Evaluation of University-Library Knowledge Management Practice: Comparative Case Studies from Developing and Developed Countries.

Author: Amro Alzghoul
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Examiner: Anita Mirijamdotter
Knowledge management (KM) has become a vital part of the successful development of private and governmental organizations. KM is processed tools and behaviors that participate in the formulation and performance of the beneficiaries of the organization, acquisition, storage and distribution of knowledge. This is to reflect on the business processes and to gain access to best practices with a view to long-term competition and adaptation. In this context, the personal understanding of KM is a key factor in successful employments of KM activities. In this thesis, the level of understanding of knowledge management and the extent of its usage in the university library by librarians was investigated. A comparison study was established between libraries in developed and developing countries. Interviews and observations were performed and the results were analyzed. The results indicate the concept of KM is hardly known, however it is employed to different extent between these counties, the developed countries were by far more successful in utilizing current technology to advance their service and personal expertise with few challenges. Lack of communication, knowledge sharing, and the shortage in the budget was essential in limiting the usage of KM in developing counties. The knowledge derived from this thesis advances an understanding of the importance of KM in library performance, thus presenting the basis for improving libraries in developing countries and advancing libraries in developed countries.

**Keywords:** Knowledge management; Knowledge management practice; University library; Information and communication technologies (ICT).
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1. INTRODUCTION

Knowledge Management (KM) has become one of the hot spots in both academic studies and business applications (Yang & Liu, 2009). However, concerted efforts need to be exerted to manage knowledge systematically. Therefore, KM can be considered as a modern paradigm in academic libraries (Ahmed, Lim, & Loh, 2002).

KM is viewed as the utilization of strategies, tools, human resources to identify, manage and distribute knowledge in an organization (Trivedi, 2007). KM involves different activities such as knowledge retention, sharing, acquisition, creation, and organization (Daud, Rahim, & Alimun, 2008; Jain, 2007; Jashapara, 2005; Nonaka & Takeuchi, 1995; Rowley, 2003). The value of KM is often not easy to demonstrate because of the complicated nature of the knowledge (Wen, 2005). KM works for converting intellectual assets of workers and staff members of an organization to a new value which makes the organization more productive and competitive. The university library is an example of an organization which can benefit from KM.

The university library occupies a central and primary position in academia. It serves multitude purposes for instance storage, creation and dissemination of knowledge, information, and research (Kuh & Gonyea, 2003). The expectation from libraries has been tremendously increased, in connection with the current developments and demands including increasing operational efficiency, fast delivery, and access to the required information and satisfying the knowledge communication needs. These sets of requirements cannot be fulfilled with traditional managements in the libraries (Malhan, 2009).

Despite libraries in universities use computers to efficiently acquire, organize, retrieve, and disseminate information (Tennant, 2003), they face difficulties in document managements and availability of desired information in reasonable time. This might happen as a result of poor communication between librarians, between libraries and university's database, and the lack of strategies to manage such issues (Fabunmi, 2009). It can be also due to the partial internalizing of knowledge’s by the organization while the rest is by individuals (Bhatt, 2002). Therefore, academic libraries need to utilize their
staff knowledge for better operational efficiency (Maponya, 2004). University libraries are being challenged to constantly define and refine their approaches to provide information as part of their contribution to support the research and University enterprise systems (Richardson, 1996). This could be performed by using KM initiatives as discussed below.

The use of information technology in KM can improve the ability of communication between librarians. This will be beneficial in saving time and improving the functional level (Laudon & Laudon, 2004). The efficient employment of technology to manage knowledge will help organizations to survive in the face of existing competition in the market (Bhatt, 2001; Cole-Gomolski, 1997). Information technology can be used in the collection, classification, storage, delivery, and preparation of data between devices, people, and organizations through multi-media within the library. Information and communication technologies (ICT) can also provide more flexibility in dealing with the information and data through databases (Bornemann et al., 2003). However, the level of understanding of KM and the use of ICT might vary between developing and developed countries.

In this thesis, the KM practice and available ICT in two university libraries were investigated. The first one represents a library in a developed country that is Linnaeus University library (LUL), Sweden. The second one represents a library in a developing country that is University of Jordan library (UJL), Jordan. A qualitative research method was used to explore and assess the current situation of KM activities in both libraries specifically knowledge retention, sharing, acquisition, creation, and organization. The thesis advances our understanding of current KM employments in libraries and its usefulness in improving library in developing countries.

1.1 Objective and specific aims
The objective of the thesis is to systematically investigate the impact of KM practices in libraries’ operation. The specific aim is to investigate the level of understanding of KM at LUL and UJL by librarians.

1.2 Research Questions
The research questions in the thesis can be formulated as:

- What is the level of understanding of KM and its activities in developing and developed countries?
To which extent is the ICT employed in both universities libraries in developing and developed countries?

1.3 Topic justification
The thesis advances our understanding of current KM employments in libraries and its usefulness in improving library in developing countries. Higher user expectations together with the library economical lack are considered as the impetus for implementing KM in the field of academic libraries (Wen, 2005). The lack of financial resources and the needs of the beneficiaries to pay strongly suggest the adoption of the application of KM (Alavi & Leidner, 2001). Budget shortfall in academic libraries considered as the main driving force in implementing the KM. According to (Wen, 2005) for academic libraries it is more practical and economical to utilize the existing technology and staffing than adopting a trumpeted high-tech approach. Equally important is to provide the right information at reasonable times (Ghosh & Jambekar, 2003).

