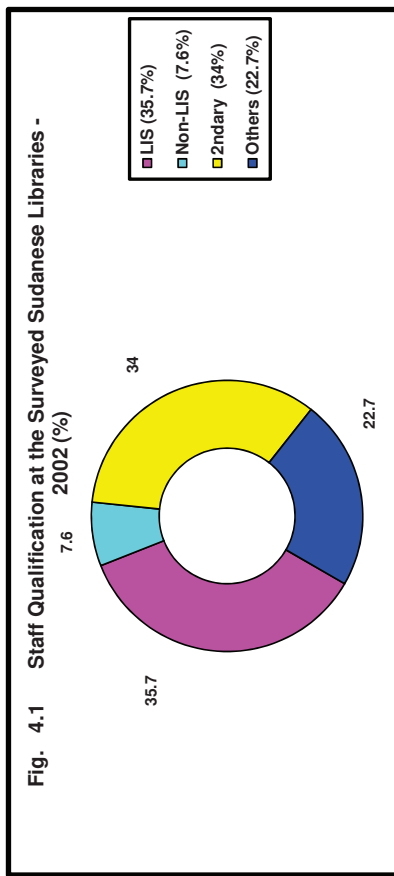


Table 4.2

Age Structure of the Surveyed Population

Age Group (Years)	No.	%
Less than 25	4	3.6
25 – 35	50	45.0
36 – 45	36	32.4
46 – 55	17	15.3
55 +	4	3.6
Total	111	100.0

Source: Fieldwork Data (2002)

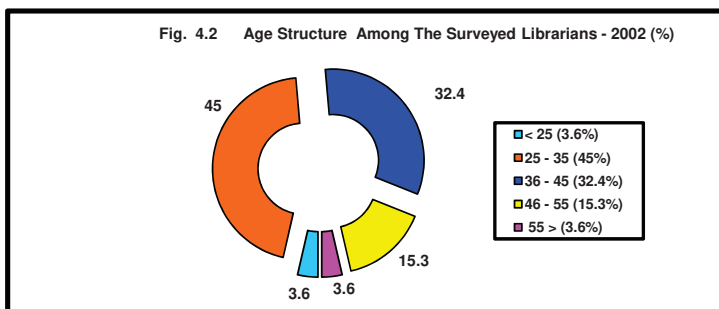
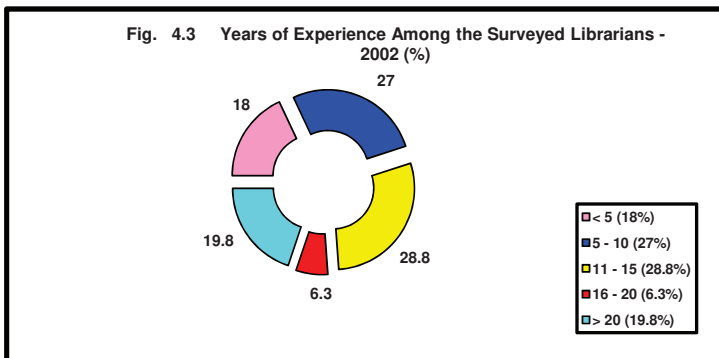


Table 4.3

Experience among the Surveyed Population

Experience (Years)	No.	%
Less than 5	20	18
5 – 10	30	27
11 – 15	32	28.8
16 – 20	7	6.3
20 +	22	19.8
Total	111	100.0

Source: Fieldwork Data (2002)



Saleem, 2001 concluded that there is lack of people library statistics. The same issue is raised when we assess collection of Khartoum University library. There is a high level of data inaccuracy. For instance, Carpenter (1991) mentioned that Khartoum University collection is about 331,000 volumes including main and branch libraries. Karoom (2001) mentioned that the number of collection of Khartoum University library in 1985/1986 was estimated to be 900,000 volumes.

When the researcher has checked the KUL Register Book, in August 2002, the last registered volume was numbered to be 376,831. A comparison between the three above-mentioned figures shows that there is a serious lack of the reliable data regarding library holdings.

When we look upon the collection in volume, structure and types. In most cases the bulk of the collection is in foreign languages mainly English Language. Omdurman Islamic library is the only library where Arabic collection over numbers the foreign Languages.

Table 4.4

Volume and Size of Collection among the Surveyed Libraries – 2002

Items	KUL	OIUL	AWU	NDIC	BCL	OAUL
Arabic Volumes	200,000	110,000	100,000	7300	000	12,000
Foreign Volumes	350,000	35,000	160,000	21,300	12,000	12,000
Periodical Titles	2,529	900	155	241	80	41
Video Cassettes	000	83	000	000	2,000	30
Audio Cassettes	000	27	000	000	1,000	25
CD –ROM	200	109	000	83	100	25
Available Seats	1900	625	160	21	60	300
Working Days	7	6	7	6	5	6
Working Hours	84	72	66	42	40	48
Target Users	25,000	50,000	5000	5,500	3,000	3,200
Daily Users	5000	3000	300	14	150	250

Source: Fieldwork Data (2002).

Regarding number of periodical titles, Table 4.4 shows that the periodicals holdings of these libraries also differ widely in number. The common factor is that nearly all of periodical subscriptions have been cancelled.

According to El Fahal and El Mahadi (1994), the subscriptions of 2529 titles at the KUL have been cancelled for lack of fund. The same problem

faces Omdurman Islamic University Library; Saleem (2001) stated that most of the periodical subscriptions have been suspended due to lack funds. Except the British Council library, all the surveyed libraries receive periodical only on donation and exchange basis.

Audiovisual collection is very limited and small in number. The British council library is the only exception among the surveyed libraries. Table 4.4 shows that, the same could be said to the CD-ROM collection.

With regard to the number of total target and daily users, the number of seats available for user differs in these libraries.

Regarding the services available and offered at the surveyed libraries, Table 4.5 shows that all these libraries conduct orientation tour for the new users. Book loan and circulation services are practiced among the six surveyed libraries. In addition, reference services are available in all these libraries.

Only the National Documentation and information center and the British council have the document delivery services for library users. It found that all these libraries provide photocopying services.

Among the surveyed libraries, only Omdurman Islamic library and al Hafeed library do not provided CD-ROM search services. Selective Dissemination of information services (SDI) and is provided by National Documentation and Information Center.

Only Omdurman Islamic library, national documentation and Information center, and the British council library compile Bibliographies. The National Documentation and Information Center is the only library that issues a library Bulletin.

Between the six surveyed libraries only Islamic university library and British Council library, do not issue and prepare accession lists. All of the libraries except Khartoum University library, and Omdurman Islamic library provide internet search service.

Table 4.5**Library Services at the Surveyed Sudanese Libraries – 2002.**

Library Services	KUL	OIUL	AWUL	NDIC	BCL	OAUL
Orientation Tours	√	√	√	√	√	√
Circulation Services	√	√	√	√	√	√
Reference Services	√	√	√	√	√	√
Document Delivery	X	X	X	√	√	X
Photocopying	√	√	√	√	√	√
CD-ROM Search	√	X	X	√	√	√
Selective Dissemination of Info.	X	X	X	√	X	X
Bibliography	X	√	X	√	X	X
Library Bulletin	X	X	X	√	√	X
Accessioning Lists	√	X	√	√	X	√
Internet Search	X	X	√	√	√	√
Current Awareness	X	X	√	√	X	√
Periodical Indexing	X	X	X	√	X	X
Printing Facilities	X	X	X	√	√	√

Source: Fieldwork Data (2002).

Three libraries: Hafeed Library, National documentation and Information Center, and Ahlia University Library provide the service of current awareness. Indexing of periodical is only practiced by the National documentation and Information center. Printers are provided for users only at National Documentation and Information Center; British Council library, and Ahlia University library.

The researcher has interviewed some of the Sudanese LIS experts. The list is attached among the annexes. According to Abdel Rahman El Nasri, Abu Bakr Bakar, and Abu Bakar Elsidqiq (2002), the services and collection of Sudanese library would witness great advancement if IT application could be introduced. Bakar stated that all types of library service would be more

effective and efficient. He mentioned services like: selective Dissemination of Information, reference services, current awareness services...etc. but they believe that the most important thing is to have enough and proper practical training on the IT application.

4.3.3. IT and Budget Facilitates.

When the chief executive management of the surveyed libraries were asked to determine the annual budget allocated to their libraries, only Ahlia University library has identified the library annual budget.

The annual budget of Ahlia library is about 300 million Sudanese pounds for the year 2002, with an increase of 33% of the previous years' budget. Table (4.6) shows that for Ahlia University library and amount of 100 million Sudanese pound has been specified for developing IT applications in the library.

The other five libraries failed to identify the specific amount of money as annual budget; most of them have budgets within the present institute budget.

Khartoum University library has initiated some income generating activities for supporting the library services. Most of these libraries have their own income generating activities e.g. photocopiers are good examples.

Table 4.6
IT Budget & Facilities at the Surveyed Sudanese Libraries 2002

Particulars	KUL	OIUL	AWUL	NDIC	BCL	OAUL
The Year 2002 Budget (SP)	n. a.	n. a.	n. a.	n. a.	n. a.	300 Million
The Year 2001 Budget (SP)	n. a.	n. a.	n. a.	n. a.	n. a.	200 Million
The 2002 Budget for IT (SP)	n. a.	n. a.	n. a.	n. a.	n. a.	100 Million
No. Of Computers	20	11	7	19	15	10
No. Of Computers for Staff	18	11	5	4	7	3
No. Of Computers for Users	2	0	2	10	8	7
No. Of Internet Terminals	2	0	0	10	15	7
Computers Via Donations	0	10	0	17	0	0
PC via Parent Institution	20	1	7	2	15	10
Electronic Catalogue	No	No	Yes	Yes	Yes	Yes
Library Special Email	No	No	Yes	Yes	Yes	Yes
Internet Web Site	No	No	No	No	Yes	No

Source: Fieldwork data (2002). N. a. = Data Not available

The total number of computers available at these libraries is 82 PCs. The distribution of these computers among these institutions differs very much.

The number of computers available for these libraries has nothing to do with the number of target users. For example Khartoum University library, which has to serve more than 30,000 users, has only 20 computers. Omdurman Islamic University has got only 11 computers, National Documentation center 19 PCs, the British council library 15 PCs and Ahlia University has 10 computers for its library.

Omdurman Islamic library and National Documentation center have most of its computers through donation, while the other libraries have them through the parent institutions.

Among the surveyed institutions, it has been found that Omdurman Islamic library and Hafeed library have not connected to the Internet. Although Hafeed Library has some link with the University Information center, it seems that the Information center has some sort of independence. Table 4.7 shows that Khartoum University Library has only two PCs connected to the Internet out of 20 PCs available at the library.

The British Council and Ahlia University Libraries have got the highest rate of Internet connectivity among the surveyed libraries for the British council all the 15 PCs are connected to the Internet. In addition, for Ahlia library 10 out of 10 PCs are connected the Internet.

Among the six surveyed libraries, only the British council library has a web page on the Internet.

Regarding email account and address for these libraries table (4.6) shows that Khartoum University library and Islamic University library do not have their own email account to be used for communication and correspondence. Regarding electronic catalogue, it has been found that four libraries have their electronic catalogues. All these catalogues were developed locally through the UNESCO software CDS/ISIS, and Alice for the British council library.

Khartoum University library and Omdurman Islamic have not yet got and automated catalogues but some databases have been developed.

According to Abdel Rahman El Nasri, Abu Bakr Bakar, who have been interviewed by the research in August 2002, the major reason for the absence of IT in Sudanese libraries is the lack of the qualified Staff in the LID department, who can teach IT related subjects. They believe that there is a real need for training teaching staff in this area of concern to push the IT application in Sudanese libraries to the required level.

Regarding training opportunities among these libraries, it has been found that four libraries have their training plans and policies. Neither Omdurman Islamic, nor Hafeed libraries have training plan.

Table (4.7) shows that all these Institutions have contributed somehow to staff training. Table (4.7) also indicated that the total number of librarians who get training in the years 2001/2002 is only 77 out of the 126.

The training courses held by these Institutions were 21 courses. They concentrate on computer skills, and CDS/ISIS database creation. Only one training program was organized on Internet application.

Although most of the Interviewed persons believe that there is shortage of IT qualified librarians, it revealed that the training policies and plans are not properly drawn or designed.

Table 4.7
Training Activities at the Surveyed Sudanese Libraries 2002

Activities (2001/2002)	KUL	OIUL	AWUL	NDIC	BCL	OAUL
Annual Training Plan	Yes	No	No	Yes	Yes	Yes
No. Training Courses	3	2	3	2	3	8
No. Of Trainees	30	7	15	11	2	12

Source: Fieldwork Data (2002).

Chapter Five

Internet Resources Era: New Approach, Roles and Skills.

Chapter Five

Internet Resources Era: New Approach, Roles and Skills.

5.1 Introduction

In the era of Information explosion, and the rapid development in all technological applications, coupled with the continuous change the information needs. All these challenges, plus many other developments, have led to a new series of challenges. To cope with these new challenges there is a critical need for new strategies, and approaches are needed.

One of the strategies and approaches that look suitable for the LIS to deal with all these challenges is the Total Quality Management (TQM). It is argued that TQM programs leads to a comprehensive and integrated management approach.

The recent challenges and developments in Library and Information Services have imposed new challenges upon the librarians' role. The traditional roles of librarians have radically changed. Librarians' roles now are approaching new era, librarians have assumed some different and new jobs and roles.

The recent development should be reflected and incorporated into the LIS curriculums. The continuous developments and updates of these curriculums is the only way to ensure the proper training of librarians to assume their newly assumed roles and functions.

This chapter will deal with these issues and their impact on library services.

5.2 Total Quality Management: New Approach for LIS Quality Services

Total Quality Management (TQM) has become increasingly an important mean of competition on the world market. A strategy based on management commitment to continuous quality improvement has therefore to be applied more generally and systematically in any organization to

enable it to keep its position in the market. Otherwise, large shares of the market will be lost to those competitors who are aware of the importance of quality.

One major characteristic of the TQM is that it is first of all a mindset strategy and a top-down style of activity. This means that TQM initiatives should always start from a solid platform of believe and commitment in change, development, progress and customer satisfaction.

A quality strategy in a company must be on built on continuous and consistent commitment from top management regarding questions of quality. Top management has to include quality aspects in the company vision, and support activities regarding quality financially, morally and with management resources.

Looking for Quality and excellence started early in management thoughts, but technically speaking we can trace the concept of Total Quality Management back to the 1950s when the Japanese asked W. Edwards Deming, an American statistician and management theorist, to help them improve their war torn economy. By implementing Deming's principles of Total Quality Management (TQM), Japan experienced dramatic economic growth. In the 1980s, when the United States began to see a reduction in its own world market share in relation to Japan, American business rediscovered Deming. Some other quality management experts, Joseph Juran and Philip Crosby, also contributed to the development of TQM theories, models, and tools. TQM is now practiced in business as well as in government, the military, education, and in non-profit organizations including libraries (Jurow & Barnard, 1993).

5.2. 1. What is Total Quality Management?

Total Quality Management (TQM) is defined as “a comprehensive and structured approach to organizational management that seeks to improve

the quality of products and services through ongoing refinements in response to continuous feedback. TQM requirements may be defined separately for a particular organization or may be in adherence to established standards, such as the International Organization for Standardization's ISO 9000 series" (Jurow & Barnard, 1993).

TQM can be applied to any type of organization; it originated in the manufacturing sector and has since been adapted for use in almost every type of organization imaginable, including schools, hospitals, hotels, and universities.

TQM incorporates the concepts of product quality, process control, quality assurance, and quality improvement. Consequently, it is the control of all transformation processes of an organization to better satisfy customer needs in the most economical way. Total quality management is based on internal or self-control, which is embedded in each unit of the work system (technology and people). Pushing problem solving and decision-making down in the organization allows people who do the work to both measure and take corrective action in order to deliver a product or service that meets the needs of their customer (Bergman, 1994).

Margon (1994) listed some of the obvious benefits of implementing a successful TQM program. He included "reducing operating costs; increasing customer satisfaction; improving company morale; establishing a process of continuous improvement; business process reengineering; gaining a competitive edge; establishing a base for ISO registration and any other similar quality awards".

In short, we can say that Total Quality Management is a philosophy that integrates a focus on the customer, a focus on work processes, a focus on profits, and a focus on continuous learning.

TQM is a structured system for satisfying internal and external customers and suppliers by integrating the business environment, continuous improvement, and breakthroughs with development, improvement, and maintenance cycles while changing organizational culture (Rust & Zahorik, 1994).

TQM processes are divided into four sequential categories. These categories have been developed by Deming (1986), who initiated what known as the PDCA cycle, which stands for Planning, Doing, Checking, and Acting.

In the *planning* phase, people define the problem to be addressed, collect relevant data, and ascertain the problem's root cause; in the *doing* phase, people develop and implement a solution, and decide upon a measurement to gauge its effectiveness; in the *checking* phase, people confirm the results through before-and-after data comparison; in the *acting* phase, people document their results, inform others about process changes, and make recommendations for the problem to be addressed in the next PDCA cycle. The tools and skills of TQM include group problem solving, measuring, data gathering and analysis, root cause analysis, brainstorming, continuous process improvement, resolving conflict and building synergy into the company (Oakland, 1993)

Based on his work with Japanese managers and others, Deming (1986; Walton, 1986) outlined 14 steps that managers in any type of organization can take to implement a total quality management program.

- Create constancy of purpose for improvement of product and service. Constancy of purpose requires innovation, investment in research and education.
- Adopt the new philosophy. Management must begin to believe in quality products and services.

- Cease dependence on mass inspection. Inspect products and services only enough to be able to identify ways to improve the process.
- End the practice of awarding business on price tag alone.
- Improve constantly and forever the system of product and service.
- Institute training and retraining. Workers need to know how to do their jobs correctly even if they need to learn new skills.
- Institute leadership. Leadership is the job of management.
- Drive out fear. Managers need to create an environment where workers can express concerns with confidence.
- Break down barriers between staff areas. Fostering interrelationships among departments encourages higher quality decision-making.
- Eliminate slogans, exhortations, and targets for the workforce. Using slogans alone, without an investigation into the processes of the workplace, can be offensive to workers. Managers need to learn real ways of motivating people in their organizations.
- Eliminate numerical quotas. Quotas impede quality more than any other working condition.
- Remove barriers to pride of workmanship. Give workers respect and feedback about how they are doing their jobs.
- Institute a vigorous program of education and retraining. With continuous improvement, job descriptions will change.
- Take action to accomplish the transformation. Management must work as a team to carry out the previous 13 steps (Deming, 1986; Walton, 1986).

5.2.2 TQM: Major Concepts and Elements

5.2.2.1. Benchmarking Activities:

Benchmarking is the process of understanding one's practice and performance, comparing them against that of competitors or best-in-class firms, learning how they practice and perform, and using that information

to improve your own practice and performance. It is an effective way for change and an effective tool for continuous improvement (Bergman, 1994). Benchmarking involves gathering information about "best practices" from other organizations. Thus, a company that wishes to improve its customer service might observe service practices in firms renowned for their service quality, regardless of their industry.

According to Hackman, Wageman (1995), benchmarking serves multiple functions consistent with TQM philosophy: (1) determining what customers can expect to get from the competition, as part of assessing customer requirements, (2) learning alternative work processes, and (3) in some cases, guiding the establishment of quality-improvement goals.

Benchmarking can stimulate creativity and provide a stimulus that enables operations to better understand how they should be serving their customers. To conduct benchmarking, firms should know their own situation and identify what and who to benchmark. In order to use benchmarking effectively, the firm should have sufficient information from its competitors or best-in-class organizations. Thus, benchmarking can be conducted.

Morgan (1994) identified four common types of benchmark: *Internal benchmarking*: i.e. comparing similar processes performed in different parts of the organization. *Competitive benchmarking*: comparing the performance of one organization to that of a competitor on specific measurable terms. *Functional benchmarking*: refers to the processes of comparing performance on the same function for all those in an industry or sector. *Generic benchmarking*: which means comparing organizations on a basic practice that is the same regardless of the industry.

Increasingly successful organizations are using benchmarking to sustain their quality improvement efforts and to focus the energies of teams on becoming industry leaders in their core processes.

5.2.2.2 Value-Added Activities:

This important concept is concerned with all activities, which add value to a product or service, and equally with all those activities, which detract from value by adding costs.

According to Hackman & Wageman (1995), there are fourteen activities in organizations, which tend not to add value to the core tasks. These activities are: Preparation time; waiting time; unnecessary process steps; over-production; rejects; set-up time; transportation/ distribution; process waste; materials waste; communication; Administration /decision-marking; untidiness; bottlenecks; and timing.

These fourteen non-value-adding areas all take time, energy and resources away from the core task of delivering services to the end-user. By redesigning systems to eliminate these sources of value-losing activities, we can increase value adding, lower operating costs and increase the perceived value of service.