According to Mavodza (2010) ‘The justification for investigating KM practice in the context of an academic library was also because in the modern information environment, librarians have to know-how and be always ready to change the way they operate, since information dissemination and consumption keeps changing’ (Mavodza, 2010, P. 16).

White (2004) from a case study at Oxford University Library Services found that academic librarians could benefit from integrating KM into library processes. The use of technology as an enabler in tapping knowledge, the importance of collaboration among the involved parties, and the roles of the librarians in complementing the creation of KM programs are similar conclusions shared in studies by Ajiferuke (2003) and White (2004). This emphasizes the importance of investigating KM in academic libraries.

1.4 Scope and limitation
The scope of this study is to examine the current understanding and employment of KM by librarians in developing (UJL) and developed countries (LUL). Indeed, it is also to explore knowledge sharing and transfer within the library process even via human networks or ICTs. The limitation of this study is the time available to investigate all KM activities within
university libraries. It is also to get data from several librarians to improve the obtained results.

1.5 Study disposition

In order to show how this thesis is constructed, the following chart was drawn to illustrate the thesis disposition structure.

- **Introduction**
  - To introduce the reader to the subject of this case study through presenting the background, problem discussion, research question, aims and objectives and topic justification.

- **Theoretical Frameworks**
  - To review some of the literature review for this thesis. We will bring some previous work in this research and justify the topic.

- **Methodology**
  - To introduce the used research methods and reasons for selecting this methods and strategy applied and data collections.

- **Empirical findings**
  - To discuss the empirical findings in the studies and to present case description and feedback/response from observations and interviews.

- **Results and discussion**
  - To connect the theoretical part of the thesis with empirical findings. Also to conclude our findings and give the answers to our research questions.

- **Conclusions**
  - To conclude our research in brief.

- **References**
  - To present all written resources used in order to write this thesis.
2. THEORETICAL FRAMEWORKS

This chapter is a review of the literature on KM and its practice in libraries. It sought to give a deeper understanding of KM and the different schools of thought, as well as the effect of different organizational management styles on it. The concepts of retention, sharing, creation, organization of knowledge will be thoroughly discussed to address their impact in organization management. Also, under the title operative KM factors that influence the effectiveness of KM are discussed. Furthermore, in this chapter, a background of the field and current problem were presented. The role of ICT and contribution of ICT to KM were discussed.

2.1 Knowledge Management

To develop the organization knowledge the individual knowledge must be considered. In addition to the individual knowledge, the relationships between the organization, its members, techniques, and the used technology are important for organizational knowledge (Bhatt, 2000). Knowledge can be categorized into two groups. The first one is tacit knowledge, which is something that someone knows, but it is not documented and normally hard to explain. The second group is explicit knowledge, which is documented on paper, databases, or any other storage way (Nonaka & Takeuchi, 1995).

Organizations have realized that the knowledge is the intangible asset, as most of these organizations have the knowledge, but it did not use and manage it in an appropriate manner (Hackett, 2000; Sveiby 2001). The growing interest in KM in many fields and disciplines, in both profit and non-profit sectors, and at all levels can be clearly noted. With the goal of achieving efficiency and continuity of the organizations (Hazeri, A. and Martin, B, 2006; Malhotra, 1998). Although the origin of KM founded in business, but its practice has spread in the non-profit field as well. There are many advantages offered by KM applications for organizations such as improving communication between staff as well as senior management and promote a culture of participation (Hazeri, A. and Martin, B, 2006; Malhotra, 1998).
2.1.1 KM definition

Despite the growing interest in the concept of KM, there has not been a specific definition that describes those processes that help institutions to generate, select, organize, use, and disseminate, and finally share knowledge (Malhotra, 1998). Some scientists considered it a technical term whereas others addressed the concept of KM from the perspective of being an organizational culture. KM was also giving the concept from the perspective of being a development of information and document management. According to McInerney ‘Knowledge management (KM) is an effort to increase useful knowledge within the organization. Ways to do this include encouraging communication, offering opportunities to learn, and promoting the sharing of appropriate knowledge artifacts.’ (McInerney, 2002, p. 1014).

Baskerville and Dulipovici (2006) found the field of KM as “building on theoretical foundations of information economics, strategic management, organizational culture, organizational behavior, organizational structure, artificial intelligence, quality management, and organizational performance measurement” (P. 83). Another definition for KM more relevant to business aspects is given by Birkenkrahe (2002) ‘KM is not just information technology; it's not just changed management, or people management, and certainly it’s not only infrastructure. It should affect business strategy, and it is supposed to be the cornerstone of competitive advantage in the knowledge economy. It might make you rich, or if you do it badly, cost you dearly. Some promise that it will feed your cat and take your kids to school, too. Some call it a fad, a guru invention and a money spinner for consultants’ (p.2).