5.2.2.3. Focus on Customers:

The TQM philosophy of management is customer-oriented. In today's view, Quality has to be valued by the customers, and it has to be put in relation to their needs and expectation. All members of a total quality management organization strive to systematically manage the improvement of the organization for the sake of customer satisfaction.

Focusing on customers does not mean only the external customers, but also it covers the internal customer, i.e. the employees. The relation between the quality organization and the employees is a sort of customer/ producer relationship. The employees are looked upon as customers to the organization. Therefore, the quality organization should pay considerable attention to its customer. It has to look for their needs, requirements, and satisfaction in order to do a good job. It is always stated that satisfied

internal customer would lead to a satisfied external customer (Bergman, 1994).

The philosophy that TQM is customer-oriented and its goal is to satisfy the customer seems straightforward. The expectations and needs of the customer may not be clearly expressed or well defined and may be difficult to measure. Employees in a total quality culture continually improve their systems in order to meet the needs of customers both inside and outside the organization. To do that effectively, workers must go to their customers to gather information using scientific methods. However, the analysis of customer expectations will always require interpretation. Subsequently, these interpretations must be translated into product and service specifications. In the end, the executive staff must make strategic choices about the customer expectations that the organization is willing and able to meet (Margon, 1994).

To focus on the customers does not mean that the customers are always right. However, we have to understand the customers and understand why they have the stated opinions and expectations.

5.2.2.4 Facts-Based Decisions:

An important element in modern quality philosophy is to make decisions based on facts, which are well founded, and not to allow random factors be of decisive importance.

It is becoming more and more important to create conditions for high quality products, especially during the initial production stages. To ensure high level of quality information should always dealt with as the source for sound decisions.

Oakland (1993) argued, "Data should be made available in all stages to provide full profile about customers, employees, work conditions, daily work processes and activities, market place, and competitors".

All data and information have to be considered early in the product life cycle and should not come as a surprise later on.

5.2.2.5 Focus on Processes:

Nearly every organized activity can be looked upon as a process, whose aim it is to deliver products, which satisfy its customers. This process is supported by an organization consisting of people and their relation, resources and tools.

The process transforms certain input like, say, information and material into certain output in the form of various kinds of goods or services. The process links history with future. From the process, data are generated, these data, including measurement of the results, indicate how well the process satisfies the needs of the customers (Margon, 1994).

5.2.2.6 Continuous Improvement:

Another element in a successful quality strategy is working toward continuous quality improvements, i.e. **Kaizen**. Kaizen is a Japanese jargon used for the process of the continuous improvement and has been fully evaluated as a quality strategy. Kaizen seeks to direct the efforts of all employees by continually focusing their energies on improving their own processes. This element is highly supported by major activities among the TQM initiatives. Using a systematic process such as Deming's Plan-Do-Check-Act (*PDCA*) cycle, employees are encouraged to seek weekly improvements on a small scale which help meet the needs of customers, suppliers and themselves (Oakland, 1993).

To accomplish its purposes, TQM must alter how people actually behave at work. As suggested in the previous section, people should be working harder (i.e., with more effort), smarter (i.e., with greater knowledge and skill), and more responsively (i.e., with task performance strategies better

attuned to customer requirements) under TQM than otherwise would be the case (Ishikawa, 1985: 27).

TQM practices create good learning environments both by minimizing fear in the organizational culture and by providing members with a rich and diverse set of learning tools. Moreover, TQM exposes workers to data about their work processes more or less continuously and encourages them to use scientific methods to analyze and improve those processes. Finally, members of TQM organizations are asked to reexamine their work processes repeatedly, and do so with no holds barred: "Ask not just why we do it that way and can we do it better, but also ask why we do that at all" (Juran, 1974: 118).

Under TQM, organization members are expected to improve work processes continuously so that their customers are served as well as possible. This can result in performance strategies uniquely well-tailored to environmental constraints and resources, especially those emanating from customers. It is one of the great strengths of the TQM approach. It is stated that "organizational units should keep close and in touch with the environment, including process innovations introduced by other organizations as well as changes in customers' needs, that they could adapt their performance strategies with little lag and, perhaps, even stay a step or two ahead of customers' wishes" (Hackman & Wageman, 1995).

This level of responsiveness, however, is expected to introduce a high level of acceptance for change among the individuals as well as among the organizations that apply TQM programs

5.2.3 TQM: Assumptions and Practices:

According to Hackman & Wageman (1995), the TQM strategy for achieving its normative outcomes is rooted in four interlocked assumptions, about quality, people, organizations, and the role of senior management. The first assumption is about quality, which is assumed less costly to an organization than is poor workmanship. A fundamental premise of TQM is that the costs of poor quality are far greater than the costs of developing processes that produce high-quality products and services. The second assumption is about people. Employees naturally care about the quality of work they do and will take initiatives to improve it--so long as they are provided with the tools and training that are needed for quality improvement, and management pays attention to their ideas.

As stated by Juran (1974:54), "The human being exhibits an instinctive drive for precision, beauty and perfection".

The third assumption is that organizations are systems of interdependent parts, and the central problems they face invariably cross-traditional functional lines. To produce high-quality products efficiently, for example, product designers must address manufacturing challenges and trade-offs as part of the design process. The final assumption concerns senior management. Quality is viewed as ultimately and inescapably the responsibility of top management. Because senior managers create the organizational systems that determine how products and services are designed and produced, the quality-improvement process must begin with management's own commitment to total quality.

Shikawa (1985) and Deming (1986) specified four principles that should guide any organizational interventions intended to improve quality. The first is to focus on work processes. The quality of products and services

depends most of all on the processes by which they are designed and produced.

The second principle is analysis of variability. Uncontrolled variance in processes or outcomes is the primary cause of quality problems and must be analyzed and controlled by those who perform an organization's front-line work.

The third principle is management by fact. TQM calls for the use of systematically collected data at every point in a problem-solving cycle--from determining high-priority problems, through analyzing their causes, to selecting and testing solutions (Juran, 1974: 22-28; Ishikawa, 1985: 105; Deming, 1986: chap. 8).

The fourth principle is learning and continuous improvement. The long-term health of an enterprise depends on treating quality improvement as a never-ending quest.

It is noticed that all TQM projects are characterized with some major common practices. Organizations that implement TQM are consistent in developing means for assessing their customers' preferences, altering relationships with suppliers, using teams to solve problems, investing in training in problem-solving tools and, to a lesser degree, teaching statistical analysis to front-line employees. The top-down implementation strategy used in quality organizations is congruent with the founders' assumption that quality is ultimately a management responsibility and that attempts to improve quality must begin at the top (Scheindker, 1998).

The second common practice is training. Organizations that implement TQM invest heavily in formal training for a large proportion of their employees. According to Olian and Rynes (1991) the most common training contents are revolving around, interpersonal skills, quality-improvement processes and problem-solving, team leading and building, running meetings, statistical analysis, supplier qualification training, and benchmarking.

Another common practice is obtaining data about customers. Although systematic data are not available on the proportion of TQM organizations that directly assess customer preferences and customer satisfaction, nearly all case studies of TQM companies include descriptions of the means such organizations use to obtain customer data. Commonly used devices for obtaining these data include toll-free complaint lines, marketing research firms, and customer focus groups (Hackman, Wageman, 1995).

5.2.4. TQM and Library Services:

It is natural to start with some useful questions: does Library and Information Services (LIS) fit to this kind of strategies? Does (LIS) need to apply Total Quality Management approach? Moreover, what are the challenges, difficulties, may stem from applying such strategies. At the same time what are the benefits that LIS would gain through the application of the TQM.

From what we have reviewed in the previous part of this chapter, it seems that libraries are ideal places or organization to implement TQM. Most of the TQM aims, objectives, and principles are going in coincidence with the LIS themes and morals. From the beginning, it is said that TQM is a customer driven strategy. The prime theme of TQM is that, it is a comprehensive structured approach that aiming to customer satisfaction. TQM in all is a well-articulated strategy for improvement. This is always done through customer focus; commitment to continuous improvement; fact -based decision-making; process or systems thinking and; employee involvement in decision-making. By no way one can deny the right of libraries to look for quality services and quality products through this way. Libraries and librarians have always been concerned with customer, and customers have received considerable attention from the different types of

libraries. Not only that but libraries considered as customer oriented organizations.

Some librarians believe that while TQM clearly has positive aspects, implementing it can have potential challenges as well. Jurow and Barnard (1993) identify four barriers to the adoption of TQM in libraries: (1) vocabulary: objections to terms such as "total," "quality," and "management" which imply that high standards are not already being met; (2) commitment: TQM takes several years to implement and requires a long-term commitment by library managers; (3) process: our culture tends to be impatient and we try to solve problems quickly, contrary to TQM's careful process analysis; and (4) professionalization: professional staff can be resistant to turning over their practices and services to what they perceive as the "uninformed whims of the customer."

Although this argument is not true by default, but if it is so, it is not confined only to LIS world, all professions could face the same challenges and barriers. It has always been stated that the TQM is an approach that requires believe, commitment, and full awareness that the TQM is a long-term program. To be candidates for structured quality improvement, libraries should exert a substantial effort to accomplish any a transformation into a quality-focused environment.

On return if one could imagine the impact of the TQM approach into libraries, which would act, definitely, as real incentive and support to overcome the challenges, limitations and barriers.

On the theoretical basis, all the practices, assumptions, and elements related to TQM are applicable to LIS. We found many authors in LIS published literature have tried to adapt management plans developed by the TQM theorists for library and information management institutions. For instance,

the Deming's 14 steps for TQM program have been adapted to suit LIS management specifications (St. Clain, 1997; Masters, 1996).

Application of the TQM approach would lead to professional services, and would ensure high level of productivity, effectiveness, and competency.

The following issues are only some expected areas for development, improvement.

While discussing the major challenges that face the libraries in the electronic era, Dr Radia Adam (2002) mentioned "TQM is one of the major way for implementing scientific and sound strategic management in library and information services, as library services now are moving from information management to knowledge management, there should be a clear strategic vision to ensure that LIS services will be delivered on the right and proper way".

For libraries TQM is a complete package that would influence all library processes and activities. Actually, all these processes and activities are in need for focusing, improving and benchmarking.

Starting from the activities of selecting library materials, processing them, disseminating information to users, etc. More customer surveys are needed for highlighting about customer needs and requirements.

There is a possibility for further improvement of all library technical services, through total quality management approach. This is applicable to indexing, cataloguing, current awareness, selective dissemination of information, bibliographic services, reference services, and circulation services. Focusing on processes, continuous improvement, benchmarking is the right way for creating quality processes.

For quality LIS services, much more concentration should be put upon the daily routine works, i.e. processes and activities should be investigated and

all non-added value processes and activities should be eliminated. Positive attitude, processes and activities should be improved and developed.

As for the technical processes, quality control could be applied through using of library technical tools like subject headings, thesaurus. Nowadays quality control tools are available online through professional bodies (e.g. OCLC, LC), which provide libraries with a high quality technical services.

In the Internet and web resources era user services are of great importance in library services, as most of time, which was in the past devoted to the technical services, is now being devoted to library users. So library users are becoming the core in library services.

As we will explain later, librarians have expanded their jobs and they have started to assume new roles with new dimensions. These new roles of librarians are of a positive nature with a movement towards the customer needs and services.

To ensure an effective application of TQM programs in libraries, staff at all levels should be empowered and more involvement and participation in the decision-making should be practiced.

Benchmarking processes at all levels should be practiced. This would lead to real exchange of ideas and thoughts, which at end would increase the level of quality services.

In this regards Adam (2002) argued, “Although libraries and information centers in Arab world are still lacking the proper and unified standards but that does not eliminate or diminishes the importance of them for quality control and measurements. Standards at all library services should be followed to provide a line for quality measurement”.

When we talk about TQM in libraries, we have to bear in mind that there is a critical need from the beginning to create a new mindset, and culture that believe in continuous development and improvement.

The top management commitment is very crucial to implementing and applying comprehensive strategies like TQM.

As for librarian themselves, the introduction and application of TQM approach would lead to more professionalism and more competencies. For instance, motto likes “continuous learning, improvement “*Kiazen*”, benchmarking, would lead to a very positive and competitive work environment. More skills are to be learned, and many talents are to be discovered.

In short, TQM approach, if accompanied with the proper commitment and culture, would lead to much more effective LIS services.

5.3. Internet Resources: Reshaping Librarians’ Roles:

The role of the librarian grew from that of a collector and preserver of information resources to a professional involved in very complex issues of organization, the dissemination of and access to information.

The role of the librarian, particularly during the past two decades, has further evolved to encompass the burgeoning technological developments. Crawford and Gorman (1995) have defined the role of the librarian today: “To acquire, give access to, and safeguard carriers of knowledge and information in all forms and to provide instruction and assistance in the use of the collections to which their users have access... [Libraries] are about the preservation, dissemination, and use of recorded knowledge in whatever form it may come” (pp 3, 5).

Rusbridge (1998) agreed with this definition, as he writes; “the role of the library is to select, acquire, organize and make available an appropriate

subset of ...resources... The library has a role here in the digital world as with print - not just in excluding access to rubbish, but in encouraging access paths to quality”.

These definitions provide a reflection of the roles, which librarians have assumed for long time. They acquire information resources relevant to their user population in whatever format is available and appropriate; they organize the information within the library collection; they provide a means for users to access that information; and they educate users in accessing and interpreting information resources. Librarians are moving beyond the traditional roles of collection maintenance and custodial duties to newer functions of translating, accessing and marketing resources beyond the walls of the physical library collection (Rice-Livy & Racine, 1997). The new roles are a natural product of the continuous technological advancement, and the change of the profession landscape. Here are some of the new roles:

5.3.1. To provide intellectual access to information

Providing intellectual access to information is a role librarians have filled for a long time. Traditionally librarians have done this via print-based resources.

Within the electronic resources environment, the choice of format is not the most crucial issue: it is being able to provide information resources to users - regardless of format. “Librarians and patrons will no longer be restricted to 'a single entity where everything is stored', but rather librarians will be able to offer 'a range of services and collections, linked together or made accessible through electronic networks” (Lim, 1996).

In such an environment, access to information does not always imply ownership, merely that the library has negotiated the means by which users gain access to resources and information.

Providing electronic access to journal literature was one of the first ways libraries began to use the newly evolving technologies. The development of electronic reserve (e-reserve) collections, demonstrates another way in which librarians are adapting new technologies to deliver services more effectively. Electronic reserves provide the ability to digitize a printed document, video, audio, or data, so that many students can access it simultaneously without the limits of attending a library building within opening hours (Burke, 2002).

5.3.2. To Organize, Index and Structure Information

It has always been argued that Information on the net is characterized by the continuous growth in large quantities, with endless updates. Among this huge amount of information, with its different levels of value and reliability, one has to locate the appropriate information in the appropriate time. Internet has become a public publishing medium. Everyone from everywhere can, and has the right to publish whatever he/she thinks right and the author is able to address all kind of audiences and readers, and to communicate with all sectors of the community. Moreover, every day the information on the web experiences more growth. The Internet consists of many files across the world. There are hundreds of millions World Wide Web pages, millions of gopher files, applications and databases. But the critical issue in this new publishing medium remains over how relevant material can be found. The location of information, namely the right, worthy and trusty information, is thus an important issue to information seekers.

To provide a locator tool for information on the web, "*Internet indexes*" or *search engines*, as they are often known, have been developed. Internet indexes play the same role as traditional indexes used to find materials in the library. Internet indexes offer different methods of access (use of search terms) and different information about the files or "publications. The same process is used for the collection and distribution of information as a traditional printed index (Hubbard, 2003).

There is a multiplicity of indexes for print and electronic information, which have been used by researchers and librarians for many years. They have been used because they provide an effective and efficient mechanism for finding information on specific subjects. Indexes are used to obtain the best citations (or information lists) as efficiently as possible. Information found needs to be relevant and accurate to enable further refinement of the search or to enable the researcher to obtain the information sources listed in the results (Missingham, 1996).

Indexes are finding aids for publications. Different indexes are used for different subjects, and different search strategies are used. It is argued that not all indexes are suitable for all search purposes, so it is one of the new roles for librarians to help users evaluate the available indexes. The major aim here is to find which are best suited for different types of research, as well as the best way to use them. These decisions have to be made for the use of traditional printed and automated indexes, and apply equally to Internet indexes (Hubbard, 2003).

According to Lane (1989), traditional indexes, whether in print, CD ROM or online, have been evaluated in terms of: geographical coverage; language; dates of coverage; discipline (subject area); scope; inclusiveness (breadth); comprehensiveness (depth); level and; format. All of these criteria apply to Internet indexes; together with additional factors e.g. graphics, presentation, regular updates, programming language...etc.

In the traditional library work, index creation and compilation is a human-centred technical process. Yet it is right that automation has played real role in making indexes more comprehensive, and accurate, still the core effort is a man made.

In the Internet era, it has become a real controversial issue whether the Internet indexing will be a human or automated effort. Debate spread over the professional meetings, publications, and web sites. There is a wide range of opinion on what should be done to ensure that information can be found through Internet indexes.

At one extreme, there are those who propose a completely new approach to information discovery through a completely automated system. They argue that the only human components of information discovery will be the humans creating information on the Internet. In order to automate this process fully, creators will be required to provide good quality information on title, authorship, publication date and subjects of their Internet publications. Without this information, the ability of any Index to provide an excellent search result is limited (Missingham, 1996).

At the other end of the spectrum is the indexing and searching professionals who see their role is changing, but becoming more important in the "information mine" of the Internet. Hubbard (2003) stated, "It is my contention that in order to meet the needs of Internet searchers with the types of human and technological resources currently available, a reliance on human-powered indexing methods - especially the classification and description of documents by topical experts - is and probably will always be necessary".

It actually looks sound that some human element should be involved in this process. Librarians and information scientists have spent tens of years developing systems for storing, classifying and retrieving information. Library cataloging systems such as the Dewey Decimal or Library of Congress Classification Schemes were developed after long time of

thinking about organizing knowledge in libraries. These schemes were widely praised by different disciplines and adopted all over the world and proved to be very efficient and practical in storing and retrieving of information in libraries. Although Internet electronic materials are different in nature and flexibility, it is still true that same library controlling tools (classification and indexing skills) can be applied to the Internet indexing.

It has been argued that, one of the major problems that face internet searcher is the lack of consistency and controlled language. But this by no way, should understood as an “anti-automation” point of view. The automated systems offer flexible and multiple access points to the stored information.

But unless some controlling rules are used at data entry stage, it is expected that huge amount and heaps of irrelevant information will be retrieved. At the same level, it should be mentioned that, many users of the Internet, might often want nothing to do with anything that looks like traditional library systems or research methodologies. This is so mainly because of the ease of use of online search engines, where terms can be easily entered and searched, has generated mass appeal by offering quick responses, compared to the traditional library experience of using the sophisticated printed catalogues to locate information in a library.

Although it looks easy for the automated library users to get information, yet in many ways a need still exists to educate users so that they can make a more productive and efficient use of searching resources.

According to Hubbard (2003), still human indexer is needed for the aspects of language comprehension, “language is replete with synonyms, homonyms, spelling variations, and discourse is full of variable contextual meanings and linguistic nuances such as poetry. This feature makes it difficult for computers to replace human indexers”.

As human indexer examines a document and identifies its principal concepts with a controlled vocabulary, using a caliber of mental comprehension unparalleled in the most advanced computer science or any so-called artificial intelligence. Therefore, it means that until computers can comprehend language and hold their own in a conversation, there is a gap in their capabilities in analyzing and indexing text.

Actually, it has also been argued that one potential problem that diminishes with the hierarchical classification of Websites by humans is the difficulty of accurately ranking the results of simple searches to full-text databases, but merely classifying and categorizing the Internet, rather than compiling a full-text index by computer, does leave users without the capability to conduct the best searches on wanted topics, for which access to full-text databases is useful (Hubbard, 2003).

Therefore, it is obvious that the great promise of automated indexing tools is that they provide a level of details greater than any humanly powered method of indexing. Automated searching aids are therefore somewhat necessary to keep up with the millions of pages being added to the Internet.

One possible difficulty of Internet finding tools driven by human power is that they cannot keep up with the capabilities of automated systems. While they cannot do full-text indexing, the combined efforts of the Internet publishers who maintain quality subject indexes do in fact meet most searching needs (Denenberg, 1996).

One major defect of the merely automated system, as mentioned by Missingham (1996) is that, “a comprehensive but automated Internet indexing system, however, also varies in composition from a reliance on individual page owners to submit and properly code their pages”.

Yet without a consistency in using a unified format by the millions of Internet publishers for coding their web pages, an automated self-

cataloging system will be of a little value in finding information on the web. Therefore, quality pages not properly tagged or submitted to a search engine may not be included in computerized indexes, whereas human indexers will be more likely to include only important and relevant sites.

Traditionally, librarians have organized and managed information resources through classification schemes. The retrieval of information relevant to a user's enquiry has been facilitated by standardized methods of describing resources, such as MARC. It is true that organizing vast quantities of information is becoming a demanding issue for those involved in the development of the Internet. Mason (1998) noted that "the more there is on the web, the harder it becomes to find". It is agreed upon, among librarians, that the organization and structure of information within the Internet era is critical to ensure the easiest path for the library user to access and use resources.

According to Lynch and Garcia-Molina (1995), "increasingly, libraries are providing access to web-based resources, either those freely available or for which the library has paid a subscription. It is essential that users can access all of these through a single interface, usually the library's catalogue".

This provides what Lynch and Garcia-Molina (1995) describe as a 'superficial uniformity' for ease of navigation and access. New organizational tools are being developed to accommodate these issues: one of the most significant is Metadata.

Technically Metadata is defined as "descriptive information about an object or resource whether it be physical or electronic. While metadata itself is relatively new, the underlying concepts behind metadata have been in use for as long as collections of information have been organized. Library card catalogs represent a well-established type of metadata that has served as collection management and resource discovery tools for decades", (Dublin Core website, 2003).

In short, metadata is defined as data about data. The Dublin Core Metadata Initiative (DCMI) is an open forum engaged in the development of interoperable online metadata standards that support a broad range of purposes and business models. DCMI's activities include consensus-driven working groups, global workshops, conferences, standards liaison, and educational efforts to promote widespread acceptance of metadata standards and practices. The motto of the Dublin Core Initiative is "*Making it easier to find information...*" (Dublin Core website, 2003)

However, librarians have been contributing very much to the issue of developing standards for information retrieval such as Z39.50. "Z39.50" refers to the International Standard, ISO 23950: "Information Retrieval (Z39.50): Application Service Definition and Protocol Specification", and to ANSI/NISO Z39.50. The Library of Congress is the Maintenance Agency and Registration Authority for both standards, which are technically identical (though with minor editorial differences) (Library of Congress web site, 2003).

Metadata specifies the format for describing a digital resource in much the same way the MARC format specifies the descriptive elements of an item held in a library collection. Seven workshops have been held around the world to first define, and later refine, the core elements to be used in describing networked resources. The first, held in Dublin, Ohio in the United States in 1995, gave the Dublin Core its name. The aim of this scheme is that the creators of Internet resources can insert the descriptive data about their resources at the time of creation, and this will lead to an environment where the majority of resources available on the Internet are searchable using a standard scheme (Burke, 2001).

Librarians have been at the forefront of metadata scheme developments. They have also contributed to the development and adoption of standards such as Z39.50. This requires a sophisticated level of understanding of the

technical issues involved sides of the process i.e. librarian's technical skills and IT basic skills. In addition, this at end requires a continuous coordination between the two professions. As librarians have long record in information, storing and retrieval while IT professional have the technical knowhow required for building such a major scheme and initiative.

5.4. Training and Curriculums Development:

In the era of the information explosion, Internet and huge communication facilities, the role of library has no long become the same. Libraries and librarians have to play a new role to provide competitive services for the information seekers. It is no longer, the role of librarian is to wait for users, it is also not the time where the librarians' job is only to collect, classify and catalogue libraries materials. As we mentioned, there is a new set of roles for librarians to fill.

Information world has witnessed radical changes in its every aspect. Information technologies applications, information formats, information seeking behavior, and information needs have all witnessed real change.

To fit to these new and radical changes librarians have to be equipped with a new set of skills and new training methodologies are critically needed. This is extremely true when we talk about the developing countries and Sudan is among them.

When discussing the factors affecting the nature of librarians' job, curriculums occupy leading role in this regard.

While the researcher was conducting the field survey, it is found that in Sudan, there is a common agreement among senior librarians and LIS teaching staff that there is a serious need for curriculums development and updating. There is a believe among the surveyed librarians that curriculums are "old-fashioned", and they need to be revised and updated.

While discussing the Training challenges that face librarians, Dr. Radia Adam (2001) raised the point that “curriculum in Sudanese LIS School and departments are in need for some change and updating. To tackle this issue Adam (2001) has reviewed the curriculums of LIS programs offered by four Sudanese universities.

She pointed out the following points as the common features spread over the four programs:

- Although the programs are offered for different levels i.e. under and post graduate studies, still they look similar. No major differences are found.
- There is a clear concentration on the basic librarianship skills, coupled with a total neglect of any auxiliary subjects.
- Information Technology oriented subjects are at their minimum level (in most cases it is three credit hours for computer).
- Communication skills and courses revolving only on human communication aspects.
- Information Technology terminology is misunderstood, as it is confined to technologies like microforms and bench card.
- In some cases the practical side of the professional skills is neglected.
- All the offered courses are required (compulsory), there is no optional or elective subjects are offered for the students.
- There is a high level of concentration on technical works, while very little is mentioned about communication, customer services, positive attitudes, and public services.
- Most of the subjects are characterized by the generic nature.
- Short training courses are very limited, and if any they will be designed for very limited purposes (Adam, 2001; 27–28).

From what Adam (2001) stated, and from a personal experience, it seems that there is an urgent need for curriculum development and updates in Sudanese LIS departments.

The job of curriculums development has become easier than before, most of the reputed LIS schools and departments have their own websites, where one can browse, review, and compare the components of offered programs in LIS.

While the researcher doing this part of the study, four websites of universities that offer LIS programs in UK, US, and Canada, have been reviewed. Namely, they are University of Toronto, Canada; University of Illinois at Urbana-Champaign, USA; University of Sheffield, UK and; university of Bristol, UK. The purpose is not to develop a curriculum; rather it is to make some sort of highlighting and comparison in area of courses and curriculums.

Through reviewing the components of the academic programs offered by the four departments, the following remarks are found:

- There is a balance between the basic and traditional librarianship skills and the IT skills, and it is noticed that the applications of the IT is fully being incorporated into all aspects of basic librarianship skills.
- There is a wide range of subjects offered for students to select from. For the undergraduate program, some 50-60 course titles are offered for students. These courses are distributed as required and elective courses.
- Information technology courses are offered at a wide scale and they tackled all aspects of the profession. These include: electronic References Services, Digital Librarianship, Internet Resources for User Services, Collection Development, Cataloguing and Classification, Electronic Publishing, Web Designing, Networking, web Resources Evaluation, Library Automation Systems etc.

- Practical training and problem oriented research is a common feature among LIS programs.
- Customer Services, Public Services, Information Seeker Behaviour, and User Studies and Surveys are core subjects.
- Special Users Groups are receiving much more attention, e.g. Youth Librarianship, Gender Librarianship, Minority Librarianship, Children Librarianship, etc.
- There is a strong link between the curriculum development and the market needs. LIS Schools usually put an open eye on the changing needs of the industrial and developmental sectors and try to create more job/market-oriented courses.
- Public Relations, Marketing, Statistics, are major components of the LIS programs.
- Seminars, workshops, and discussion groups constitute a regular forum for students to review and discuss the most recent and hot professional issues at different levels.
- Total Quality Management and Control is becoming a major area of concern in LIS programs.
- Great attention is being paid to resource sharing, coordination, and cooperation.
- Special concentration is put on the issue of Standardization and Unification of Library procedures, and technical activities.

Compared to what was stated by Adam (2001), it should be stated that major changes, updates; and developments should take place in Sudanese LIS programs as far as curriculums are concerned. Staff members at all Sudanese LIS departments should organize a technical meeting to discuss this issue and to take the needed initiatives and steps. Professional Associations, e.g. SALI, have to contribute positively in this regard.

Chapter Six

Patterns of Using Internet Resources

Chapter Six

Patterns of Using Internet Resources

6.1 Introduction:

This part of the study is devoted to assess the current patterns of Internet resources usage among the Sudanese librarians. It starts with assessing the level of Information Technology (IT) skills and accessibility. The time devoted for using IT is questioned, particularly for computer and Internet. The frequency and skills of using computer and Internet is assessed among the Sudanese librarians. Chapter five has also tried to assess the relationships between IT level of skills and Internet level of skills among the surveyed sample. The relationship between the IT frequency of usage and IT skills has also been checked. This part of the study also attempted to identify the major methods of getting training on Internet and computer skills. The major frequently used Internet recourses have been checked among the Sudanese librarians. Chapter five also tried to evaluate email current patterns of usage among Sudanese librarians. It is also intended to identify the level of using email systems for library services. Moreover, this chapter tried to assess the level of professional sites for the Library technical works and processes.

6.2. Information Technology Accessibility and Skills

It has always been argued that the level of Information Technology (IT) skills is highly associated with the level of accessibility to IT. By “*IT accessibility*”, we refer to the ability of a librarian to have access to IT parameters, which includes Computer, CD-ROM, Internet, email, and online databases. While “*IT Skills*” refer to the ability of a librarian to use

the IT parameters in a proper way. Skills are measured against a scale of excellent, good, weak, and none.

Table 6.1 shows the computer and Internet accessibility among the surveyed Sudanese librarians. It found that about 31.5% of the sample has home PCs, and those who have access to office PCs is almost 64% of the sample, by “*Office PCs*” we refer to a PC located in the office and available for official works in the library. When the question is about workstation, the percentage is about 32.6%, (by *workstation*, we refer to computer(s) located in a place where all staff can use for their work purposes). Those who have access to the Internet at office form almost 37.8% out of the total sample. Among those who have no home PCs, it is found that about 39% (30 librarians) are frequent visitors to public Internet café, and some 39% of them uses universities’ computer Laboratories when they need to use Internet or computer. Figure 6.1 illustrates the level of computer and Internet accessibility among the Sudanese librarians.

Regarding the Frequency of using IT among the Sudanese librarians, Table 6.2 shows that about 46.8% of the sample is regular user to computer, and 36% is semi-regular user, while only 10.8% is computer illiterate.

Table 6.1

Computer & Internet Accessibility among Sudanese Librarian – 2002.

IT Accessibility	Access		No Access		Total	
	No.	%	No.	%	No.	%
Home PC	35	31.5	76	68.5	111	100.0
Office PC	71	64.0	40	36.0	111	100.0
Desk PC	36	32.4	75	67.6	111	100.0
Internet at Office	42	37.8	69	62.2	111	100.0

Source: Fieldwork Data (2002)

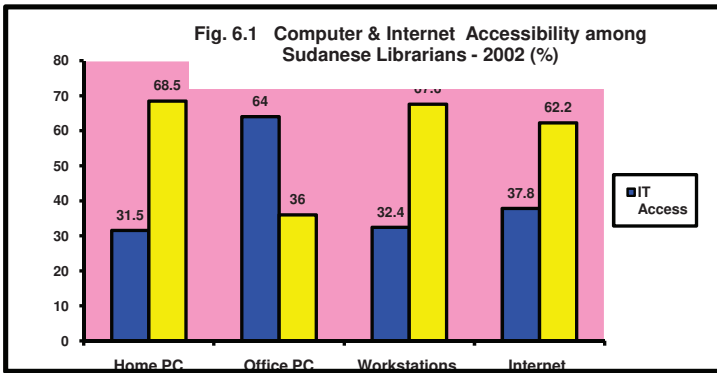
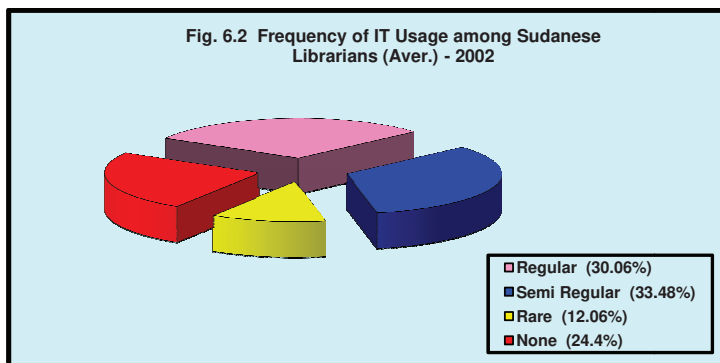


Table 6.2

Frequency of IT usage among Sudanese librarians – 2002

IT Parameters	Regular		Semi-Regular		Rare		None		Total	
	No.	%	No.	%	No.	%	No.	%	No.	%
Computers	52	46.8	40	36	7	6.3	12	10.8	111	100
CD-ROM	25	22.5	30	27	22	19.8	34	30.8	111	100
Internet	35	31.5	45	40.5	12	10.8	19	17.1	111	100
Databases	18	16.2	30	27	21	18.9	42	37.8	111	100
E-Mail	37	33.3	41	36.9	5	4.5	28	25.2	111	100
Average	33.4	30.06	37.2	33.48	13.4	12.06	27	24.4	111	100

Source: Fieldwork Data (2002).



The percentage of regular users of CD-ROM technology is only 22.5% of the sample while 30.6% of the sample has never used CD-ROM.

On the Internet level, almost 31.5% of the sample is regular user and 40.5% is semi-regular user. Also those who have rare or no access to the Internet is some 27.9% of the sample. Table 6.2 also reveals that about 37.8% of the sample has no experience in using online databases. If the rare user category added to this figure, the total percentage reaches up to 56.7% of the total sample.

Regarding the frequency of using emails, the Table shows that only 33.3% of the sample is regular user of email. Moreover, about one fourth of the sample (24.4%) has no experience with using email systems.

From the fieldwork results, Figure 6.2 shows that, on average, about 30% of the sample is regular user to the IT, 33.5% is semi-regular user, 12% is rarely use IT and about 24% of the sample have no access to IT equipment.

However, it is argued that, the IT skills are highly associated with the time devoted to using IT. Table 6.3 and Figure 6.3 show that about 32.4% of the sample uses computer for less than five hours per week, and only 19.8% of the sample uses computer between 6-15 hours per week. In other words, it is evident that more than half of the sample (52.5%) uses computer for less than 15 hours per week. The Table shows that the Internet is used for less than 5 hours per week by almost 47.7% of the total surveyed sample. Also about 29.7% uses the Internet between 6-15 hours per week, i.e. about three fourths of the sample (77.4%) uses Internet for less than 15 hours per week.

Table 6.3
Time devoted for the usage of computer & Internet Among
Sudanese librarians – 2002

Time Per week (Hors)	Computer		Internet	
	No.	%	No.	%
Less than 5	36	32.4	53	47.7
5 – 15	22	19.8	33	29.7
16 – 25	12	10.8	8	7.2
26 – 35	23	20.7	7	6.3
36 – 45	9	8.1	6	5.4
More than 45	9	8.1	4	3.6

Source: Fieldwork Data (2002).

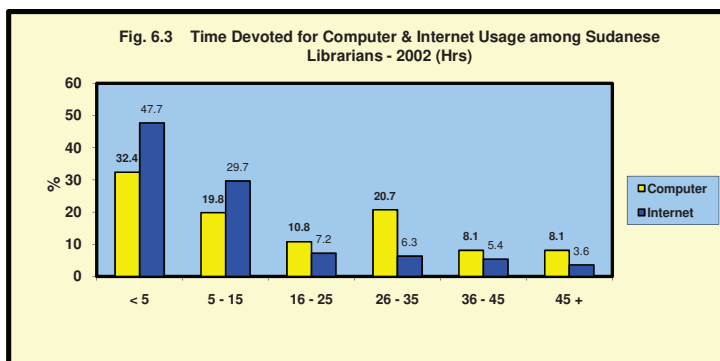


Table 6.3 proves that the accessibility and use of IT among the Sudanese Librarians is very limited and the time devoted to the use of IT is very short.

When assessing the level of IT skills, the survey attempted to assess it in relationship to accessibility, frequency of use and qualifications. Table 6.4 reveals that about 27.9% of the sample has rated their skills to deal with

computer as excellent, 55% as good, while 9% has no experience in dealing with computers. The percentage drops down when the sample was questioned to evaluate their CD-ROM skills, 24% of the sample rated their skills as excellent, 30.6% as good, and 28.8 % with no experience to deal with CD-ROM.

For Internet usage, about 27% of the sample has rated their skill as excellent, 40.5% as good and 16.2 % as Internet non-users. For the online databases, it is found that about 40% of the sample has never used databases before. For email skills, Table 6.4 shows that about 19.8% of the survey librarians have never used email, 34.2% has good skills in using email, and 36% of the sample is excellent in using email systems.

Figure 6.4 visualizes the average level of IT skills among the Sudanese librarians. It is revealed that about 25.9% of the sample is of excellent level to deal with IT, 37.48% with good level of IT skills, 13.5% weak, and 22.8% with no skills of using IT.

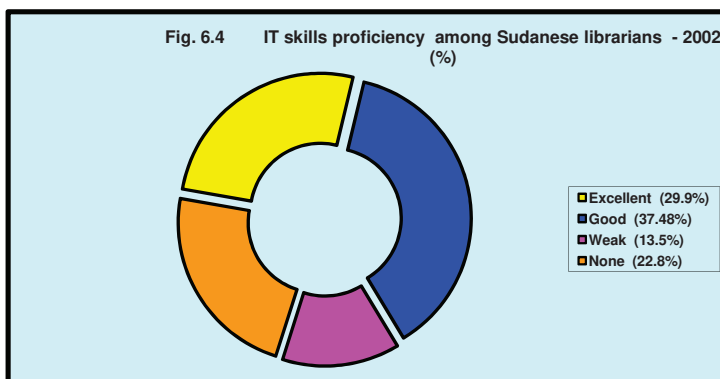
To assess the relationship between qualification and level of IT Skills, a cross-tabulation technique has been used. Table 6.5 shows this relationship in figures.

Table 6.4

IT skills proficiency among Sudanese librarians – 2002

IT Parameters	Excellent		Good		Weak		None		Total	
	No.	%	No.	%	No.	%	No.	%	No.	%
Computers	31	27.9	61	55	9	8.1	10	9	111	100
CD-ROM	27	24.3	34	30.6	17	15.3	33	28.8	111	100
Internet	30	27	45	40.5	18	16.2	18	16.2	111	100
Databases	16	14.4	30	27	20	18	45	40.0	111	100
E-Mail	40	36	38	34.2	11	9.9	22	19.8	111	100
Average	28.8	25.9	41.6	37.48	15	13.5	25.6	22.8	111	100

Source: Fieldwork Data (2002).



It is found that about 19.8% of the B.A holders rated their level of skills in computer usage as good and about 15.3% of the B.A holders considered their skills in using computer as good and about 15.3% of the B.A holder considered themselves as good in the skills of using CD-ROM, 19.8% of

the B.A holder rated themselves as good in usage of Internet, and 11.7% as excellent in using email. Out of those with postgraduate diploma about 24.3% look to their skills in computer as good skill, and 15.3% with good skills in Internet, and 17.1%, 14.4% as excellent and good in email.

However, from the percentages listed in Table 6.5, it seems that there are no direct relationship between the qualification and the level of IT skills among the Sudanese librarians. The percentages cited in the Tables have shown no statistical importance that links any certain qualification to the level of IT skills among the Sudanese librarians.

To test the hypothesis that level of skills in using IT is associated with the frequency of IT usage, a cross-tabulation has been used for this purpose. Table 6.6 shows that there is a very strong relationship between the level of IT skills and the frequency of IT usage. Almost 22.5% out of 27.5%, which represents 81% of those who use computer on regular basis has rated their level of computer skill as excellent. Out of those who uses computer on regular basis, 23.4% describe their skill as good in using computer.

Regarding the Internet, it is found that 20.7% out of 27.9%, which represents 74% of those who uses computer on regular basis, has considered their Internet skill as excellent. Also about 72% of those who uses email on regular basis (20% out of 27.9%) have considered their computer usage skill as excellent.

Table 6.5

Qualifications & IT skills among Sudanese librarians – 2002. (%)

Source: Fieldwork Data (2002).

Level of IT Skills	Qualifications among Sudanese Librarians %														
	Computer			CD-ROM			Internet			Databases			E-mail		
	B.A	Dip	M.Sc	B.A	Dip	M.Sc	B.A	Dip	M.Sc	B.A	Dip	M.Sc	B.A	Dip	M.Sc
Excellent	8.1	13.5	6.3	3.6	12.6	5.4	3.6	13.6	7.2	4.5	7.2	2.7	11.7	17.1	7.2
Good	19.8	24.3	10.8	15.3	9.9	5.4	19.8	6.3	5.4	9.0	13.5	4.5	11.7	14	8.1
Weak	2.7	1.8	3.6	2.7	10.8	5.4	2.7	6.3	7.2	7.2	5.4	5.4	3.6	2.7	3.6
None	4.5	1.8	2.7	10.8	8.1	7.2	6.3	6.3	3.6	14.4	15.3	10.8	8.1	7.2	4.5

Table 6.6

Level of computer skills and frequency of IT usage among Sudanese librarians – 2002. (%)

Source: Fieldwork Data (2002).

Rating System: RG = Regular, SR = Semi-Regular, R = Rare, N = None.