KM in the context of library can be defined as the process gathering a library collective expertise, which might be stored in a database or people’s heads, and distribute it in a way which can help produce the biggest payoffs (Blake, 1998).

From above we can conclude that KM is a combination of processes, tools and behaviors that participate in the formulation and performance of the beneficiaries of the organization, acquisition, storage and distribution of knowledge to reflect on the business processes. The concept of KM aims to provide information and make it available to all employees in the organization. It is also for beneficiaries from the outside, which is based on the maximum utilization of available information in the organization, and
individual experiences in the minds of potential employees. Therefore, the most important feature of the application of this concept is the best investment of intellectual capital, and turns into a productive force contributing to the development of individual performance, and raises the efficiency of the organization.

2.1.2 KM assessment

KM assessment is used to determine the gains of an organization from KM activity. The assessment is based on derived measures from the basic KM model. These measures consist of knowledge, process, data, and strategy (individual levels) and their corresponding human, communication interaction, organization, and organizational environment (perspectives). The intersection of the four individual levels and the four perspectives introduce the fields of action.

The KM assessment involves the following steps (Bornemann et al., 2003):

- **Identifying target assessment area:** selection of the area.

- **Establishing target criteria:** Defining relevant stakeholders and their expectations.

- **Defining the ideal solution:** Using the stakeholder expectation to identify the best situation for the goals, knowledge, process, and data levels.

- **Determining factors of influence:** Identifying the factors which may influence the ideal situation from the human, communication interaction, organization, and organizational environment perspective on each of the individual levels.

- **Identifying drivers:** Determining the important drivers for the different fields of action.

- **Prioritizing fields of action:** Determine and rank the fields of action according to the influence of each driver on the target criteria.

- **Setting measures:** Determining the measures of each field of action.

The result of these steps is a priority of the fields of actions. That will help the organization to decide which KM activity has the most influence on the organization performance.
2.1.3 Approaches to introducing KM

The successfulness of a KM implementation is based on two main factors: willingness of staff to participate and the methodological approach. Based on these two factors the approaches to introducing KM can be divided into the following (Bornemann et al., 2003):

- **Culture-driven introduction of KM**: It focuses more on self-evident voluntary rather than the applied method.
- **Targeted methodical implementation**: the applied methods are used to focus creative potential on the company strategic goals.
- **Management-driven introduction**: It focuses on the targeted and application of specific KM methods on pilot projects.
- **Unrealizable wish**: No willingness and no methods are used.

2.2 Knowledge acquisition

According to Hayes-Roth, Waterman, & Lenat 1983 knowledge acquisition can be considered as ‘The transfer and transformation of potential problem solving expertise from some knowledge source to a program.’ (p. 129). The knowledge acquisition involves elicitation, collection, and analysis of knowledge. Experts have vast amounts of knowledge (Roa, 2005; Burton, 1999) and thus it is important to consider their knowledge when considering knowledge acquisition. In order to obtain this kind of knowledge, Srikantaiah and Koenig (2000) suggested using knowledge “expert systems” that will allow having knowledge not only from textbooks but also from human experts.

The use of ICT in a KM approach is vital (Mchombu, 2007). According to (Wen, 2005) KM managers need to look inside and outside their organization or libraries and check if there is any new developments in the organizational structures, services, or technologies, which can be used to improve the performance of the organization. In addition, the interaction between people helps managing the knowledge effectively (Bhatt, 2001).

Knowledge acquisition can be done from different sources like experts, specialists, competitors, databases, and the organization's archives. The knowledge can be acquired through different ways such as attending conferences, workshops, and from experts. However, knowledge may be
acquired and understood in varying way from organization to another, thus affect differently on the stored knowledge. Therefore, organizational memory is affected by the organizational culture (Huber, 1991; White, 2000).

2.3 Knowledge retention
According to Kull study (as cited in Wamundila, 2009, p. 19), knowledge retention is “A subset of knowledge management and is a process whereby an organization uses its collective intelligence to accomplish its objectives (by) managing the social, cultural, and technological environment where information, expertise and insight converge learn from others through systematic, enterprise-wide approaches, exploiting ways to share and re-use existing knowledge, exploring ways to recombine knowledge to discover best practices and innovate better practices and transforming knowledge among tacit, implicit, and explicit forms”.

Knowledge retention is important as organizations are at greater risk due to the possibility of losing knowledge held by individuals or a group that interacts within an organization or when they are about to leave the organization. Knowledge retention aims at maintaining organization’s available knowledge and preserve new introduced knowledge (Newman & Conrad, 2000). It involves all operations that include storage, maintenance, search, access, retrieval, and location of knowledge. Thus, we can assist the essential role of organizational memory through knowledge retention.

Organizations have to store what they did before and learn how to acquire, retain, and retrieve knowledge and experiences from current and previous projects to improve its performance (Özdemir, 2010). Thus organizational memory plays an important role in this context (Özdemir, 2010). E-mails, reports, and work processes are examples of information which might be saved in the organizational memory (Inmon, O’Neil, & Fryman, 2008). It is important to improve the process of storing knowledge in an organizational memory since it can be considered as a bridge between the collection and retrieval of knowledge (Stein & Zwass, 1995; Spender, 1996). Advanced technologies can be helpful in this case (Stein & Zwass, 1995).