Level of Computer Skills	Frequency of IT Usage																			
	Computer					Internet					E - Mail					Databases				
	RG	SR	R	N	N	RG	SR	R	N	N	RG	SR	R	N	N	RG	SR	R	N	
Excellent	22.5	5.4	0.0	0.0	0.0	20.7	6.3	0.0	0.9	0.9	19.8	6.3	0.9	0.9	0.9	8.1	12.6	3.6	3.6	
Good	23.4	27.0	1.8	0.0	0.0	10.8	29.7	10.8	3.6	3.6	12.6	27.9	2.7	11.7	7.2	12.6	14.4	20.7		
Weak	0.9	3.6	2.7	0.9	0.9	0.0	4.5	0.0	3.6	3.6	0.9	2.7	0.9	3.6	0.9	1.8	0.9	4.5		
None	0.0	0.0	0.9	1.8	1.8	0.0	0.0	0.0	9.0	9.0	0.0	0.0	0.0	9.0	0.0	0.0	0.0	9.0		

Table 6.7

Level of Internet skills and frequency of IT usage among Sudanese librarians – 2002. (%)

Source: Fieldwork Data (2002).

Rating System: RG = Regular, SR = Semi-Regular, R = Rare, N = None.

Level of Computer Skills	Frequency of IT Usage																			
	Computer					Internet					E - Mail					Databases				
	RG	SR	R	N	N	RG	SR	R	N	N	RG	SR	R	N	N	RG	SR	R	N	
Excellent	22.5	5.4	0.0	0.0	0.0	20.7	6.3	0.0	0.9	0.9	19.8	6.3	0.9	0.9	0.9	8.1	12.6	3.6	3.6	
Good	23.4	27.0	1.8	0.0	0.0	10.8	29.7	10.8	3.6	3.6	12.6	27.9	2.7	11.7	7.2	12.6	14.4	20.7	20.7	
Weak	0.9	3.6	2.7	0.9	0.9	0.0	4.5	0.0	3.6	3.6	0.9	2.7	0.9	3.6	0.9	0.9	1.8	0.9	4.5	
None	0.0	0.0	0.9	1.8	1.8	0.0	0.0	0.0	9.0	9.0	0.0	0.0	0.0	9.0	0.0	0.0	0.0	0.0	9.0	

This proves that there is a strong positive relationship between the frequency of using IT and the level of computer usage skills. In other words, the more the frequency of using computer, the higher the level of IT usage skills is found.

Table 6.7 sheds some light upon the relationship between the level of Internet usage skills and the frequency of using IT. The Table shows that 20.7% out of 27%, which represents 77% of those with excellent level of computer knowledge, uses Internet on regular basis.

The rest of the percentage (33%) uses Internet on semi-regular basis. Also it is revealed that about 60% (24.3 out of 40.5) of those who classified themselves with excellent skills in using Internet, uses Internet on regular basis, while the rest of the segment (40 %) uses Internet on semi-regular basis. The same trends were reflected by the data concerning the frequency of using email systems and online databases. It is revealed that about 23.4% of those who use the email on regular basis have identified their Internet usage as excellent, and 24.3% out 40.5% is excellent user of Internet and at the same time they use Internet on regular basis.

The findings of the fieldwork shown by table 6.6 and 6.7 indicate that there is a strong relationship between the level of computer and Internet skills on one hand, and the frequency of IT usage among the Sudanese librarians. In short, the more the regular basis of using IT, the higher the level of IT skills is found among the Sudanese librarians.

The findings of the survey revealed that the ways that the Sudanese librarians use to get IT training and skills vary from one IT parameter to another.

Table 6.8 shows that the major way of getting knowledge and training in computer is “Training Courses”. About 43.2% of sample indicated that they have attended training courses in computer skills. Then 22.5% of the sample indicated “Study” as a way for acquiring skills in computer, followed by 18.9% of the sample who indicated “Self-Training Programs” as a way for getting training in computer.

Regarding CD-ROM both “Training Courses” and Sharing Experience with Colleagues” have been identified as the first method of getting training on CD-ROM technology.

Followed by “Self-Training Programs” (22.5%). About 32.4% of the sample has indicated that they attended “Training Course” on Internet skills. 25.2% of the sample has selected “Self-Training Programs”, and 19.8% has shared experience with other colleagues to get new skills for using Internet.

As far as online databases training is concerned 34.2% of the sample has indicated that they do not get any training in this area of skills. Followed by 20.7% through training courses and 21.6% via “Self-Training Programs”.

With regard to email skills and training, Table 6.8 shows that 29.7% of the sample has attended some “Training Courses” on using email, 23.5% has shared experience with colleagues and followed by 22.5% through self training programs.

Table 6.8

Ways of getting IT training among Sudanese librarians – 2002

IT Parameters	Study		Training		Colleagues		Self-Training		No Training	
	No.	%	No.	%	No.	%	No.	%	No.	%
Using Computers	25	22.5	48	43.2	8	7.2	21	18.9	9	8.1
Using CD-ROM	9	8.1	31	27.9	31	27.9	25	22.5	15	13.5
Using Internet	12	10.8	36	32.4	22	19.8	28	25.2	13	11.7
Using Online Databases	10	9.0	23	20.7	16	14.4	24	21.6	38	34.2
Using E-Mail	7	6.3	33	29.7	26	23.4	25	22.5	20	18
Average	12.6	11.36	34.23	30.78	20.6	18.56	24.6	22.16	19	17.14

Source: Fieldwork Data (2002).

Fig. 6.5 Methods of IT training among Sudanese librarians - 2002 (%)

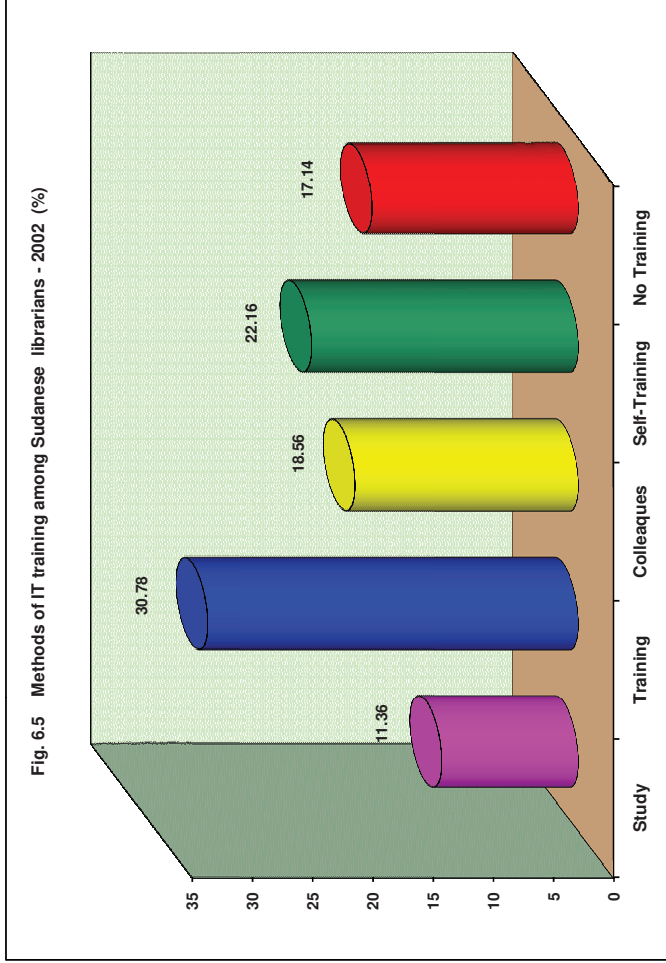


Figure 6.5 and Table 6.8 prove that the major way of getting training on IT among Sudanese Librarians is “training courses” which gets, on average, about 31% of the sample, then “self-training programs” with about 22%, “sharing experience with colleagues” 18.5%, “study” 22% and the remaining 17% of the sample is the segment that does not get any sort of training as far as IT is concerned.

6.3 Current Patterns of Using Internet Resources:

The objective of this part of the study is to identify the major patterns of usages of the Internet resources among the Sudanese librarians. This part has attempted to evaluate the frequency of browsing some of the major professional web resources, and how often do Sudanese librarians browse these sites. The major current usages of Internet resources are examined to rank them according to their frequency of usage among the Sudanese librarians.

When the sample was asked to identify and rank the most frequent activities they practice through the Internet, it is evident that, as shown in Table 6.9, the first selection made by about 25.2% of the sample is chatting sessions (none-professional chatting); also 22.5% has selected user services as the first rank activity. Almost half of the sample (50.5%) selected checking mail as the second rank activity practiced by the Sudanese librarians. The selection of “Browsing professional sites” has also been identified as the third Rank activity by 17.1% of the sample.

Table 6.9

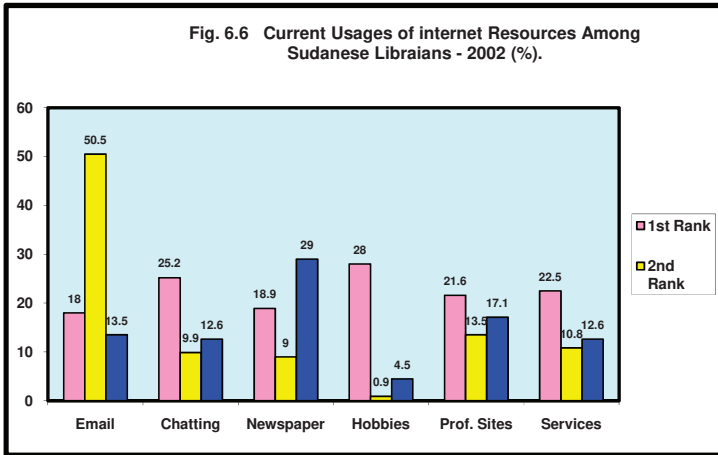
**Patterns of Current Usage of the Internet Resources
Among Sudanese Librarians – 2002**

Internet Usage	1st Rank		2nd Rank		3rd Rank	
	No.	%	No.	%	No.	%
Checking E-Mail	20	18.0	56	50.5	15	13.5
Chatting Sessions	28	25.2	11	9.9	14	12.6
Reading Newspapers	21	18.9	10	9.0	32	29.0
Personal Hobbies	31	28.0	1	0.9	5	4.5
Professional Sites	24	21.6	15	13.5	19	17.1
User Services	25	22.5	12	10.8	14	12.6
Others	29	26.0	1	0.9	2	1.8

Source: Fieldwork Data (2002).

Figure 6.6 proves that that the current major three usages of activities for the web-based resources among the Sudanese librarians are “Chatting Sessions”, “Checking Emails”, and “Browsing Professional Sites”.

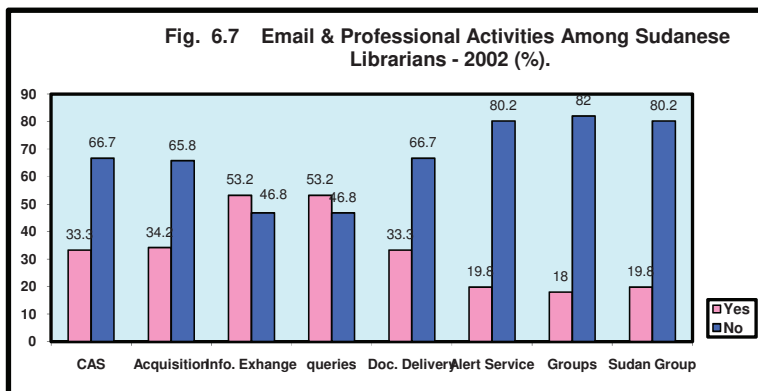
Among the different type of resources provided by the Internet, it is agreed upon that one of the most important services is the Electronic Mail Systems (email). Emails also provide a worldwide communication network for social, cultural economic and professional aspects of life. They also provide a quick and efficient channel for exchanging information in different formats e-g textual, numerical, and picture. They function regardless of the cultural and physical barriers. Geographical distance, political boundaries as well as cultural and ideological orientation have nothing to do with email services.



Email systems provide an efficient tool for serving library users. Email systems could be used to develop more efficient library services. Prominent examples of library services that suite email systems are the Current Awareness Services (CAS), acquisition, Selective Dissemination of Information (SDI), User Queries (UQ), Alert Services, and Professional Discussion Groups.

In the modern library and information environments, email systems could be used for developing more efficient customer services through disseminating information and keeping users up-to-date and well informed about the library collection, activities and services. Also the email systems could provide librarians themselves with a crucial tool for professional development. This could be done through the exchange of information between librarians on national, regional, and international levels. Figure 6.7 also illustrates on graphics the usage of email for professional activities among Sudanese librarians.

As stated earlier, Table 6.9 proves that “Using Email” has been identified as one of the major three usages of the Internet among the Sudanese librarians. When the survey attempted to assess the use of the email systems for the library services, it is evident that the majority of the sample does not use email systems for professional activities.



The surveyed librarians have been asked whether they have used email systems for selected eight library services. Table 6.10 reveals that on average two thirds of the sample (66.9%) has never used email systems neither for providing professional customer services nor for developing their professional skills and capabilities. It is evident that only about 34% or less of the sample has used email systems for functioning these services and activities.

The two exception of this are “exchange of information” and “User queries” both have a bigger segment of the sample. About 53.2% of the sample has indicated they use email for these activities.

The least percentage among these activities has associated with the activity of participating in International Discussion Groups, as only 18% of the sample has mentioned that they utilized this email facility. Figure 6.7 also illustrates the utilization of emails into the above-mentioned services.

Table 6.11 also shows a cross-tabulation between the practicing of professional activities through email, on one hand, and the email level of skill, on the other hand. The Table reveals that even among those who have got excellent and good level of skills in using email system, only small percentage uses email systems for professional activities.

For instance, the segment of those who have excellent and good level of email skills and they do not subscribe to Alert Services, reached to almost 29% of the sample. Also almost the same percentage has membership of International Discussion Groups.

Table 6.10
Using email for professional activities among
Sudanese librarians – 2002

Activity	Yes		No	
	No.	%	No.	%
Current awareness Services	37	33.3	74	66.7
Acquisition	38	34.2	73	65.8
Exchange of Information	59	53.2	52	46.8
Users' Queries	59	53.2	52	46.8
Document Delivery	37	33.3	74	66.7
Alert Services	22	19.8	89	80.2
Discussion Groups (Intern'l)	20	18.0	91	82.0
Sudan LIS Discussion Group	22	19.8	89	80.2
Average	37	33.1	74	66.9

Source: Fieldwork Data (2002).

On the other hand, about 28.8% of the sample with excellent and good skills of using email has indicated that they use email for exchanging information with colleagues. In addition, the same percentage (28.8%) has used email for answering customer queries. It is noted that regardless of the level of skill, the majority of the sample does not utilize the facility of the email systems to activate library professional services.

Table 6.11
Using email for professional activities among
Sudanese librarians – 2002 (%)

Professional Activities		Skills of Using Email Systems				
		Excellent	Good	Weak	None	Total
Alert Service	Yes	7.2	5.4	2.7	4.5	19.8
	No	7.2	21.6	15.3	36.0	80.2
International Discussion Groups	Yes	7.2	4.5	1.8	4.5	18.0
	No	7.2	22.5	16.2	36.0	82.0
Sudan LIS Discussion Group	Yes	7.2	5.4	3.6	3.6	19.8
	No	7.2	21.6	14.4	36.9	80.2
Information Exchange	Yes	10.8	18.0	8.1	16.2	53.2
	No	3.6	9.0	9.9	24.3	46.8
Users' Queries	Yes	12.6	16.2	7.2	17.1	53.2
	No	1.8	10.8	10.8	23.4	46.8
Current Awareness Services	Yes	9.9	12.6	4.5	6.3	33.3
	No	4.5	14.4	13.5	34.2	66.7

Source: Fieldwork Data (2002).

6.4. Using Internet Resources for Library Technical Processing:

The development of the Internet and its resources has brought various impacts on the library and information profession. The Internet has provided librarians with endless list of resources, which are needed and utilized for the daily and routine works.

Moreover, the web-based resources with its wide diversity have made a real contribution to the services offered by librarians to their clients. Online Public Access Catalogue (OPAC), Full Text materials, Reference materials, Discussion Groups, and Technical Processes Sites are only examples of that endless list of resources.

It has always been argued that the technical processing of the library materials, e.g. Classification, Cataloguing, Indexing, and Abstracting, is a key way for getting the knowledge organized and easily accessible and retrievable inside libraries. It is true that technical processes are time and effort consuming, but it is also true that no one can imagine a library without Classification, Cataloguing, Indexing, and Abstracting services.

The impact of the Internet resources has contributed a lot to make these processes easier than before. Internet resources have provided more chance for quality assurance and control. The use of the Internet resources for these technical processes would lead to more resource sharing and reduction of the cost and efforts.

Nowadays, OPACs of the internationally recognized libraries are available free online. Most of these OPACs provide different formats of bibliographic records. Internet resources have also increased the opportunity of resource sharing, exchange of information on national,

regional and international levels. Through certain agreements and using standard formats for cataloguing e.g. MARC Format, it has become possible and feasible to export and import bibliographic information and records worldwide between libraries. The most prominent example is Online Computer Library Center's Network of Libraries (OCLC), which has enhanced the international bibliographic cooperation.

The Online Reference and Full Text Materials have contributed to narrow the information gap between the rich and poor information societies. Most of these materials are available online and free and they can be downloaded, forwarded, emailed and printed. They include different formats of information, textual, numerical and pictures.

The number of full text materials, i.e. books, conference proceedings, journal, etc. is in a continuous increase. The web-based Reference Materials are considered a real advancement and revolution in the library and information services. Most of the traditional reference works have been converted from the printed into the digital format. The hard covers have been replaced with graphics and the pages have been substituted with arrows and icons. The efficient and smart search engines have made the search processes as easy as an entertainment.

Furthermore, the Internet resources have facilitate the process of exchanging information, viewpoints and experience between library professionals worldwide, and enhanced the Professional Associations' role and impact. It has become possible for any librarian to get membership of the reputed Professional Associations and consequently receives regularly all the alerts and notices about the professional activities run by these associations. Moreover, librarian can login into profession chatting rooms, where librarians can exchange viewpoints, ideas and experience.

Discussion groups and career chatting rooms play a real role in facilitating communication between library professionals, regardless of their geographical location.

This part of the study tries to assess the level of utilization of these web-based resources for library technical works among the Sudanese librarians.

Table 6.12 shows that a very limited number of the sample has used to browse professional web sites.

For the purpose of this study, the professional web sites of the following were selected. Dewey Decimal Classification (DDC) Homepage, Library of Congress Homepage (LC), the British Library (BL), Ohio Central Library Catalogue, and Online Computer Library Center (OCLC).

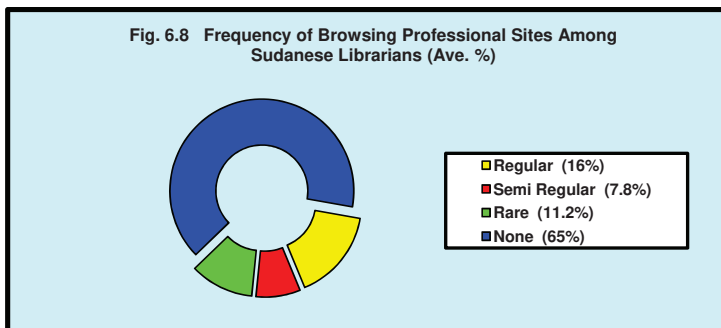
Those sites were selected as prominent web sites that provide professional valuable assistance in Classification, Cataloguing, as well as Indexing.

Reference and Full Text material web sites were examined also as they provide vital assistance in the area of users' queries, and document delivery services.

Table 6.12
Frequency of browsing professional web sites among Sudanese librarians – 2002

Web Site	Regular		Semi Regular		Rare		None	
	No.	%	No.	%	No.	%	No.	%
Dewey Classification	12	10.8	19	17.1	8	7.2	72	64.9
Library of Congress	7	6.3	17	15.3	23	20.7	64	57.7
British Library	8	7.2	25	22.5	17	15.3	61	55
Ohio Central Catalogue	3	2.7	15	13.5	6	5.4	87	78.4
OCLC	7	6.3	8	7.2	11	9.9	85	76.6
Reference Materials Sites	18	16.2	21	18.9	18	16.2	54	48.6
Full Text Journals	15	13.5	30	27	13	11.7	53	47.7
The UNESCO	14	12.6	23	20.7	18	16.2	56	50.5
American Library Assoc.	8	7.2	24	21.6	12	10.8	67	60.4
Library Association (UK)	9	8.1	19	17.1	15	13.5	68	61.3
IFLA	11	9.9	29	26.1	9	8.1	62	55.9
Amazon Dot Com	17	15.3	20	18	11	9.9	63	56.8
Average	18	16	8	7.8	12	11.2	73	65

Source: Fieldwork Data (2002).



Moreover the use of the web sites of the International Federation of Library Associations, (IFLA), the United Nations Educational, scientific and Cultural Organization (UNESCO), the Library Association (UK) and the American Library Association (ALA) are also examined as prominent professional associations, which provide indispensable information in the area of training and professional development.

In addition, the use of the Amazon web site is also assessed as the largest electronic bookstore and bookseller in the world. For library and information world, Amazon is one of the indispensable web site that provides information on book availability and pricing.

Although nearly all of the libraries in Sudan use Dewey Decimal Classification Scheme (DDC) for classifying their collection, Table 6.12 shows that only very limited number of the sample browses DDC web site for updating themselves with latest updates, versions and amendments on DDC, which provided by the site. Only 10.8% of the sample indicated themselves as regular browsers for DDC web site, and some 17.1 % as semi-regular browsers. On the other hand about 64.9% of the sample indicated that they have never browsed DDC web site.

Regarding the Library of Congress (LC), and the British library (BL) only 6.3%, 7.2% respectively, have indicated that they browse these homepages on regular basis. While 15.3% of the sample is semi-regular browsers to the LC home page, and 22.5% are semi-regular browsers to the BL.

Out of the total sample, about 57.7% has pointed out that they have never browse the LC site, and about 55% has never browsed the BL homepage. As for Ohio Central Library and OCLC home pages, the fieldwork results revealed that 78.4% and 76.6% of the sample have respectively indicated

that they have never browsed these sites. The overall average indicated that only 6.7% of the sample has regularly browses the above-mentioned web sites, and 66.5% has never browsed these sites.

As far as reference material sites are concerned, the study revealed that only some 16.2% of the sample is regular browsers to the reference materials sites, about 18.9% uses to browse these site on semi-regular basis, while 48.6% of the sample has indicated that they have never browsed reference material sites. Table 6.12 shows that almost 13.5% of the sample has indicated that they are regular browsers of the full text material sites, 27% are semi-regular browsers and 47.7% has never browsed these sites.

Regarding the homepages of the professional development institutions and association, UNESCO web site has been regularly browed by 12.6% and semi-regularly by 20.7% of the sample. About 50.5% of the sample indicated that they have never browsed UNESCO web site. The American Library Association (ALA) and the Library Association (UK) have been regularly browed by some 7.2% and 8.1% of the sample successively. The ALA site has been semi-regularly browsed by about 21.6% of the sample. While semi-regular browsers of the LA web site reached 17.1% of the sample. Some 60.4% and 61.3% of the sample have indicated that they have never browsed the web sites of the ALA and LA respectively. International Federation of Library Associations (IFLA) has been browsed by 9.9%, 26.1% of the sample on regular and semi-regular basis. While about 55.9 % of the sample has never browsed this site.

Amazon web site, as shown in Table 6.12, has been regularly browsed by 15.3% of the sample and semi-regularly by 18% of the sample. Almost 56.8% of the sample has never browsed Amazon web site.

Table 6.12 and Figure 6.8 illustrate that, on average, the majority of the sample (65%) has never browsed the above listed sites.

The study has also attempted to assess the frequency of using the above-mentioned sites for the library technical processes among the Sudanese librarians. Actually, it is not necessary only to browse these sites, but the crucial issue is to make use of them for library technical processes.

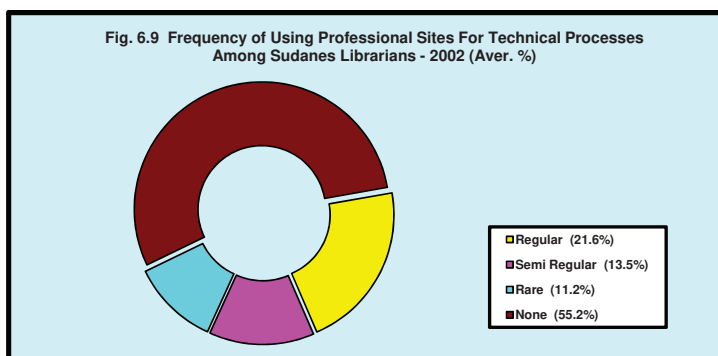
Table 6.13 shows that only 9.9% of the sample regularly uses the first four web sites for classification of library materials and only 10.8% uses these sites regularly for cataloging and 13.5% for selecting subject headings. On semi-regular basis, it is found that about 21.6%, 18%, and 16.2% use these sites for classification, cataloging and selecting subject headings respectively.

Table 6.13

Frequency of using Internet resources for technical processes among Sudanese librarians – 2002

Technical Process	Regular		Semi Regular		Rare		None	
	No.	%	No.	%	No.	%	No.	%
Classification	11	9.9	24	21.6	8	7.2	68	61.3
Cataloguing	12	10.8	20	18	11	9.9	68	61.3
Subject Heading Selection	15	13.5	18	16.2	11	9.9	67	60.4
Dissemination of Information	16	14.4	17	15.3	10	9	68	61.3
Current Awareness	16	14.4	19	17.1	10	9	66	59.5
Reference Services	25	22.5	21	18.9	16	14.4	49	44.1
Document Delivery	15	13.5	16	14.4	15	13.5	65	58.6
Pricing & Quoting	24	21.6	15	13.5	13	11.7	59	53.2

Source: Fieldwork Data (2002).



It is evident that about 68% of the sample has never used these sites for classification, cataloguing or subject headings. This means that about two thirds of the sample have never used these sites for technical processes.

As far as customer service is concerned, the study tried to assess the frequency of using full text and reference material sites for the services of

Selective Dissemination of Information (SDI), Current Awareness Services (CAS), Reference Desk Services (RDS), and Document Delivery Services (DDS).

The study findings, as shown in Table 6.13, reveals that about 14.4% of the sample regularly uses Full Text and Reference material sites for serving SDI and CAS. About 22.5% of the sample regularly uses reference sites for activating Reference Desk services at their libraries.

For Document Delivery Service, only 13.5% of the sample uses full text materials sites for handling texts and documents on regular basis. It is also found that about 15.3%, 17.1%, 18.9% and 14.4% of the sample, semi-regularly uses these sites for Selective Dissemination of Information, Current Awareness Services, Reference Desk Services, and Document Delivery Services respectively.

On the other extreme Table 6.13 reflects that about 61.3%, 59.5%, 44.1% and 58.6% of the sample have never used Full Text and Reference material sites for SDI, CAS, reference desk, and document delivery services respectively.

On average, it is estimated that more than half of the sample (55.8%) has never used these sites for any of the customer services in their libraries.

Although it is relatively, less percentage compared to that of the technical process (67%). Nevertheless, it still indicates that large segment of the sample missed these impressive and helpful resources in their libraries.

Regarding the frequency of using Amazon site for locating, pricing and quoting documents, it evident that about 21.6% of the sample has indicated that they regularly use Amazon web site for locating, pricing and quoting documents for their libraries and clients. About 13.5% uses Amazon on

non-regular bases. While it is found that about, 53.2% has never used the Amazon for any of these functions.

Figure 6.9 also illustrates, on average, that more than half of the sample (55.2%) has never used these technical web site for any of the library technical works. About 16.4% of the sample has used regularly these sites and about 17.2% has used them on semi-regular basis.

To conclude the issue of Internet patters of use among the Sudanese Librarians, and to have a complete image about this issue we should ensure that both level of skills and pattern of use are highly associated with the accessibility to IT devices and Internet. The more the time devoted to IT and Internet usage the higher the level of skills is expected to be found, i.e. more the accessibility the more the skills in expected to be found. Moreover, the application and usage of Internet is associated with the time devoted to Internet usage, i.e. with long time of practice and using the Internet, and with more Internet accessibility and frequent use, one would, definitely gain much more skills, and tricks in using Internet for different purposes. However, when we discuss the use of Internet resources among the Sudanese librarians, it is found that the using of these resources for the technical library works is very limited. This should be viewed in association with the limited time devoted for using Internet, which is also linked to the Internet connectivity and availability. The Internet connectivity and availability in Sudanese libraries is something out of the hands of the librarians. Rather it is a matter of decision-making and planning. In addition, Internet connectivity and availability have lot to do with the economic condition, and where libraries and information services have been ranked among the decision makers' list of priorities.

Although the field survey results have showed that there is a limited usage of IT and Internet resources by the Sudanese librarians, still the researcher

believes that the Sudanese Librarians are not unique in this situation and position. In most of the developing countries the situation and image looks similar. The limited economic resources, the rank of libraries and information among the list of priorities, the low level of the awareness among decision- makers, and the lack of proper infrastructures all have contributed a lot in hindering the full and maximum utilization of the IT and Internet for library services.

Chapter Seven

Perceptions of the Impacts of Internet Resources

Chapter Seven

Perceptions of the Impacts of Internet Resources

7.1. Introduction:

This chapter has been devoted to assess the level of perceptions among Sudanese librarians regarding the Internet resources and their use for library services. The perceptions of the Internet's impact on training and development have been assessed among the Sudanese librarians. In addition, the perceptions of the level of professional development attained through Internet by the Sudanese librarians also have been assessed.

In addition, this chapter attempted to assess the perceptions about the contribution of Internet resources on self-training programs, lack of training opportunities, acquiring news professional skills, and solving the budget cuttings.

In addition, this part of the study tried to evaluate the frequency of browsing some professional sites, as well as the frequency of using these sites for library technical works.

Moreover, this chapter tried to assess the perceptions about the barriers to the use of the Internet resources among the Sudanese librarians.

7.2. Perceptions of the Impact of Internet Resources on Training and Development.

It has been argued that Internet resources have become very important source of current information. The Internet offers an array of capabilities for exchanging communicating, and retrieving information. Wide opportunities for developing, learning and training have been made available online through the Internet. This part of the study tried to assess

the level of perceptions of the Internet impact on training and development among the Sudanese librarians.

According to their current level of skills of using the Internet, the surveyed population was asked to identify the level of Internet training needs. Table 7.1 shows that almost 46.9% of the sample has indicated that they need intensive training to develop their Internet usage skills.

About 28.8% of the sample indicated that they need little training, and about 20.7% argued that they need some sort of training, but they can take care of that by themselves, as they have showed that they can run self-training program.

On the other extreme, only 3.6% of the sample indicated that they do not need Internet training. It is obvious that there is a high level of training needs among the Sudanese librarians as for as the Internet usage skills is concerned. Table 7.1 shows that almost 107 out of 111 respondents, (96.4%) have indicated that they are in need for Internet oriented training. Although the training needs vary in level from intensive to little level of needs, it still indicated that there is a high level of training needs in this area of concern.

Table 7.1

Perceptions of training needs among Sudanese Librarians - 2002

Type of Training Needed	NO.	%
Intensive Training	52	46.9
Little Training	32	28.8
Self -Training programs	23	20.7
No Training Needed	4	3.6
Total	111	100.0

Source: Fieldwork Data (2002).

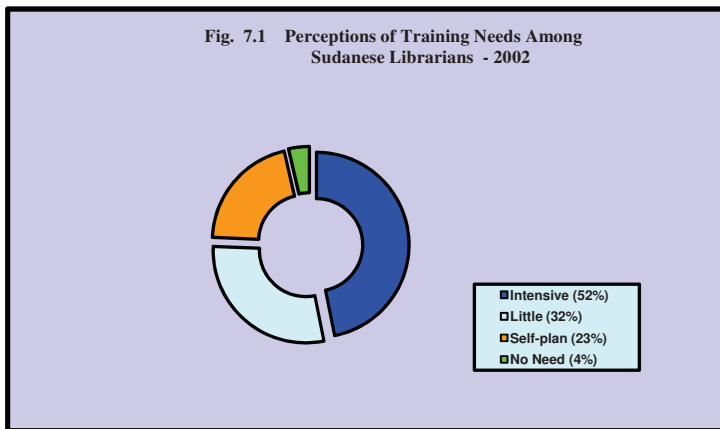


Figure 7.1 illustrates in graphics the perceptions of the training needs among the Sudanese librarians.

When the surveyed population was asked about their perceptions of the following statement. “ *Sudanese librarians are in serious need for training on Internet usage for library and information services*”, about 68.5% of the sample has indicated that they strongly agrees with this statement, 22.5% agrees to this argument 7.2% are neutral, and only 1.8% of the sample disagrees. This means about 91% of the sample strongly agrees/agrees that Sudanese librarians are in need for training in the area of Internet usage for library and information services. (Table 7.2)

In addition, the study tried to assess the perceptions of the Sudanese librarians about the impact of the Internet resources on the professional development. Table 7.3 shows that there is some difference between the perceptions about the impact of Internet on the general level and on the personal level. Figure 7.2 sheds some light on this issue.

The study tried to assess the perceptions of librarians on the impact of the Internet on the general level; it is revealed that about 61.3% of the sample perceives Internet resources as of a high level of impact on professional development. When the surveyed librarians were asked about the professional development they have maintained at the personal level, only 18% of the sample indicated that they maintained high level of professional development through Internet resources.

Table 7.2
Perceptions of the Internet resources' Impact on training among
Sudanese librarians - 2002 (percentage).

Internet Resources and Training	Perceptions of the Impact on Training				
	Strongly Agree	Agree	Neutral	Disagree	Strongly Disagree
Positive impact on self-training programs.	45	43.2	8.1	1.8	1.8
Substitute to institutional training opportunities.	28	36.0	0.0	31.5	4.5
Contribution to solve financial problems.	44.1	28.8	8.1	13.5	5.4
Training on the use of the Internet is seriously needed for Librarians	68.5	22.5	7.2	1.8	0.0

Source: Fieldwork Data (2002)

Also on the general level only about 7.2% perceived the Internet impact on professional development as low, while almost 38% of the sample perceived their level of professional development through Internet as low.

The surveyed librarians were asked to indicate their perceptions to the statement: “*Internet resources could replace and act as a substitute to the lack of the institutional training*”, it is found that about 28% of the sample, as shown in Table 7.2, has indicated that they disagree with this statement.

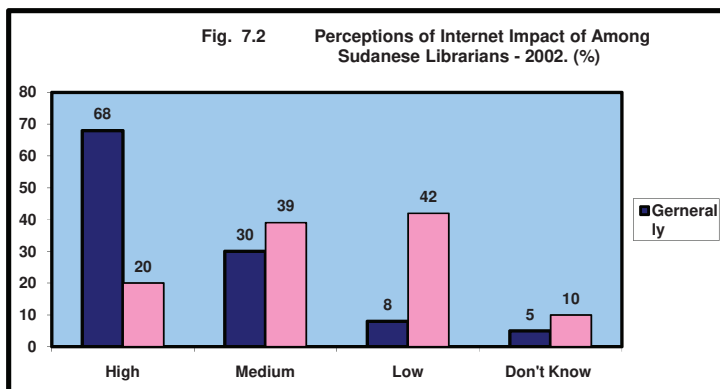
About 64% of the sample agrees that Internet resources are able to replace the shortage of the formal training opportunities. Still about one third of the sample believes that the Internet resources would not be a substitute to the formal and institutional training.

Table 7.3

**Impact of internet resources on professional development
among Sudanese librarians - 2002.**

Level of Effectiveness	Impact on Professional Development			
	Generally		Personally	
	No.	%	No.	%
High Level	68	61.3	20	18.0
Medium Level	30	27.0	39	35.0
Low Level	8	7.2	42	38.0
I Don't Know	5	4.5	10	9.0
Total	111	100.0	111	100.0

Source: Fieldwork data (2002).



The fieldwork results proved that the overwhelming majority of the sample believes that “*Internet resources have a positive impact in the self-training programs*”.

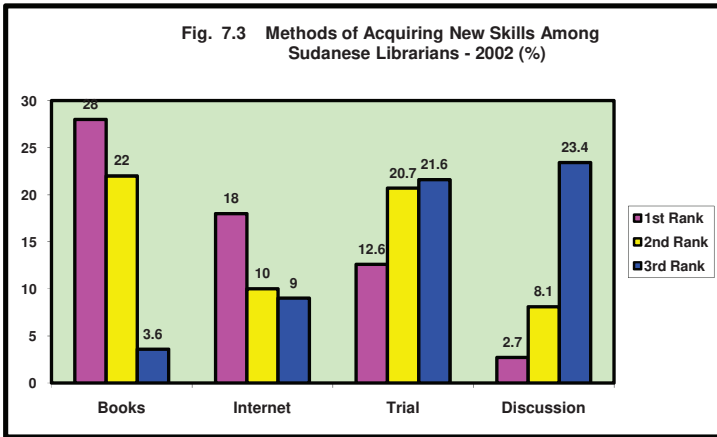
Table 7.2 reveals that 45% of the sample has indicated that they strongly agree with this statement, 43.2% of the sample agrees to this argument. In short, almost 88% of the sample agrees with this statement.

Regarding the ways through which the Sudanese librarians acquiring new professional skills, Table 7.4 and Figure 7.3 show that 28% of the sample has indicated that they depend on printed reading materials, namely books and periodicals, for getting new professional skills. The second option for first rank is web-based resources; some 18% of the surveyed population has selected this way.

The option of reading printed materials also occupies the second rank as 22% of the sample selected this option to be the second method of getting new professional skills. 23.4% of the sample has ticked discussion and sharing experience with colleagues, as a way for acquiring new professional skills.

Although the majority of the sample believes that web-based resources constitute a good opportunity for training it is revealed that, only small segment of the population has indicated Internet resources as a way for acquiring new skills. (18% as first rank option, 20.7% as second rank options, and 21.6% as third rank options). Table 7.2 and Table 7.4.

It has been found that 50.5% of the sample has developed their self-training programs to acquire new professional skills. Table 7.2 reveals that some 88% of the sample perceives positively the impact of the Internet resources on self-training programs.



To assess the impact of Internet resources on training, Table 7.5 shows a cross-tabulation between the self-training programs and the perceptions about the impact of the Internet resources on self-training programs. It is evident that there is a very strong correlation between the two issues. Out of the total percentage of those who have developed self-training programs (50.5%), it is found that 25.5% of the sample, which represents about 50% of those who have developed self-training programs, strongly agrees with the positive role of the Internet resources in self-training programs. About 20.7% of the sample agrees to that statement. In short, 45.9% out of 50.5%, which equals 91% of those who developed self-training programs, agrees to the impact of the Internet resources on self-training programs. (Figure 7.4)

Table 7.4

**Methods of Acquiring New Skills Among
Sudanese Librarians - 2002**

Method	1 st Rank		2 nd Rank		3 rd Rank	
	No.	%	No.	%	No.	%
Reading Books & Periodicals	31	28	24	22	4	3.6
Web – Based Resources	20	18	11	10	10	9.0
Trial & Practice	14	12.6	23	20.7	24	21.6
Discussion With Colleagues	3	2.7	9	8.1	26	23.4
Others	1	0.9	0.0	0.0	1	0.9

Source: Fieldwork Data (2002).

Table: 7.5

**Impact of Internet resources and & self-training plans among
Sudanese librarians – 2002.**

Having Self Training Plan	Positive Role of Internet Resources on Self -Training Programs					
	Strongly Agree	Agree	Neutral	Disagree	Strongly Disagree	Total
Yes	25.2	20.7	3.6	0.0	0.9	50.5
No	19.8	22.5	4.5	1.8	0.9	49.5
Total	45.0	43.2	8.1	1.8	1.8	100.0

Source: Fieldwork Data (2002).

Table: 7.6

Level of Internet Training Needs and Self - Training Plans among Sudanese Librarians – 2002.

Having Self-Training Plan	Level of Internet Training needed				
	Intensive	Little	Self-Plan	No Need	Total
Yes	14.4	17.1	16.2	2.7	50.5
No	32.4	11.7	4.5	0.9	49.5
Total	46.8	28.8	20.7	3.6	100.0

Source: Fieldwork Data (2002).

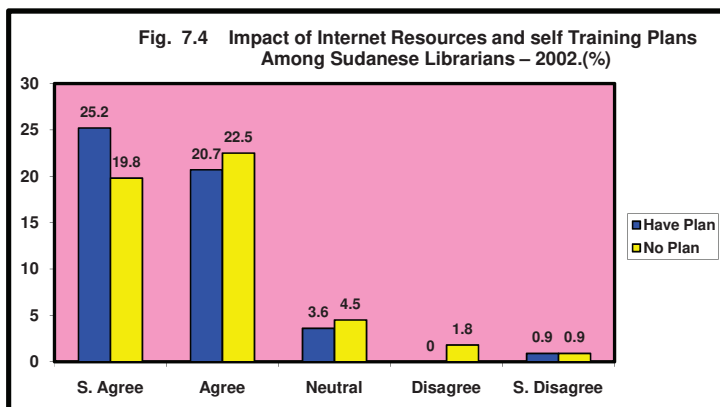
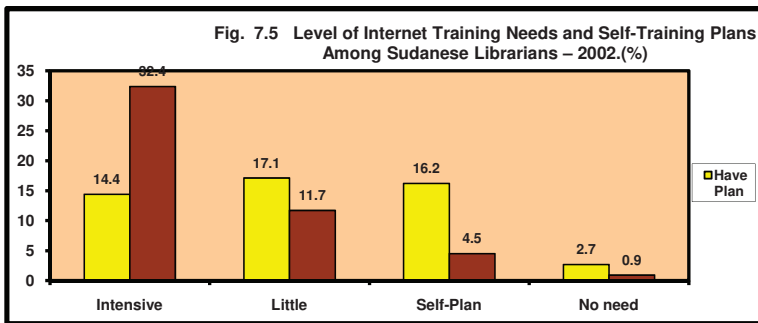


Table 7.6 shows the relationship between the developing self-training programs, and level of the training needs among the Sudanese librarians.