2.4 Knowledge sharing
Knowledge sharing concerns how an organization obtains access to its own and other organizations’ knowledge, and how to exchange knowledge among
individuals and/or organizations. It is important to share knowledge since it helps people to do their tasks more effectively, develop their personality and career progression, get more personal recognition, and retain their jobs. Also, it helps the employee to get the required knowledge to accomplish their task successfully (Hall, 2001; De Geus, 1997). According to Wenger 2004 “Knowledge is power and one may well wonder why anyone would want to share it. However, hoarding knowledge is not necessarily the best way to benefit from its power. In a knowledge economy, reputation is a crucial asset, and sharing knowledge is therefore also a source of power, providing that one’s community serves as a platform to build a reputation” (p. 7).

The relationship between the source and the recipient, the form and location of the knowledge, the recipient’s learning predisposition, the source’s knowledge-sharing capability, and the broader environment in which the sharing occurs are the five primary contexts that affect the successfulness of knowledge-sharing implementations. Document exchanges, presentations, and job rotations are examples of knowledge sharing activities (Bornemann et al., 2003). However, there are other issues that one should consider to achieve successful knowledge sharing. For example, any factor which can impede, complicate and harm knowledge internalization must also be considered. Another example, individual attributes and skills may affect the knowledge sharing environment and managers who determine the employee positive and negative emotion at work are responsible for supporting the organizational knowledge sharing capabilities (Al-hawari, 2007). The analyses of the form and the location of the knowledge, the types of agreements, rules of engagement and managerial practices adopted by the parties, and the specific knowledge-sharing activities used are the most important knowledge-sharing activities (Bornemann et al., 2003).

Knowledge logistics deal with knowledge requirements, knowledge availability, and knowledge transfer. Knowledge requirements represent the first step in the sphere of influence of KM processes. The company’s knowledge holders represent the available knowledge. Finally, the knowledge transfer is the procedures of linking the available knowledge and the knowledge requirements (Von Krogh, Ichijo, & Nonaka, 2000; Bornemann et al., 2003). The knowledge can be transferred via human networks or via information and communication technologies. An example of knowledge transfer via human networks is personal communication, which is considered
as the most valuable form but at the same time the most time consuming forms. Telephones and videos conferencing are examples of knowledge transfer via telecommunication and communication across geographical boundaries (Bornemann et al., 2003). Therefore, ICT tools are helpful in supporting the KM processes (Hayes, 2007).

### 2.5 Knowledge creation

Knowledge creation plays an important role in KM. The knowledge creation process can be seen as spiraling processes which involve dynamic interactions occur at different levels (Baskerville & Dulipovici, 2006). Knowledge creation performance is based on the organizational culture (Baskerville & Dulipovici, 2006). For example, knowledge creation can be supported by organizational policies such as using rewards as motivation for individuals (Hamid, Nayan, Bakar, & Norman, 2007; Barquin, 2001).

Knowledge creation can be resulted from process involve communication between individuals who are working or collaborating together (Maponya, 2004). Knowledge can be created in different ways by focusing on finding, innovation, and gaining of knowledge. Creative thinking enhancing the ability of individuals to solve problems, and having an effective organization infrastructure are the most important elements in knowledge creation (Mavodza, 2010).

### 2.6 Knowledge organization

Knowledge organization can be seen when an organization uses the knowledge and regards it as an asset (Rowley, 2001; Schein, 1985). The organization has to make an effort to increase the knowledge awareness and have it within its values and culture (Jantz, 2001). Knowledge organization indicates that the knowledge must be accessible and available at any time needed (Crowley, 2005; Hatch, 2012).

According to Hjørland 2008 “Knowledge Organization (KO) is about activities such as document description, indexing and classification performed in libraries, bibliographical databases, archives and other kinds of “memory intuitions” by librarians, archivists, information specialists, subject specialists, as well as by computer algorithms and laymen” (p. 80). Knowledge classification and codification are important for information retrieval and usage. They encourage the access and use of knowledge thus
encourages the creation of new knowledge (Baskerville & Dulipovici, 2006). According to Al-hawari (2007) KM can be seen as a mixture of the human and technical by most of the managers. Narratives that illustrate the tacit knowledge, embedding knowledge systems, and knowledge models are the mechanisms for articulating implicit knowledge for codification (Baskerville & Dulipovici, 2006).

2.7 Operative KM
The successful management of knowledge is that uses the available knowledge in a timely manner to solve problems. It also applies the KM methods and techniques. The factors which may influence the effectiveness of KM include the role of employees, knowledge logistics, integration into the work environment, changing the knowledge base, transfer of experience, organization memory, and organizational culture.

2.7.1 The role of employees
The performance of the employee is a key factor in achieving quality work in any organization. The rapid developments in an organization's management at multiple levels have shown the need to rely on accurate and renewable information. This requires a person to organize information and makes it available to researchers, learners and decision makers in a reasonable time and place. Therefore, it becomes urgent to educate persons to perform the work (Sellens & Wilson, 1998; Slade & Bokma, 2001).

Increasing the employee’s efficiency through giving them confidence, assuring equality and good work environments are important for the good functioning in the working place (Sellens & Wilson, 1998; Slade & Bokma, 2001). This is essential for the transfer and share of tacit knowledge and good use of available information in the institution. KM has several forms based on the actual goals, e.g., corporate goals and personal goals, and/or individual actors involved at group and individual level.

Organizational KM, which deals with a group of employees and focuses on corporate goals, is considered as the most common form (Bornemann et al., 2003). However, the personal KM, which deals with individual and focuses on personal goals, does not oppose the KM which focuses on corporate goals.
The link between organizational and personal KM forms showed that there is different knowledge relevant based on the differences between corporate and personal goals. Therefore, KM must consider individual employee perspectives to avoid unnecessary conflicts of interest. The boundary between the corporate relevant and personnel relevant knowledge is established by motivation and autonomy (Bornemann et al., 2003).

2.7.2 The individual working environment

The success of a work can be measured by the feedback from other people in the company and the amount of cooperation in the work involved. However, the knowledge requirements of a work may not be available for most of the people in a company (Bornemann et al., 2003). Therefore, they have to generate the needed knowledge to complete their tasks successfully. One difficulty which could force the employee at a big company is to better meet corporate requirements. To solve this problem every employee has to identify his/her relevant working environment. Task and environment analysis is useful in this case to identify staff relevant working environment. By identifying relevant working environment staffs can locate the knowledge required to complete their tasks and thus increase the value of their results (McEachron & Javitz, 1983).

2.7.3 Integration into work environment

This means that understanding the exact interaction between the group through dialogue and discussion which lead to the integration of elements of the group and activating the joint reflection. The result is a wonderful combination of mixed and interactive elements (Gareis, 1990).

There are three KM functions, which are used to integrate the KM into project implementation processes. These are establishment of an efficient knowledge system for the project, knowledge transfer between projects, and transfer of experience between projects. One way to establish the efficient knowledge system for the project is to pay more attention to communication processes and reflections. The aim of knowledge transfer between projects is to reuse knowledge in new projects from similar projects. This can be done by integrating knowledge goals into individual project phases. It is vital to avoid repeated learning by “trial and error" and to avoid repeating the mistake’s transfer of experience between projects. (Bornemann et al., 2003).
2.7.4 Changing the knowledge base

It is possible that available knowledge of some organization cannot achieve their knowledge requirements. The organization has to either develop the knowledge internally or to buy it externally. The decision will be based on the company’s core competencies. Core competencies can be described as the entrepreneurial excellence in a particular field. It can be considered as the basis for the development of core products and services (Bornemann et al., 2003). The development of the core competencies can be achieved by combining internal resources, i.e. through knowledge creation, and external resources. The organization's ability to act and innovate is based on its ability to change and expand its knowledge base through internal and external resources (Hamel & Prahalad, 1994; Bornemann et al., 2003).

2.7.5 Transfer of experience

The transfer of experience can be considered as a special form of knowledge transfer. The transfer of experience has the special characteristics, which make it difficult to be done through communication, documentation and information processes, i.e. the experimental knowledge cannot be created through the transfer process. There are several goals for transferring the experience. It can be used to provide a broader spectrum of decision-making possibilities for employees, avoid unnecessary repeated learning through “trial and error", and support individuals and organizational learning process (Bornemann et al., 2003). Codification and personalization are the two strategies which play an important role in the transfer of experience. While the codification strategy attempts to document the parts of experimental knowledge, which can be described as the personalization strategy focuses on transferring experiences through direct contact (Hansen, Nohria, & Tierney, 2000).

2.7.6 Organization memory

Organizational memory is the function on the sustainability of knowledge in the organization. There are several places in the organization such as human resources, organizational culture and organizational structures, etc. Also, it is a lead to the storage, retrieval and distribution of organizational knowledge. In other words, organizational memory is a mechanism to enable the ongoing storage and processing of organizational knowledge (Wheelen & Hunger, 2011; Conklin, 2001; Atwood, 2002).
Organizational memory can enable employees to easily access to the stored knowledge stored in warehouses and stores of knowledge and specialized departments. It can further allow them to work on retrieving knowledge and use it in solving complex problems and make the right decisions on time (Wheelen & Hunger, 2011).

The stored knowledge back to the organizational memory includes written documents and information stored in electronic databases, and human knowledge. Organizational knowledge over time accumulates but with help of the software groups and information technology the memory and retrieval of information and knowledge stored can be improved and expand organizational (Wheelen & Hunger, 2011; Conklin, 2001; Atwood, 2002).

To obtain and sustain organizational memory, it needs to provide basic infrastructure of the necessary information technology to the foundation. An in-depth knowledge of KM and technology management requires knowledge of attempts and the constraints and challenges facing the process of building organizational memory and how to activate it, and the important role the contribution of organizational memory in the process of improving problem-solving and decision-making taken by the organizations (Wheelen & Hunger, 2011; Conklin, 2001; Atwood, 2002).