Among those who identified their training needs as intensive, 32.4% out of the total percentage (46.8) has indicated that they do not have self-training

programs. This segment of sample reaches almost about 69% of those who need intensive training programs. Out of 28.8% of those who identified their Internet, training needs as little, about 17.1% has developed self-training programs, which represents almost 60% of this segment.

It is noticed that among those who identified themselves as they need training with different levels, about 48.6% out 49.5% indicated that they do not have their own training plans. In other words out of those who stated that they need some sort of Internet training about 76.5% had not developed self-training program. (Figure 7.5)



Fieldwork results showed that the perceptions of the positive impact of the Internet resources to solve problems of limited financial resources have a high percentage. Table 7.2 revealed that about 44.1% of the surveyed population indicated that they strongly agree to the statement: “*The Internet resources would play a positive role in solving the problems of shortage of budget and limited financial resources.*” 28.8% of the sample has identified that they agree to this statement

Together (the segment of those who strongly agrees and agrees to this statement reached up to 73% of the sample. This means that almost three

fourths of the total sample agrees that Internet resources would play a positive role in overcoming financial and budget cuttings.

7.3 Perceptions of Impact of Internet Resources on Library

Technical Processes:

Internet resources provided to the librarians vary in types and quality. Among these different sites, the technically oriented ones have much more attention. “*Technical Processes*” refers to all processes that require certain library training; the major processes are classification, cataloguing, indexing, and abstracting.

These sites have highly been praised by librarians themselves. Their contribution to the library technical works has increased the possibility of high quality library technical works, saving money, time and efforts exerted into these processes.

Chapter five, however, showed the Internet’s current patterns of usage among the Sudanese librarians. This part of the study attempts to access the level of perceptions about Internet resources and their impact on the technical processes as perceived by the Sudanese librarians.

Table 7.7 shows that the perceptions of the Sudanese librarians on the Internet resources as a major source of information, is of a high level. About 51.4% of the sample strongly agrees with the statement: “*Internet is the most important source of information for researchers and library users*”. Some 38.7% of the sample agrees to that statement. Only 5.4% and 3.9% of the sample considered themselves neutral and disagree to that statement. It seems that the overwhelming majority of the sample (90.1%) perceives Internet as the major source for information provision to researchers and library users.

As stated earlier in Table 7.3, on the theoretical level it is found that the vast majority of the sample (98%) believes that Internet has a positive and effective role in processes of professional development.

As far as the impact of the Internet resources on the technical processes the fieldwork results showed in Table 7.7, revealed that about 41.4% of the surveyed population strongly agrees with the statement: “*The regular usage of Internet resources would increase the possibility of using these resources into the technical processes*”. 46.8% of the sample agrees to this statement. In other words, about 88.2% agrees to the statement that links the regular usage of Internet resources, to the increase of making use of those resources for technical processes.

When the respondent librarians were asked about their perceptions on the impact of the Internet resources and the quality of the technical processes. It has been proved that there is a good positive perception about the Internet impact on provision of quality technical processes.

Table: 7.6

Level of Internet training needs and Self-training plans among Sudanese librarians – 2002.

Having Self-Training Plan	Level of Internet Training needed				Total
	Intensive	Little	Self-Plan	No Need	
Yes	14.4	17.1	16.2	2.7	50.5
No	32.4	11.7	4.5	0.9	49.5
Total	46.8	28.8	20.7	3.6	100.0

Source: Fieldwork Data (2002).

It is noticed that 53.2% of sample strongly agrees to the statement: *“The usage of the Internet resources in technical processes would produce a high quality technical work.”* Some 36.9% of the sample agrees to with the above statement. The majority of the sample perceives this positive impact of the Internet on library technical works.

The study has not shown only a positive perception about the contribution of the Internet resources, in assurance of high quality technical work, but also the fieldwork results reveal that Sudanese librarians have developed positive perceptions towards the impact of Internet resources on saving time and effort.

Table 7.7 shows that 58.6% of the sample strongly agrees with the statement: *“The usage of Internet resources would contribute to save effort and time spend on the daily routine technical works”*. About 30.6% of the sample indicated that they agree to the above-mentioned statement.

Regarding the impact of the Internet resources on solving the problems of budgets and limited financial resources that face libraries in Sudan, Table 7.7 shows that 44.1% of the sample strongly agrees with the statement: *“Internet resources play major role in facing budget cuttings and limited financial resources available for the libraries in Sudan”*.

Also some 28.8 % of the surveyed librarians indicated that they agree with the above statement. In short, about 73% of the sample perceives positively the impact of Internet resources on facing the financial problems that face libraries in Sudan.

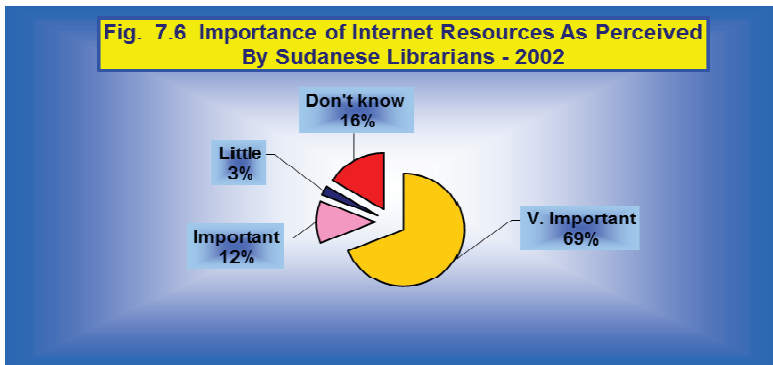
Table 7.7

Impact of Internet Resources on Library Services As Perceived by Sudanese Librarians - 2002 (%).

Impact of Internet Resources	Perceptions of Internet on Library Services				
	Strongly Agree	Agree	Neutral	Disagree	Strongly Disagree
Major source for information provision and availability	51.4	38.7	5.4	3.9	0.9
Positive impact on technical services	41.4	46.8	5.4	5.4	0.9
Positive impact on assuring quality of technical services	53.2	36.9	4.5	1.8	3.6
Positive impact on saving time, money and efforts.	58.6	30.6	5.4	1.8	3.6
Positive for resource sharing & limited budgets.	44.1	28.8	8.1	13.5	5.4
Most of the uses are for non-professional activities.	43.2	26.1	18.1	9.9	1.8
Internet usage is still below the optimum level	55.9	28.8	6.3	5.4	3.6

Source: Fieldwork Data (2002)

When tried to assess level of the importance of Internet, it is proved that there is a positive perception on this regards. More than two thirds of the surveyed population (68.5%) believes that Internet provides “very important” resources for librarians. About 12.6% of the sample perceives these resources as “important”, 2.7% as of “little importance”. The rest of the sample (16.2%) indicated that they “don’t know” about the value of these resources. It is evident that almost more than four fifths of the sample (81.1%) perceives the Internet resources as very/ important. Figure 7.6 visualizes the perception of the importance of Internet resources as perceived by Sudanese librarians.



At the same level, when the respondents were asked to indicate their perceptions to the statement: “*Utilization of Internet resources among Sudanese librarians is still below the required and optimum level*”.

It is revealed that about 55.9% of the sample strongly agrees to this statement. Some 28.8% agrees to the statement i.e. about 85% in total agrees to this statement.

On the same area of concern, when the sample population was asked about the prevailing patterns of the Internet usage, it is found that the majority of the sample believes that current usages of Internet resources among Sudanese resources are for non-professional activities.

Table 7.7 shows that 43.2% of the sample, strongly agrees to the statement: “*Most of the Internet usages among Sudanese librarians is for non-professional activities*”. About 26.1% of the sample agrees to this statement. While only 9.9% of the sample disagrees with the above-mentioned argument.

Actually, this coincides with what was stated earlier, Table 5.9 and 5.10 proved that the non-professional activities are the mostly common usages among the Sudanese librarians. For instance, small segment of the sample uses email systems for library professional activities like Current Awareness Services, Selective Dissemination of Information, etc.

This chapter proves that there is a high level of positive perception among Sudanese librarians regarding the impact of Internet resources on training and development as well as on library services.

Table 7.7
Impact of Internet Resources on Library Services As Perceived by
Sudanese Librarians - 2002 (%).

Impact of Internet Resources	Perceptions of Internet on Library Services				
	Strongly Agree	Agree	Neutral	Disagree	Strongly Disagree
Major source for information provision and availability	51.4	38.7	5.4	3.9	0.9
Positive impact on technical services	41.4	46.8	5.4	5.4	0.9
Positive impact on assuring quality of technical services	53.2	36.9	4.5	1.8	3.6
Positive impact on saving time, money and efforts.	58.6	30.6	5.4	1.8	3.6
Positive for resource sharing & limited budgets.	44.1	28.8	8.1	13.5	5.4
Most of the uses are for non-professional activities.	43.2	26.1	18.1	9.9	1.8
Internet usage is still below the optimum level	55.9	28.8	6.3	5.4	3.6

Source: Fieldwork Data (2002)

Table 7.8

**Importance of the Internet resources as perceived by
Sudanese librarians - 2002**

Level of Importance	NO.	%
Very Important	76	68.5
Important	14	12.0
Little Importance	3	2.7
I Don't Know	18	16.2
Total	111	100.0

Source: Fieldwork Data (2002).

Table 7.9
The Impact and use of Internet resources for
technical processes as perceived By Sudanese librarians – 2002. (%)

Internet Resources Save Money, Time & Efforts	Frequency of Using Internet Resources for Technical Works					
	Classification		Cataloguing		Subject Headings	
	Regular	S. Regular	Regular	S. Regular	Regular	S. Regular
Strongly Agree (58.6 %)	7.2	9.9	6.3	9.9	7.2	8.1
Agree (30.6 %)	1.8	9.9	3.6	7.2	4.5	6.3
Neutral (05.4 %)	0.0	0.9	0.0	0.0	0.9	0.9
Disagree (01.8 %)	0.0	0.0	0.0	0.0	0.0	0.0
Strongly Disagree (3.6 %)	0.9	0.9	0.9	0.9	0.9	0.9

Source: Fieldwork Data (2002).
S. Regular = Semi Regular.

Table 7.9 shows the cross-tabulation result of the relationship between the frequency of using web-based resources for library technical works and the perception of the impact of these resources on time and effort saving. This Table shows that out of those who strongly agree to the positive impact of web resources on saving time and effort, only 7.2% is regular user of the web resources in their technical works, namely classification.

Some 9.9% of those who strongly believe in the positive impact of Internet resources on saving time and effort use the web resources on semi-regular basis for classification.

For cataloguing it is found that about 9.9% of the regular users of the web resources either strongly agrees or agrees to the positive impact of the web resources on time and effort saving. While only 11.7% of the regular users of Internet resources in selecting subject headings either strongly agrees or agrees to the positive impact of the Internet resources on saving time and efforts.

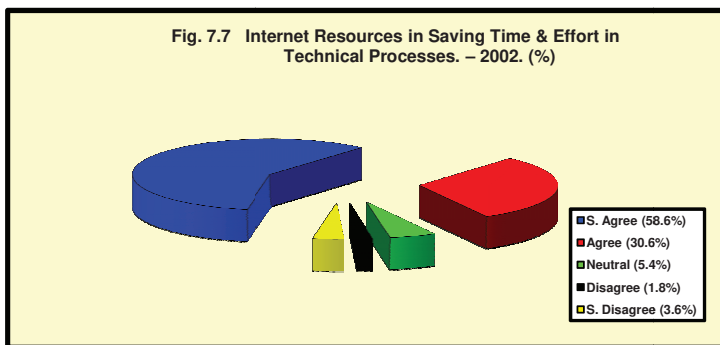
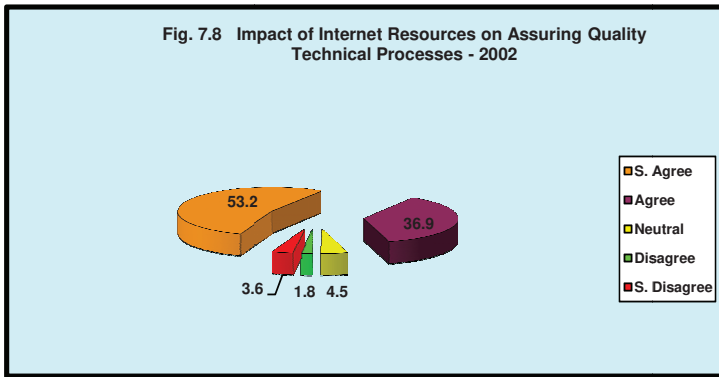


Figure 7.7 shows that the overwhelming majority of the sample strongly agrees / agrees to the positive impact of Internet resources on saving time and efforts exerted on the technical processes.

Regarding the relationship between frequency of using web resources and their impact on the technical work quality, Table 7.10 reveals that among those who uses web resources for classification, only 9.0% has indicated that they strongly agree to the impact of the web resources on quality improvement upon the technical works. Some 20.7% among those who use these resources semi-regularly indicated that they either strongly agree or agree to the web resources impact on the quality of technical processes. (Figure 7.8)



Regarding cataloguing, it is found that about only 9% from the regular users of these resources are strongly supporters to this statement and about 17.1% of those who use these resources on semi-regular basis, has indicated that they either strongly agree or agree to the quality impact of the web resources.

As far as the selection of subject headings is concerned Table 7.10 shows that some 13.8% of the regular users of the web resources has indicated that they either strongly agrees or agree to the statement: *“Using web resources for selecting subject heading would produce more quality headings”*.

Table 7.10
The Impact and Use of Internet Resources for
Technical Processes As Perceived By Sudanese Librarians – 2002. (%)

Internet Resources Assure Quality of Technical Works	Frequency of Using Internet Resources For Technical Works					
	Classification		Cataloguing		Subject Headings	
	Regular	S. Regular	Regular	S. Regular	Regular	S. Regular
Strongly Agree (53.2 %)	9.0	10.8	9.0	8.1	9.9	10.8
Agree (36.9 %)	0.9	9.9	1.8	9.0	3.6	3.6
Neutral (04.5%)	0.0	0.0	0.0	0.0	0.0	0.9
Disagree (01.8 %)	0.0	0.0	0.0	0.0	0.0	0.0
Strongly Disagree (3.6 %)	0.0	0.9	0.0	0.9	0.0	0.9

Source: Fieldwork Data (2002).

The Tables 7.7, 7.9 and 7.10 show that although there is a very strong positive perception among the Sudanese librarians towards the impact of the Internet resources on library technical processes.

Table 7.7 shows that 89% of the sample has indicated that they either strongly agree or agree to the positive impact of Internet resources on time and effort saving also about 90% of the sample either strongly agrees or agrees to the quality impact of web resources on the library technical works.

On the other hand, Table 7.9 and 7.10 revealed that there is a very small segment of the sample regularly or semi-regularly uses these web resources for their technical processes.

Although it is evident that there is a very strong positive perception regarding the impact of Internet resources, however it is found that the use and application of these web resources for library technical works is very marginal and limited among Sudanese librarians.

This gap between the level of perceptions and the practical side of using these resources may be attributed to the lack of the proper training on how these resources could be utilized for these technical works. Alternatively, may be due to the lack of the sufficient time of Internet accessibility.

7.4. Perceptions of Barriers to Internet Resources Utilization:

It has always been argued that the perceptions of the problem is one of the key solution to the problem, so to assess the barriers to the maximum utilization of the web based resources among Sudanese librarians, some questions have been raised for the surveyed librarians.

When the sample population has been asked to rank the major barriers to the introduction and use of IT and Internet in Sudan libraries the perceptions are almost the same. Table 7.11 shows that the lack of awareness of IT significance to library services, among the decision makers and top management, is the first barrier to IT application in Sudan libraries. Almost about 43% of the sample identifies this as the first factor that hinders the introduction and application of the information technology. Followed immediately by 40.5% of the sample that believes that the second major barrier is the economic conditions in Sudan.

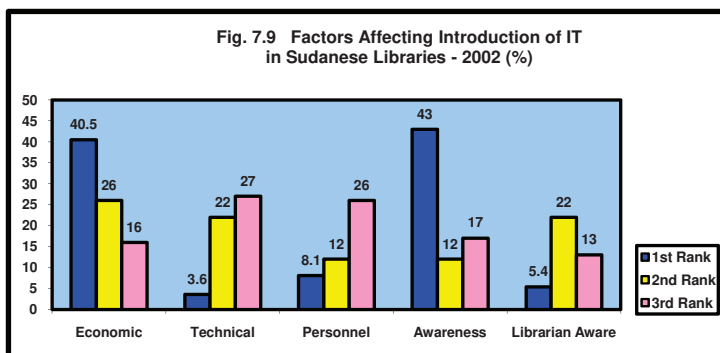
The second ranked barrier to the introduction and use of IT is the economic factor, as it was ticked by 26% of the sample to be the second barrier to IT application.

The third barrier as received by the Sudanese librarians is that the lack of the qualified personnel among librarians to take care of the introduction and application of IT in Sudan libraries. Figure 7.9 also illustrates the barriers to IT introduction into Sudan libraries.

Regarding the barriers to the introduction and use of Internet in Sudan libraries Table 7.11 and figure 7.10 reveal that the economic factor comes first according the perceptions of the Sudanese librarians, as almost 42% of the sample thinks that the major barrier to the introduction and use of the Internet in libraries is the economic factor. Followed, with less difference in percentage, by the lack of the proper awareness of the importance of the Internet in libraries among the decision makers. This factor has been ranked by 40.5% of the sample. Some 22.5% of the sample believes that the second barrier to the use and introduction of Internet is the lack of proper awareness about the role of Internet in library services, among decision makers. Followed by the economic factor 22.5% as second option

for the second barrier to the use of Internet as perceived by Sudanese librarians.

It is noticed that other factors get less attention from the surveyed sample. Factors like lack of qualified personnel, and technical problems have been considered as barriers with less influence on retarding Internet introduction in the libraries. The bulk of the sample identifies two major barriers to the introduction and use of Internet and computer in Sudan libraries. Those as stated above are the economic conditions and the lack of awareness among the decision makers.



When the surveyed librarians were asked to state and rank the current major priorities among the Sudanese libraries, as they perceive them, it is found that most of the librarians (41%) believes that developing of library infrastructure is the first priority. In other words, the efforts exerted on developing buildings and physical environment take most of the time, effort and budget.

The second ranked priority is found to be the training of librarians. Some 38% of the sample has ticked this to be the second priority. Priority number three is the introduction of IT, (32%). Figure 7.11 shows the ranking of libraries in Sudan as perceived by the Sudanese librarians.

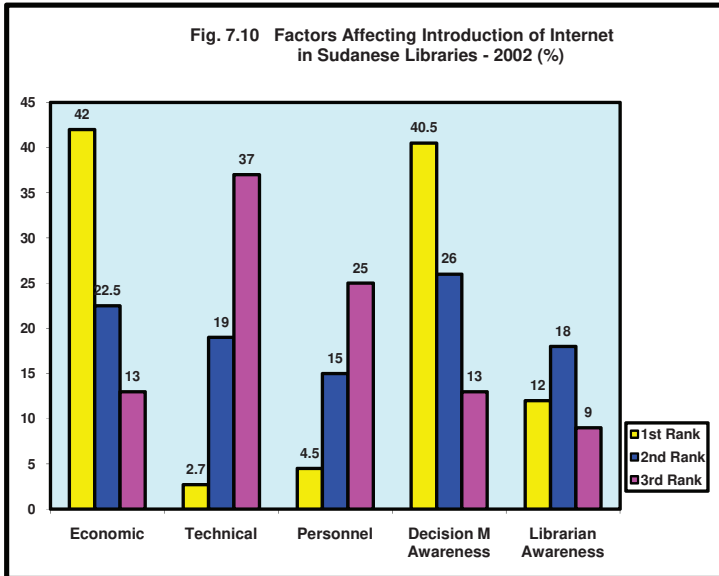


Table 7.11

Perceptions of Factors Affecting Introduction of IT and Internet Into Sudan Libraries – 2002 (%)

Factors Perceived	IT			Internet		
	1 st Rank	2 nd Rank	3 rd Rank	1 st Rank	2 nd Rank	3 rd Rank
Economic Problems	40.5	26.0	16.0	42.0	22.5	13.0
Technical Know How	3.6	22.0	27.0	2.7	19.0	37.0
Qualified Personnel	8.1	12.0	26.0	4.5	15.0	25.0
Lack of Awareness	43.0	12.0	17.0	40.5	26.0	13.0
Librarians' Indifference	5.4	22.0	13.0	12.0	18.0	9.0

Source: Fieldwork Data (2002).

In chapter five, it is found that there is strong relationship between the regular accessibility to the IT and the level of skills. The sample-surveyed librarians were asked about their perceptions on the statement: *“Internet skills are highly linked to the Internet accessibility”*. It is found that there is a high level of positive perception among the Sudanese librarians towards this statement.

Table 7.13 shows that there is a strong support to the statement that Internet skill is highly associated with Internet accessibility. Some 41.4% and 30.4% of the sample strongly agrees and agrees to this statement respectively. About 17.1% of the sample disagrees to this statement. In short about 71.8% of the sample support this statement.

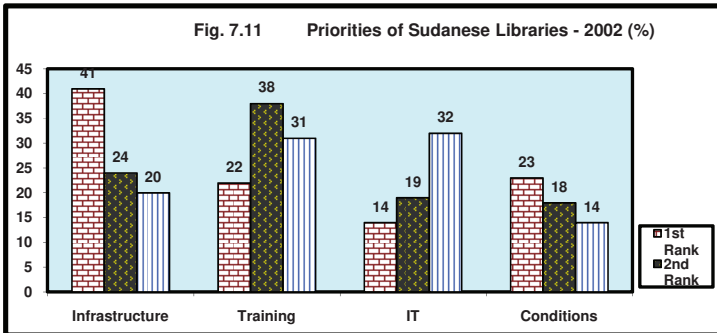


Table 7.13 also shows that more than two thirds of the sample strongly agrees to the statement: *“lack of proper training is one of the major barriers to the maximum utilization of the Internet among the Sudanese librarians”*.

It is found that 68.5% of the sample strongly agrees to this statement while 22.5% of the sample agrees to the statement i.e. 91% of the sample believes that lack of training is a major barrier to the Internet utilization.

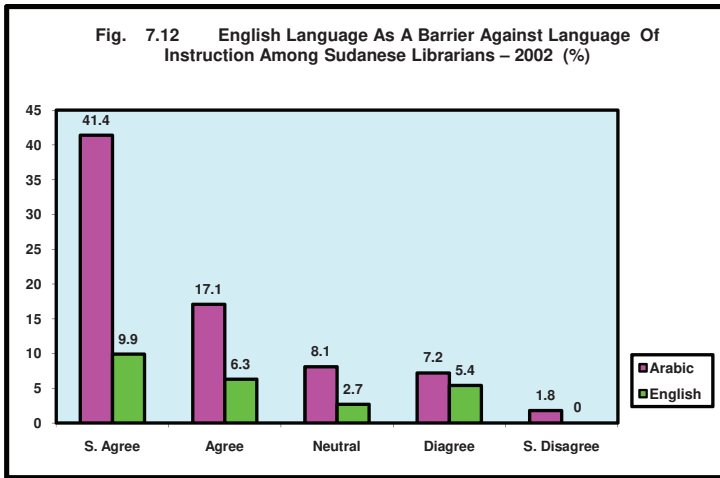
Also about 47.7% of the surveyed librarians strongly agree the statement: *“There is a lack of awareness among parent institutions about the significance of Internet in library services”*. 30.6% of the sample agrees to this statement.

Table 7.12

Priorities of Libraries in Sudan As Perceived By Sudanese Librarians – 2002.

Priority	1 st Rank		2 nd Rank		3 rd Rank	
	No.	%	No.	%	No.	%
Developing Infrastructure	46	41	27	24	22	20
Training Personnel	24	22	42	38	34	31
Introducing IT	15	14	21	19	39	32
Librarians' working conditions	26	23	20	18	16	14

Source: Fieldwork Data (2002).



The surveyed population was asked about their perception on the Internet and IT in the curriculum and syllabuses that taught at the Sudanese LIS departments, and how they see the impact of this matter on the pattern of Internet usage. It is found that 57.7% of the sample has indicated that they are strongly agrees to the statement: “The *syllabuses and curriculum that taught in the Sudanese LIS departments are irrelevant as far as IT and Internet are concerned*”.

31.5% of the sample agrees to this statement. In other words, 89.2% of the sample believes that the curriculum and syllabuses are in serious need for revision and updating to enhance the use of IT and Internet in library services in the Sudan.

On the same level, if we tackle the curriculum issue against the qualifications, Table 7.14 shows that the bulk of each level of qualification believes that the curriculum and syllabuses are highly irrelevant as far as IT and Internet is concerned.

All librarians, holding (B.A.) degree (31% of the sample), either strongly agree or agree to this statement. Out of those with post-graduate diploma. It is found that some 96% strongly agrees/agrees to this statement. Also three fourths of the masters graduated librarians believes in the above-mentioned statement.

Therefore, it is obvious that the bulk of the overwhelming majority of all qualification holders believes that the curriculum and syllabuses are irrelevant and they need to be updated to enhance the use of IT and Internet in Sudanese libraries.

Table 7.13

Barriers to the Usage of Internet Resources As Perceived By Sudanese Librarians - 2002 (%)

Barriers To Internet Usage	Perceptions of the Barriers to the Internet Resources				
	Strongly Agree	Agree	Neutral	Disagree	Strongly Disagree
Internet skills highly associated with Internet accessibility	41.4	30.4	5.4	17.1	5.4
Lack of proper training opportunities among the Sudanese librarians	68.5	22.5	7.2	1.8	0.0
Lack of awareness about the role of Internet in libraries in parent institutions	47.7	30.6	10.8	6.3	4.5
Low level of English language proficiency among Sudanese librarians	51.4	23.4	10.8	12.6	1.8
Lack of sufficient IT & Internet oriented subjects in the curriculums & syllabuses	57.7	31.5	3.6	4.5	2.7

Source: Fieldwork Data (2002)

Table 7.14

**The Impact of Curriculum and Academic Qualifications
As Perceived By Sudanese Librarians – 2002. (%)**

Qualifications	Perceptions of the Impact of Curriculum					
	Strongly Agree	Agree	Neutral	Disagree	Strongly Disagree	Total
Bachelor	18.0	13.5	1.8	0.9	0.9	31.0
P.G. Diploma	27.9	11.7	0.9	0.0	0.9	41.4
Masters	11.7	6.3	0.9	3.6	0.9	23.4
Total	57.7	31.5	3.9	4.5	2.7	100.0

Source: Fieldwork Data (2002).

When assessing barriers to the usage of Internet, it is also found that large segment of the sample believes that: *“English language is a real barrier to the utilization of the Internet resources, among Sudanese librarians”*.

51.4% of the sample strongly believes in the statement: Some 23.4% of the sample agrees. This means that out of all sampled population 74.8% supports this argument. Only 12.6% of the sample does not think that English language is a barrier to the use of the Internet.

Table 7.15 shows that the majority of the sample believes that English language constitute a barrier to the use of Internet among the Sudanese librarians. Among those who their language of instruction was Arabic (75.7% of the sample), it is found that 41.4% strongly agrees that English language constitutes a barrier to the use of Internet.

Table 7.15

Perceptions of the English Language as a Barrier against Language Of Instruction among Sudanese Librarians – 2002 (%)

Language of Instruction	Strongly Agree	Agree	Neutral	Disagree	Strongly Disagree	Total
Arabic	41.4	17.1	8.1	7.2	1.8	75.7
English	9.9	6.3	2.7	5.4	0.0	24.3
Total	51.4	23.4	10.8	12.6	1.8	100.0

Source: Fieldwork Data (2002).

Some 17.1% of this segment agrees to the above-mentioned statement. In other words, out of those who were taught in Arabic, 77.3% are either strongly agrees or agree to this statement.

On the other hand, about 16% of those who were taught in English either strongly agrees or agree to this statement. In addition, this could be stated that about 67% of those who were taught in English believes that English language constitute a barrier to the optimum utilization of the web-based resources provided by the Internet.

Chapter Eight
Summaries, Conclusions &
Recommendations

Chapter Eight

Summaries, Conclusions and Recommendations

8.1. Summaries:

The overall theme of this research is the perceptions and use of Internet resources and their impact on library services. The study has been conducted among the Sudanese librarians. The purposes of this study are to assess the level of Information Technology (IT) skills, accessibility, and frequency of use among Sudanese librarians; to examine the current patterns of web-based resources usage; certain considerations have been directed to email patterns of usage for library services and utilization of some Internet professional sites for the Library technical works. In addition, the research tried to assess the level of perceptions among Sudanese librarians regarding the Internet's impact on training and development; to assess the perceptions of Sudanese librarians about the contribution of Internet resources on self-training programs, lack of training opportunities, acquiring news professional skills, and solving the budget cuttings. As well as the frequency of using these sites for library technical works; and perceptions about the barriers to the use of the Internet resources among the Sudanese librarians.

Dealing with perceptions, opinions attitudes and paradigms, this study depends highly upon primary data, which was collected from a questionnaire-based survey. Secondary data was used in the stage of theoretical framework and research conceptualization, relevant literature was reviewed as well.

For the purpose of this research, the target population for the survey is the librarians of certain selected institutions. The selection for the institutions is

made upon certain criteria: the sample institutions covered reputed and/or accredited institutions; the sample institutions covered both old and new library and information institutions; different types of libraries have been covered by the survey; different types of sponsorship (Government, private, and NGOs) is represented; different level of accessibility to the information technology has been taken into consideration.

However, the sample includes the following six institutions: Khartoum University Library, Main & Branch Libraries, (KUL); Omdurman Islamic University Library (OIU); Al Ahfad Women University Library (Hafeed Library); Omdurman Ahlia University Library (OAUL); The National Center for Information and Documentation (NDIC) and; the British Council Library (BCL).

Two types of questionnaires have been designed. The first one is for the executive management of the selected libraries; the second is for the surveyed librarians. Interviews have been conducted with some of the chief librarians of the selected institutions and some Sudanese academicians and expertise in library and information services. Prior to the fieldwork, a pilot survey was conducted to test the questionnaires; accordingly, some slight modifications have been introduced. The fieldwork took almost one month during July - August 2002. Some 126 questionnaires were distributed among the librarians of the selected institutions, 111 were received back, representing a response rate of 88.1%.

Statistical Package for Social Science (SPSS) software, version 11.5, (2002) was used for analyzing fieldwork data. Frequencies, mean distributions, percentages, and cross-tabulations were produced from the fieldwork data analysis. Alpha scale analysis was used to measure the level of reliability and Alpha value has been found to be 79%, which indicates high level of data reliability.

The study composed of seven chapters. Chapter one is devoted to methodological issues. Chapter two and three were devoted to provide some relevant literature on perception studies and information technology in library services. Chapter four sheds some light on the current situations of library and information profession in Sudan. Chapter five investigates the major patterns of Internet resources usage among the Sudanese librarians and also it questions the perceptions on the Internet's impact on library services, training, financial problems and usage barriers.

8.2. Conclusions and Findings:

Accessibility and Skills:

Regarding the IT accessibility and level of skills among the Sudanese librarians, the following conclusions are drawn:

- It has been proved that the accessibility and use of IT among the Sudanese Librarians is very limited. The time devoted to the use of IT is found to be very short.

- It is found that there are no direct relationship between the qualification and the level of IT skills among the Sudanese librarians. While it is proved that, there is a very strong relationship between the level of IT skills and the frequency of IT usage.

- It has been proved that there is a strong positive relationship between the frequency of using IT and the level of computer usage skills. In other words, the more the frequency of using computer, the higher the level of IT usage skills is found.

- It has been indicated that there is a strong relationship between the level of computer and Internet skills on one hand, and the frequency of IT usage among the Sudanese librarians. In short, the more the regular basis of using IT, the higher the level of IT skills is found among the Sudanese librarians.

- The findings of the survey have revealed that the ways that the Sudanese librarians use to get IT training and skills vary in from one IT device to another. The major way of getting knowledge and training in computer is “Training Courses”. Then followed by selecting “Study” as a way for acquiring skills in computer, followed “Self-Training Programs” as a way for getting training in computer.

- Regarding the IT level of skills among the Sudanese librarians, it has been found that there is a reasonable level of IT skills. On same level it is found that, the skills of certain IT application is very marginal. For example there was a large segment of the sample, which had never used email, CD-ROM, Online Databases and Internet.

Patterns of Using Internet Resources

As far as the patterns of Internet usage is concerned, the following conclusions can be drawn:

- It has been found that the most frequently practiced activities by one fourth of the Sudanese librarians is “chatting sessions”; then almost half of the sample selected “checking mail” as the second rank activity practiced by the Sudanese librarians. The third activity is selected to be “Browsing Professional Sites”.

- When the survey attempted to assess the use of the email systems for the library services, it has been revealed that the majority of the sample has never used email systems for professional activities.

- The sampled librarians have been asked whether they have used email systems for selected eight library services. These services included current awareness, selective dissemination of information, alert services, discussion groups, user queries, acquisitions, document delivery, and Sudan-LIS group. It has been proved that, on average, two thirds of the sample has never used email systems neither for providing professional customer services nor for developing their professional skills and capabilities. It is evident that only one third of the sample has used email systems for functioning of these services and activities.

- When tried to assess the practicing of professional activities through email, against the email level of skill, it is noted that regardless of the level of skill, the majority of the sample has never utilized the facility of the email systems to activate library professional services.

Internet Resources for Technical Works

With regard to the utilization of the Internet resources for library technical works among Sudanese librarians, the following conclusions are drawn:

- It has been found that a very limited number of the sample has used to browse professional web sites. The study has tried to assess the frequent browsing and uses of certain professional sites. These sites include DDC, LC, BL, Ohio, OCLC web site for classification, cataloguing, and subject heading selection. Reference and full text materials sites for customer services. IFLA, UNESCO, ALA, and LA, for library professional activities.

- As far as reference material sites are concerned, the study revealed that only one third of the sample has browsed regularly reference materials sites. While almost half of the sample has indicated that they have never browsed reference material sites. Regarding the full text material sites, almost half of the sample has never browsed these sites.

- The study has also attempted to assess the frequency of using the above-mentioned sites for the library technical processes among the Sudanese librarians. It is evident that about two thirds of the sample has never used these sites for classification, cataloguing or subject headings. As far as customer service is concerned, the study tried to assess the frequency of using full text and reference material sites for the services of Selective Dissemination of Information (SDI), Current Awareness Services (CAS), Reference Desk Services (RDS), and Document Delivery Services (DDS). On average, it is estimated that more than half of the sample (55.8%) has never used these sites for any of the customer services in their libraries.

Regarding the frequency of using Amazon site for locating, pricing and quoting documents, it is evident that about 53.2% of the sample has never used Amazon for any of these procedures.

Training and Development:

As far as the perceptions of the impact of Internet resources on training needs, the following conclusions can be drawn:

- It is quite obvious that there is a high level of training needs among the Sudanese librarians as far as the Internet usage skills is concerned. Almost 96.4% of the sample has indicated that they are in need for Internet oriented training.

- When the sample population was asked about their perceptions on the training needs the fieldwork results revealed that about 90% of the sample

believes that “ *Sudanese librarians are in serious need for training on Internet usage for library and information services*”,

- The study assessed the perceptions of the Sudanese librarians about the impact of the Internet resources on the professional development on the general and personal levels. It has been revealed that there is a difference between the perceptions about the impact of Internet on the general and personal levels among the Sudanese librarians. It is found always the perception is high for the general level, and it is low for the personal one. This means that Sudanese librarians perceive positively the potential impact of Internet resources on training and development. However, it also means that they do not activate these potentials at their personal training level.

- Almost two thirds of the sample agrees that Internet resources are able to replace the shortage of the formal training opportunities.

The fieldwork results proved that the overwhelming majority of the sample believes that “*Internet resources could have a positive impact in the self-training programs*”.

- Although the majority of the sample believes that web-based resources provide a good opportunity for training it is revealed that, only small segment of the population has indicated Internet resources as the way they depend on for acquiring new skills.

- The study has revealed that more than four fifth of the sample perceives positively the impact of the Internet resources on self-training programs.

- When assessing the relationship between the self-training programs and the positive perceptions about the impact of the Internet resources on self-

training programs. It is evident that there is a very strong correlation between the two issues.

- Fieldwork results showed that the perceptions of the positive impact of the Internet resources to solve problems of limited financial resources have a high percentage.
- Almost three fourths of the total sample agrees that Internet resources could play a positive role in overcoming the financial and budget cuttings.

Perceptions about Library Services:

Regarding the perceptions of the Sudanese librarians about the impact of the Internet resources on library services, the following conclusions can be drawn:

- It proved that the overwhelming majority of the sample (90.1%) perceives Internet as the major source for information provision to researchers and library users.
- Overwhelming majority believes the regular usage of Internet resources, would lead to increase using those resources for technical processes.
- It has been proved that there is a good positive perception about the Internet impact on provision of quality technical processes.
- The fieldwork results reveals that Sudanese librarians have developed positive perceptions towards the impact of Internet resources on saving time, effort, and money.

- It has been found that the majority of the sample perceives positively the impact of Internet resources on facing the financial problems that face libraries in Sudan.
- More than four fifth of the sample believes that “*Utilization of Internet resources among Sudanese librarians is still below the required and optimum level*”.
- When the sample population was asked about the prevailing patterns of the Internet usage, it is found that the majority of the sample believes that current usages of Internet resources among Sudanese resources are for non-professional activities.
- Although it is evident that there is a very strong positive perception regarding the impact of Internet resources, however it is found that the use and application of these web resources for library technical works is very marginal and limited among Sudanese librarians.

Perceptions about Barriers to Internet Resources:

When dealt with the issue of Perceptions about Barriers to Internet Resources among Sudanese resources, the following conclusions are drawn:

- Regarding the barriers to the introduction and use of IT and Internet in Sudanese libraries, it is revealed that the economic factor is perceived as the number one factor that retarding the introduction and application of IT and Internet. Followed by the lack of the proper awareness of the importance of the Internet in libraries among the decision makers.
- Fieldwork results show that there is a strong belief, among the Sudanese librarians, that Internet skills are highly associated with Internet

accessibility, i.e. the more accessibility the higher the level of skills were found.

- It is found that the overwhelming majority of the sample believes that lack of training is a major barrier to the Internet utilization.

- The bulk of the sample agrees, *“There is a lack of awareness among parent institutions about the significance of Internet in library services”*.

- The overwhelming majority of the sample (also the majority among all academic qualification holders) believes that the curriculum and syllabuses are irrelevant and they need to be updated to enhance the use of IT and Internet in Sudanese libraries.

- It has been found that the majority of the sample believes that English language constitutes a barrier to the proper use of Internet among the Sudanese librarians.

8.3. Recommendations:

This part of the study is devoted to provide some recommendations based on the findings of the fieldwork study. The following recommendations are drawn as far as this research is concerned.

8.3.1. Internet accessibility:

It is found that IT and Internet skills are highly associated with accessibility to Internet resources and IT equipment. Also it is found that the IT and Internet accessibility is very limited among the Sudanese librarians. So in this regard, it is recommended that more PCs should be made available for librarians in the surveyed institutions and more Internet connectivity should be provided. Each library should, at least, get connected to with some

Internet terminals. More time should also be allocated for using Internet for library services and processes.

8.3.2. IT-Oriented Training:

Although there is a large segment of Sudanese librarians have good skills and access to IT applications, it is obvious that the overall level of IT skills among the Sudanese librarians should be upgraded. More training on the skills of computers software applications is needed. For example CD-ROM skills is of great value to library services and they offer excellent resources for library users. It is found that large segment of the Sudanese librarians has never used this technology.

8.3.3. Awareness among Sudanese Librarians:

To increase the level of utilizing Internet resources for library work and services, more attention should be directed towards increasing the level of awareness about the Internet real potentialities among Sudanese librarians. In this regard, it is recommended that Sudanese Association for Libraries and Information (SALI) should play more positive role. This can be done through a serious campaign among Sudanese librarians. Workshops, seminars, professional meeting and discussion groups could be organized by SALI. The more the events be organized, the higher the level of awareness about the impact of Internet resources for library works and services.

8.3.4. Awareness Among Decision Makers:

It is found that one of the barriers to the application and introduction of Internet and IT in Sudanese libraries is the lack of proper awareness among the decision makers in the parents' institutions. It is recommended that some efforts are needed to increase the level of awareness among the

decision makers in these institutions. For example LIS departments, professional Association (SALI), and Sudanese libraries should organize some public forums, seminars, workshops on the importance of Internet and IT in library services. Efforts like this would definitely lead to increase the awareness on impact of the Internet and potentialities for library services, and how it can help reduce costs and make full utilization of the available Internet resources for the benefit of library services and users.