2.7.7 Organizational culture

Organizational culture is a set of values, beliefs and feelings that are within the organization and prevails among workers such as the way individuals deal with each other, and the expectations of each individual and the organization of the other, and how their interpretation of the actions of others (Schein, 2010). This requires the application of KM in any organization to be the dominant cultural values appropriate and compatible with the principle of continuing in learning and KM, and that organizational culture is encouraging for the team spirit at work (Schein, 2010; McDermott & O’Dell, 2001).

There are factors that help to introduce the concept of KM in the organization and, therefore, represent positive factors for KM in organizations and are intended to encourage a culture that encourages teamwork and exchange ideas and help others (Schein, 2010; McDermott & O’Dell, 2001).
2.8 Information and Communication Technology

Information and Communication Technology (ICT) have changed the world, and it has influenced every field of human life. The impact of information technology can be observed in every field, and it is opening new ways and direction for carrying out the routine work.

2.8.1 Relevance and overview of technology

Information technology plays a major role in improving efficiency and effectiveness of organizations. Information technology helps to develop and improve the organization performance by providing relevant and available information that helps a decision maker to make the right decisions. Technology plays an important role in the KM, both in knowledge creation, acquisition, and deployment or keeps it play a major role in coordination with human resources in many applications as a treatment of documentation and decision support systems.

Communication is an interpersonal process of sending and receiving messages. It is through communication, that people exchange, share information as well as understands and influences each other. (Turban, Leidner, McLean, & Wetherbe, 2008). For internal information communication, information technology has come up with intranets that are networks designed to serve the domestic informational needs of the company, using internet concepts; it provides easy and inexpensive browsing and communication capabilities (Turban, Leidner, McLean, & Wetherbe, 2008).

ICTs offer support for KM activities. Any decision regarding the selection of the technology solution should be driven by KM needs and not by technical considerations. The different available technologies and the KM activities can be very useful in the KM implementation process. According to Bornemann et al., 2003 there are seven basics KM activities:

- **Knowledge planning** provides KM strategic and goals evaluations.
- **Knowledge creating**: activities focus on development of new knowledge.
- **Knowledge integration**: activities are to synthesize available knowledge in an organization.
- **Knowledge organization**: bring structure into all this knowledge.
- **Knowledge transfer**: the activities of sharing tacit knowledge or assist the learning of explicit knowledge between one person and another.

- **Knowledge maintenance**: activities ensure obsolete, out of date knowledge is identified, updated or even forgotten.

- **Assessing knowledge**: activities help to determine how knowledge was developed at the time, determine the available knowledge, and specify the knowledge goals achievement progress.

The contribution made by ICTs to KM activities, which is described by Bornemann et al., 2003 in detail:

- **Communication technologies**: such as email and video conferencing are particularly useful for: knowledge transfer and knowledge creation activities.

- **Collaboration technologies** open opportunities for innovations such as collaboration evolves and it becomes more fluid, moving from private to public conversations for example: from the telephone and email to wikis and blogs. It is also useful for knowledge transfer and knowledge creation activities. Workflow management systems support structured forms of collaboration, in particular knowledge maintenance.

- **Document management** facilitates access/handling of vital and important information in an organization, in such a way that information can be formed, collective, structured and stored efficiently and properly. The goal is not just conservation, but can also deal with these documents to increase efficiency, such as moving between staff, departments, and managers. One of the core functions of these types is the simplified of large amounts of data, such as inventories and databases.

- **Adaptation and presentation technologies** include personalization tools, automatic recommendation tools, and visualization tools that promote pertinent content. These tools assist to facilitate knowledge transfer. Visualization techniques in addition assist to provide a better synopsis of complex structure involved in knowledge organization.

- **Content generation tools** include authoring tools and technologies for automatically generating new contact. It also supports knowledge integration and knowledge creation activities. Technologies support knowledge maintenance activities more than generating new contact. Specialized tools in
addition assist to provide a better overview of complex structure involved in knowledge organization.

- **Personal KM tools available** techniques and tools used to gather, handle, and disseminate information. These tools focus on development, integration, organization, and maintenance of knowledge for personal use more than focus on knowledge sharing.

- **Artificial intelligence** research with a high degree of specialization and technical, nowadays it is being increasingly used in KM application. These technologies support or more benefits of knowledge organization activities for example intelligent computer systems can be used to analyze large quantities of data and researches on patterns suggest links to the vehicle were not previously expected. Also, it supports knowledge integration and transfer.

- **Networking technology** is data communications, offering technical services for the design, implementation, and support of network infrastructure for activities, and it is important, mostly for knowledge sharing.

- **Hardware** it is a component of the field of technology, the infrastructure for all IT activities, which device and tools used to view and transfer information. It is important, particularly for knowledge sharing.

2.8.2 Selection procedure

In the past, the resolution depends essentially on personal experience. Today, information has great importance to the success of the resolution, especially in situations of uncertainty and change in the company. The inputs for any resolution are the information available for the problem, and available information on alternative solutions. Decision-making also needs to rotate the inverse of nutrition information during follow-up implementation of the resolution and to study its consequences. Recent decisions do not rely on information only, but the techniques of analysis and modeling.

Several factors determine the type of the ICT that can be used to support communication in organizations (Turban, Leidner, McLean, & Wetherbe, 2008):

- **Participants**: The numbers of people sending and receiving information.
- **Nature of sources and destinations**: These can vary from people to databases.
Media: Communication can involve one or several-IT supported media such as text, voice, video or pictures.