8.3.5. Internet- Oriented Training:

The fieldwork showed that there is a serious need for training among the Sudanese librarians as far as the use of Internet is concerned. Internet resources have great potentialities for library work and services. It is argued that a bulk of the Sudanese librarians needs training in this regard. In addition, LIS departments could play genuine role through the inclusion of more practical oriented courses in the area of using Internet for library services. Certain areas could be considered e.g. the use of Internet resources for library technical works i.e. classification, cataloguing, indexing and abstracting. Making use of these resources for library work would produce more quality services and would save time, money and efforts. In addition, the use of full text materials for library services would provide

8.3.6. English Language Training:

It is found that English language is one of the barriers to the proper utilization of the Internet resources among the Sudanese librarians. English language proficiency is considered one of the key skills for librarians. All librarians have to develop good English language command and proficiency. It is recommended in this regard, LIS departments should develop special programs for English language. These programs should provide librarians with the required English language skills, vocabulary and

terminologies. This program could be delivered on short-term training course as well as on long-term as a part of the (B.A.) LIS, and post-graduate diploma programs. The Sudanese Association for Libraries and Information (SALI) could also play a leading role in this regard. Training course could be organized and delivered on regular basis by SALI for its members.

8.3.7. Curriculum and Syllabus Development:

It is found that there is a high level of agreement among the Sudanese librarians as well as the experts that there is serious need for curriculum development and update. The importance of the syllabus is that they shape and figure the perceptions and attitudes among the Sudanese librarians. It is agreed upon that the current curriculum are in need for updating. This could be done through provision of more IT oriented study materials. Most of the curriculum of the LIS department worldwide are available online and Sudanese LIS department could make use of these useful resources for the benefit of the LIS profession in Sudan. More concentration should be paid to the practical aspects of profession. In addition, it should be mentioned that updating and revisions should be carried out on regular interval to assure an up-to-date learning processes for Sudanese librarians. The LIS Teaching Staff in all LIS departments should play much more positive role in this regard. Sudanese LIS departments should organize a technical workshop, seminar, or specialized symposium. Staff members should not only contribute by papers, and research in this regard. In addition, they should push it further by implementing recommendations of such meeting. The professional organizations (e.g. SALI) have a leading role in this regard to play. It could contribute widely by increasing the awareness about the importance of curriculums development and updates.

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Annex No. (1)

بسم الله الرحمن الرحيم

جامعة الخرطوم
كلية الدراسات العليا

Questionnaire No (1)

استبيان رقم (1)

استبيان لمسئولي المكتبات السودانية بغرض الدراسة لنيل درجة الدكتوراه في علوم المعلومات
والمكتبات

عنوان الدراسة:

استخدامات وآراء أمناء المكتبات حول مصادر الإنترنت وأثرها على خدمات المكتبات: دراسة
تحليلية وسط أمناء المكتبات السودانيين.

**The Use and Perceptions of Web-Based Resources and Their Impact
on the Professional Effectiveness: An Analytical Study among
Sudanese Librarians.**

إعداد

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إشراف

بروفيسور/ الرضية آدم محمد

أسئلة الاستبيان

أولاً: بيانات أساسية:

اسم المكتبة
نوع المكتبة
عدد المجلات العربية
عدد المجلات الأجنبية
عدد الدوريات
عدد أجهزة الفيديو
عدد أجهزة الكاسيت
عدد الأقراص المدمجة
عدد المقاعد
عدد أيام العمل الأسبوعي
عدد ساعات العمل الأسبوعي
عدد المستهدفين من الخدمة المكتبية
متوسط عدد الرواد اليومي

ثانياً: الخدمات المقدمة

- من الجدول أدناه الرجاء وضع إشارة أمام للخدمات التي تقدمها المكتبة:

الخدمة	/	الخدمة	/
التصوير		الإعارة الخارجية	
إصدار نشرة خاصة بالمكتبة		خدمة الإرشاد	
توفير أجهزة الطباعة		الخدمة المرجعية	
إصدار قوائم بالمقتنيات الحديثة		Document Delivery توفير الوثائق	
البحث على الإنترنت		البحث على أقراص مدمجة	
خدمة الإحاطة الجارية		خدمة البث الانتقائي للمعلومات	
تكثيف الدوريات العلمية		إصدار الببليوجرافيا	

ثالثاً العاملين:

- كم يبلغ عدد العاملين بالمكتبة على حسب الفئات المذكورة أدناه؟

الفئة	خريجي المكتبات	التخصصات الأخرى	مؤهل ثانوي	أخرى
العدد				

- كم يبلغ عدد الوظائف الشاغرة بالمكتبة على حسب الفئات المذكورة أدناه ؟

الفئة	خارجي المكتبات	التخصصات الأخرى	مؤهل ثانوي	أخرى
العدد				

- هل يوجد بالمكتبة أي من الآتي؟

التخصص	إدارة أو قسم	عدد المختصين
الحاسب الآلي		
التدريب والتطوير		
الإحصاء		
العلاقات العامة والتسويق		

رابعاً: تقنية المعلومات:

كم تبلغ ميزانية العام الحالي للمكتبة؟	
كم تبلغ ميزانية العام الماضي للمكتبة؟	
كم هي نسبة الميزانية المخصصة لإدخال التقنية من ميزانية هذا العام؟	
كم يبلغ العدد الإجمالي لأجهزة الحاسب الآلي الموجودة بالمكتبة؟	
كم يبلغ العدد الإجمالي لأجهزة الحاسب الآلي الموجودة بأقسام المكتبة؟	
كم يبلغ العدد الإجمالي لأجهزة الحاسب الآلي المستخدمة بالمكتبة؟	
كم يبلغ العدد الإجمالي لأجهزة الحاسب الآلي المتاحة للمستخدمين؟	
كم يبلغ العدد الإجمالي لأجهزة الحاسب الآلي الموصولة بالإنترنت؟	
كم يبلغ عدد أجهزة الحاسب الآلي التي تم توفيرها بواسطة المؤسسة الأم؟	
كم يبلغ عدد أجهزة الحاسب الآلي التي تم توفيرها عن طريق الهدية؟	

- ما هو نوع الفهرس المستخدم للتعرف على مجموعات المكتبة؟

فهرس بطاقي () فهرس محزوم () فهرس مطبع () فهرس آلي ()

- هل تمتلك المكتبة بريداً إلكترونياً خاصاً بها؟ نعم لا
- هل تمتلك المكتبة موقعاً خاصاً على الإنترنت؟ نعم لا
- إذا كانت الإجابة لا، هل تعتزم المكتبة تصميم موقع؟ نعم لا
- هل توفر المكتبة خدمة البحث على الإنترنت لمستخدميها؟ نعم لا

خامساً: التدريب والتطوير:

- هل تمتلك المكتبة خطة تدريب سنوية للعاملين بالمكتبة؟ نعم لا
- إذا كانت الإجابة نعم، الرجاء إرفاق نسخة من الخطة

- هل نظمت المكتبة أي دورات تدريبية للعاملين خلال العاملين الماضيين؟ نعم لا
- إذا كانت الإجابة نعم كم عدد هذه الدورات؟ _____
- وكم بلغ عدد المستفيدين منها من العاملين بالمكتبة؟ _____
- وما هي أهم الموضوعات التي تناولتها هذه الدورات: _____
- 1. _____
- 2. _____

- هل ابتعثت المكتبة أي من العاملين خلال العاملين الماضيين لدورة تدريبية خارج المؤسسة الأم؟ نعم لا
- إذا كانت الإجابة نعم كم عدد هذه الدورات؟ _____
- وكم بلغ عدد المستفيدين منها من العاملين بالمكتبة؟ _____
- وما هي أهم الموضوعات التي تناولتها هذه الدورات: _____
- 1. _____
- 2. _____

- رجاءً اذكر من وجهة نظركم أهم المعوقات التي تعترض استخدام التقنية بشكل فعال لخدمة المكتبات السودانية.
- 1. _____
- 2. _____

مع جزيل الشكر والعرفان لحسن تعاونكم

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Annex No. (2)

بسم الله الرحمن الرحيم
جامعة الخرطوم
كلية الدراسات العليا

Questionnaire No (2)

استبيان رقم (2)

استبيان لأمناء المكتبات السودانيين بغرض الدراسة
لنيل درجة الدكتوراه في علوم المعلومات والمكتبات

عنوان الدراسة:

استخدامات وأراء أمناء المكتبات حول مصادر الإنترنت وأثرها على خدمات المكتبات: دراسة
تحليلية وسط أمناء المكتبات السودانيين.

*The Use and Perceptions of Internet Resources and Their Impact on the
Library Services: An Analytical Study among Sudanese Librarians.*

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إشراف

بروفيسير/ الرضية آدم محمد

أولاً: البيانات الشخصية

أرجو الإجابة على الأسئلة التالية والمتعلقة بالبيانات الشخصية:

العمر سنة

[] أنثى النوع: [] ذكر

المؤهل العلمي الأخير: سنة التخرج:
 المؤسسة الأكاديمية: لغة الدراسة:
 جهة العمل المسمى الوظيفي
 القسم الذي تعمل به عدد سنوات الخبرة

ثانياً : مهارات التعامل مع الحاسب الآلي:-

كيف تصف مهاراتك في التعامل مع الآتي (أرجو اختيار الإجابة المناسبة)

طبيعة المهارة	ممتازة	جيدة	ضعيفة	لا توجد
الحاسب الآلي				
الأقراص المدمجة				
الإنترنت				
القواعد المباشرة				

كيف تصف استخداماتك مع الآتي (أرجو اختيار الإجابة المناسبة)

طبيعة الاستخدام	ممتازة	جيدة	ضعيفة	لا توجد
الحاسب الآلي				
الأقراص المدمجة				
الإنترنت				
البريد الإلكتروني				

كيف اكتسبت المهارات الأولية للتعامل مع التالي (أرجو اختيار الإجابة المناسبة):

طبيعة المهارة	الدراسة	دورة تدريبية	أحد الزملاء	تدريب ذاتي	يوجد تدريب لا
الحاسب الآلي					
الأقراص المدمجة					
الإنترنت					
البريد الإلكتروني					

- هل تمتلك حاسباً شخصياً في المنزل ؟
 [] لا [] نعم
- هل يوجد بالمكتب الذي تعمل به جهاز حاسب آلي :
 [] لا [] نعم
- هل يوجد على الطاولة التي تجلس عليها جهاز حاسب آلي ؟
 [] لا [] نعم
- هل يحتوي مكان العمل على جهاز موصول بخدمة الإنترنت؟ [] نعم [] لا
- إذا لم يحتوي مكان العمل على خدمة الإنترنت، أين تستخدمها ؟

[] مختبرات الحاسب بالجامعات
[] عند أحد الأصدقاء
[] إنترنت كافيته
[] أخرى -----

- هل تدفع مقابل هذه الخدمة؟ [] نعم [] لا
- إذا كانت الإجابة بنعم، هل التكلفة: [] عالية [] معتدلة [] رخيصة

ثالثاً: استخدامات الإنترنت:

- حدد مدى استخداماتك للمواقع التالية على شبكة الإنترنت:

الموقع	بشكل منتظم	شبه منتظم	نادراً	لم استخدمه
صفحة تصنيف ديوي العشري				
مكتبة الكونغرس				
المكتبة البريطانية				
فهرس مكتبة أوهايو المركزية				
OCLC صفحة				
صفحات المراجع العامة				
تصفح المجلات كاملة النص				
موقع منظمة اليونسكو				
جمعية المكتبات الأمريكية				
جمعية المكتبات البريطانية				
IFLA موقع				
Amazon.com				

- كيف تصف استخداماتك لمصادر الإنترنت من العمليات التالية؟

طبيعة الاستخدام	بشكل منتظم	شبه منتظم	نادراً	لم استخدمه
التصنيف				
الفهرسة				
اختيار رؤوس الموضوعات				
البحث الانتقائي للمعلومات				
الإحاطة الجارية				
الخدمة المرجعية				
توفير الوثائق				
تسعين طلبات الكتب				
طلب أو شراء الكتب				
البحث عن دورية				

- رتب الآتي على حسب أكثرية استخدامك له في الإنترنت (يمثل الرقم (1) الأكثر استخداماً):
[] الدخول إلى مواقع الدردشة [] مراجعة البريد الإلكتروني

[] مواقع الهويات الشخصية [] قراءة الصحف
[] تلبية احتياجات الرواد واستفساراتهم [] المواقع المهنية
[] أخرى -----

- هل سبق أن استخدمت البريد الإلكتروني في الخدمات التالية؟

الخدمة	نعم	لا
الإحاطة الجارية		
طلب مطبوعات		
تبادل معلومات مع الزملاء		
الإجابة على استفسارات		
خدمات الأشعار البريدي		
مجموعات النقاش العالمية		
مجموعة النقاش السودانية		
إرسال مطبوعات		

- كم يبلغ متوسط الوقت الذي تستخدم فيه الحاسب الآلي أسبوعياً؟
 [] أقل من 5 ساعات
 [] من 5 - 15 ساعة
 [] من 16 - 20 ساعة
 [] من 36 - 45 ساعة
- كم يبلغ متوسط الوقت الذي تستغرقه في استخدام خدمة الإنترنت أسبوعياً؟
 [] أقل من 5 ساعات
 [] من 5 - 15 ساعة
 [] من 16 - 20 ساعة
 [] من 36 - 45 ساعة

رابعاً: آراء أمناء المكتبات: الرجاء اختيار الإجابة الأكثر تعبيراً عن رأيك:

- بالنظر إلى مهاراتك الحالية في استخدام مصادر الإنترنت هل ترى أنك:
 [] تحتاج إلى تدريب بشكل ملح.
 [] تحتاج لبعض التدريب.
 [] بالمجهود الذاتي يمكن تغطية احتياجاتك.
 [] لا تحتاج إلى تدريب.
- بالنظر إلى مهاراتك الحالية في استخداماتك لمصادر الإنترنت في مجالات العمل هل ترى أنك:
 [] تحقق الفائدة القصوى المتاحة.
 [] تحقق درجة معقولة من الفائدة.
 [] لا تحقق أي فائدة تذكر.
- ما هو تقييمك لدور الإنترنت في مجالات التطوير المهني والوظيفي الشخصي:
 [] فعال جداً
 [] لا بأس به
 [] صعب التطبيق
 [] غير مجدي
- بالنظر إلى دور الإنترنت في مجالات التطوير المهني والوظيفي الشخصي هل ترى أنك تحقق تطوراً مهنيًا بدرجة:
 [] ممتازة
 [] جيدة
 [] منخفضة
 [] لا توجد
- هل سبق لك أن قمت بتصميم أي برنامج للتدريب الذاتي لاكتساب إحدى المهارات الفنية التي تفتقد لها؟
 [] نعم
 [] لا
- إذا كانت الإجابة نعم كيف ذلك (رتب الإجابة على حسب الأهمية، يمثل الرقم 1 الأكثر أهمية):

[] بالقراءة و المطالعة .
[] بالنقاش مع الزملاء .

- من وجهة نظرك ما هي العوامل التي تؤدي لتعويق استخدام الحاسب الآلي في المكتبات السودانية بشكل واسع؟ (رتب الإجابة على حسب الأهمية، الأهم رقم 1-)
[] أسباب تقنية فنية [] أسباب اقتصادية
[] نقص الكوادر البشرية المؤهلة [] قلة وعي متخذي القرار بأهمية التقنية للمكتبات.
[] قلة الوعي لدى المكتبيين

- من وجهة نظرك ما هي العوامل التي تؤدي لتعويق استخدام الإنترنت ومصادر ها في المكتبات السودانية بشكل واسع؟ (رتب الإجابة على حسب الأهمية، الأهم رقم 1-)
[] أسباب تقنية فنية [] أسباب اقتصادية
[] نقص الكوادر البشرية المؤهلة [] قلة وعي متخذي القرار بأهمية التقنية للمكتبات.
[] قلة الوعي لدى المكتبيين

- من وجهة نظرك ما هي أولويات المكتبات السودانية بين ما يلي (رتب الإجابة على حسب الأهمية، الأهم رقم 1-):
[] تطوير البنيات الأساسية [] تدريب وتأهيل الكادر البشري .
[] إدخال التقنية الحديثة. [] حل مشاكل الحديثة.

- من وجهة نظرك كيف تصف الموارد التي تنتجها الإنترنت لإمناء المكتبات السودانيين:
[] غاية في الأهمية. [] متوسطة الأهمية.
[] لا أهمية لها. [] لا اعرف.

من العبارات التالية الرجاء اختيار الإجابة الأكثر تعبيراً عن وجهة نظرك:

- تعتبر الإنترنت أهم وسيلة لتوفير المعلومات للباحثين ورواد المكتبة:
[] أوافق بشدة. [] أوافق. [] محايد [] اعترض. [] اعترض بشدة.
- يمكن للإنترنت أن تلعب دوراً هاماً في قضايا التدريب الذاتي:
[] أوافق بشدة. [] أوافق. [] محايد [] اعترض. [] اعترض بشدة.
- لا تزال استفادة أمناء المكتبات السودانيين من مصادر الإنترنت دون الطموح والمستوي المطلوب:
[] أوافق بشدة. [] أوافق. [] محايد [] اعترض. [] اعترض بشدة.
- في عصر الإنترنت لا يشكل نقص التدريب من خلال المؤسسة التي تعمل بها حرماناً لي من فرص التدريب والتطوير.
[] أوافق بشدة. [] أوافق. [] محايد [] اعترض. [] اعترض بشدة.
- يمكن للإنترنت ومصادر ها أن تلعب دوراً كبيراً في حل مشاكل ضعف وقلة الموارد المالية التي تواجه المكتبات السودانية.
[] أوافق بشدة. [] أوافق. [] محايد [] اعترض. [] اعترض بشدة.

- استخدامات الإنترنت في عمليات المعالجة الفنية تؤدي لتوفير الوقت والجهد والمال المبدول على هذه العمليات. [] أوافق بشدة. [] أوافق. [] محايد [] اعترض. [] اعترض بشدة.
- استخدامات الإنترنت في عمليات المعالجة الفنية تؤدي لضمان جودة عالية لهذه العمليات. [] أوافق بشدة. [] أوافق. [] محايد [] اعترض. [] اعترض بشدة.
- اللغة الإنجليزية تشكل حاجزاً لاستخدام الإنترنت وسط أمناء المكتبات السودانيين. [] أوافق بشدة. [] أوافق. [] محايد [] اعترض. [] اعترض بشدة.
- يحتاج أمناء المكتبات السودانيين لدورات تدريبية حول استخدامات الإنترنت لأغراض البحث العلمي وخدمة المكتبات. [] أوافق بشدة. [] أوافق. [] محايد [] اعترض. [] اعترض بشدة.
- ما تزال المؤسسات التعليمية السودانية تقلل من دور الإنترنت الحقيقي في خدمة المكتبات. [] أوافق بشدة. [] أوافق. [] محايد [] اعترض. [] اعترض بشدة.
- المناهج الدراسية لعلوم المكتبات في السودان ما تزال بعيدة عن توفير الصورة الحقيقية للثورة الحقيقية التي أحدثتها الإنترنت في المكتبات. [] أوافق بشدة. [] أوافق. [] محايد [] اعترض. [] اعترض بشدة.
- في ظل ضعف وقلة الموارد المالية يمكن للجمعيات المهنية أن تلعب دوراً هاماً في دعم وتنسيق أنشطة التدريب لأمناء المكتبات السودانيين. [] أوافق بشدة. [] أوافق. [] محايد [] اعترض. [] اعترض بشدة.

مع جزيل الشكر على استجابكم وتعاونكم

الباحث / محمد صلاح الدين مضوي

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Annex No. (3)

List of the consulted/interviewed key persons

1. **Professor Abdel Rahman El Nasri Hamza**, Head, Library and Information Studies Department, Omdurman Ahlia University.
2. **Professor Radia Adam Mohamed**, Dean of Libraries, Omdurman Ahlia University.
3. **Professor Abu Bakr El Siddiq Osman Tawfeeq**, Head, Library and Information Sciences Department, Faculty of Arts, Khartoum University.
4. **Mr. Abu Bakr Bakar**, Associate Professor, Library and Information Sciences Department, Omdurman Ahlia University.
5. **Mr. Omer Abbas El Shareif**, Director, Information Services, the British Council – Khartoum.
6. **Dr. El Tayed Haj Ateeya**, Dean of Libraries, University of Khartoum.
7. **Dr. Sami Shareef**, Head of Electrical Engineering Department, Faculty of Engineering, University of Khartoum.
8. **Mr. El Haj Ghasoum Hamad**, Registrar, Omdurman Islamic University Library.
9. **Mr. Omer El Zain El Tayeb**, Registrar, Khartoum University Library.
10. **Ms Amani Tabeedi**, Al Hafeed Library, Ahfaad Women University.
11. **Ms Nahid Khash Elmoos**, Al Hafeed Library, Ahfaad Women University.
12. **Mr. Abdel Seed Osman**, Librarian, Omdurman Islamic University Library.
13. **Ms. Nadia Aidrous**, National Documentation and Information Center, National Council for Research, Khartoum.

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