Place (location): The place where the sender and receiver are located.

Time: Synchronous communication happens where both parties are available simultaneously, for instance: telephones and teleconferencing. Asynchronous communication occurs when participants are not available, and the message should be recorded (example: e-mail).

A systemic and methodical approach to determine the most appropriate technology given, by considering specific needs include an informative description from organization. This is to support the KM activities in the organization. It is also to choose suited technology or more and to be applied in practice. This requirement is to set the goals and the policies of the organization and at the same time must be with an analysis of the existing situation in the organization (Bornemann et al., 2003).

2.9 KM and libraries

The university libraries have now radically developed and are applying some KM in the provision of library services. KM is about improving/enhancing the use of organizational knowledge through KM and organizational learning. The complicated nature of knowledge and its management, it is often difficult to guess and/or express the value of KM. KM includes acquiring, organizing, retrieving, acquisition of knowledge, and responds to the new knowledge (Wen, 2005; Serban & Luan, 2002).

KM has a role in management supplies quick and safe responses. What really matters for the librarian is to obtain the information and to access documents immediately (Buyya, Stockinger, Giddy, & Abramson, 2001; Melo & Sampaio, 2006). The librarians want to meet his objective with minimum efforts and maximum efficiency. Therefore, identifying the blanks of the system and capture the perception of characteristics, aspects, dimensions, objects, events, cause and effect to the user is a process to be definitively incorporated into the activities of the information services (Buyya, Stockinger, Giddy, & Abramson, 2001; Melo & Sampaio, 2006).

Today, KM is essential for a manager because most organizations need knowledge to survive and prosper (Bamji, Gray, Meister, & Mills, 2003). KM can help companies extend their reach to a far away location, offer new products and services, reshape jobs and workflows, and perhaps profoundly change the way they conduct business (Laudon, & Laudon, 2011).
Li and Li (2010) searched the KM modes and strategic framework of a university library. They divided the mode of KM in libraries according to the finding and transferring process of knowledge, i.e. Explicit knowledge, Intermediate knowledge and tacit knowledge. Based on the analysis of elements of the library in the KM, they proposed several KM strategies, including organizational culture construction of a university library in KM, information and communication technology supported service system, collaborative learning organization, performance evaluation of KM, and user information archives. They found that the KM approach can improve the self-management and innovation capacity of university libraries.

Mavodza (2010) studied KM principles and practices and the possibility of applying KM in the provision of library services. He investigated the possibility of using KM practices and tools to improve the quality of service of Metropolitan College of New York (MCNY) library. The objective of his work was to investigate the information provision practices at MCNY, determine if the concept of KM is understood at MCNY, and to determine the need for KM practices in the library, determine and assess what knowledge generation, knowledge sharing or transfer, knowledge retention and use policies by MCNY and the library are in place, determine the extent to which MCNY encourages information flow and use of modern technologies, and to make recommendations on implementing KM practices that enhance the value of library service at MCNY. To enhance performance and improve the quality of service for MCNY library. Mavodza (2010) studied how the knowledge was identified, captured, organized, and retained. His research methodology included a questionnaire, observation, interviews, and the use of institutional documents. He found that KM concepts were not generally understood at MCNY, collaboration between librarians and faculty is needed to create a meaningful and relevant educational environment for the study programs offered by the college, and the MCNY library practices were amenable to KM practice but not intentionally based on KM. The recommendation was to perform a knowledge inventory, which may help the development of suitable institution-wide policies and practices, to achieve proper organized methods of integrating work processes, collaborating and sharing, and developing an enabling institutional culture.

Yang and Liu, 2009, developed a KM framework model. They studied and analyzed the different views and frameworks of KM for college library
management. Based on the research, they proposed a system framework of the KM system and present the application of this system for college library management. Hamid and Nayan, 2005, studied KM in National Library of Malaysia. Their study was based on qualitative research, i.e. Questionnaire. They determine how the knowledge is created, distributed, and applied within an organization based on a survey. They also examine how appropriate is the working environment to support the implementation of KM in the organization. They found that libraries can achieve several benefits such as reducing research and development costs and increasing employee’s capabilities and satisfaction by leveraging knowledge.

Ghosh and Jambekar (2003) investigated what changing role and core competencies are required for information professionals, particularly for chief knowledge officers to achieve a successful implementation of KM. A successful implementation of KMs from their point of view is that people have to share their knowledge and reuse the knowhow of others. They concluded that globalization, decentralization, customization and acceleration are the main challenges that require managing and acquiring larger knowledge.

2.9.2 Barriers to KM in academic libraries

KM is being used by library professionals to achieve the organizational goal and provide better service to its users. However, there are some barriers which prevent the library professional from using these techniques. These barriers can be summarized as follows (Ghosh & Jambekar, 2003; Raja, Ahmad, & Sinha, 2009; Maponya, 2004):

- No cooperation between senior and junior staff
- In general, junior staff will not share their knowledge without getting the benefit
- Every library cannot participate in terms of modern technology and its management
- Lack of communication skills
- Lack of staff training.
- Lack of sufficient budget / funds
- Lack of tool and technologies
- Lack of Centralized policy for Library
- Changing peoples’ behavior is a challenge
Part of knowledge is internalized by the organization, while another is internalized by individuals
- Financial pressures
- Rapidly evolving technologies
- Changing staff roles
- Make sense of information found on websites
- Academic libraries need to offer user-friendly ICT oriented facilities
- Applying competencies used in ‘managing information’ to the broader picture of ‘managing knowledge’
- Managing the know-how of organizational members.

As we can see libraries are facing innumerable challenges which are complex and interrelated such that a single librarian or a library manager cannot cope to address them alone.

2.9.3 Suggestions to KM in academic libraries

The librarian should have a KM strategy and/or framework to broadcast information using IT technologies. The right information must be delivered to the right people at the right time. For better implementation of KM in libraries, the following was suggested (Ghosh & Jambekar, 2003; Raja, Ahmad, & Sinha, 2009; Maponya, 2004):

- Provide sufficient budget.
- Provide the special fund for the new technologies.
- Equip the library with new technologies with network facility.
- Interchange of technical staffs among organizations/ libraries.
- Organize a training program.
- Use a broad array of knowledge, skills and resources.
3. METHODOLOGY & DATA COLLECTION

In this chapter, a description of the case libraries and of how to select and design the research methodology is presented. Using a method to collect the right data is crucial for this research work. It gives us the opportunity to draw correct conclusions based on the data gathered. The correct information is crucial to fulfill the purpose of our thesis. According to Holme and Solvang (1997) a method is a tool to reach the objective that is set by the research questions. Everything that can help us on the way to achieve our goals is a method (Andersson & Lofstrand, 2004).

3.1 Research Methods

In this study, we need to see daily work in natural situations to have a deep understanding of a library system. A qualitative method was used in the study to achieve our purpose. The qualitative method will allow us to gather information that can be analyzed and presented in a way that will be credible and useful. The benefit of using this method is to have information directly, to assess what is happening in the real environment, to understand an ongoing activity, process, or event and to provide us information about real-life situations. It has been noted that the qualitative method is more acceptable in information system research over the past decade (Pare, 2002).

According to the research question and the purpose of this study, the research method used in this study is a qualitative research method. It will help to go deep into the research problem through covering all information required to answer the research questions (Yin, 2009). The qualitative research method in this study was chosen to study the KM practice in the university library and to investigate the real life practice and attitude of the library staff. It is also due to the nature of this study as information needed is difficult to get in quantitative approach for instance a discussion with the librarian is needed to get an idea about what is in their mind. Indeed, qualitative study could give a better understanding of what goes in mind of the library as it gives an opportunity to rise up question with an open-ended question (Creswell, 2008).
3.2 Research Strategy

In order to pursue the objectives of exploring and defining the library system a Case Study strategy is used in this research. According to Denscombe, the case study is a strategy or approach in which a unique subject in its natural setting is singled out for close examination and comparison (Denscombe 2010). Case study aims to describe and analyze a particular event in a defined environment. In-depth case study was conducted in order to obtain the largest amount of information, to get a useful diagnosis of the current reality of the situation and to deal with what suffering from problems and gaps. This study is used to analyze and accurately identify the attitudes, interests, behaviors, and problems of members of the research community with regard to KM and its practice (Creswell, 2008).

Using a case study will help us to answer the questions of what has occurred over time, what it is like now (what is the situation of the current system), why it occurred and how to improve? (Creswell, 2009). Also, the case study allows to get more and specific knowledge about the problems and to have a realistic view of the problem. For example, sometimes staff may be unwilling to discuss problems, so during the interview we can have the possibility to manage the meeting effectively according to our aims. Therefore, we will conduct these meetings and benefit from using semi structure interviews (Creswell, 2009). A case study was conducted to help us to focus on describing and analyzing a particular event inside the library, library staff roles, intervention group or an individual also to gain understanding and meaning of those involved in library systems.

3.3 Case description

The study wants to know the issues regarding library KM and competing between developed and developing countries. As Myers and Avison (2002) stated that the Qualitative Research Approach is purely designed for the study of natural, social and cultural phenomena. Two Case Studies were conducted; one in developing countries and one in developed countries. As far as the first one represents a library in a developed country that is Linnaeus University library (LUL), Sweden. The second one represents a library in a developing country i.e. University of Jordan library (UJL), Jordan.

The developed countries are already implanting the KM in their organizations to some extent comparable to developing countries. Indeed, there is a need
for understanding for KM in developing countries (Okunoye, 2002). However, several limitations in developing countries such as low skill, technology and other resource constraints should be considered (Narteh, 2008).

Culture plays also a role in for instance relations within the organization between employee, deciding the set of priorities, and expectation from the organization (Ting-Toomey, 2012). Therefore, a gap in the level of implanting KM is expected between developing and developed countries. As a result of this, a study concern with difference in KM understanding and implantation in these countries is an unmet need to evaluate the requirements of the developing countries in this context.

The first case study is the library at Linnaeus University (LUL). The library is situated on ‘Nygatan in Kalmar and in the middle of the Växjö campus. The university library is an information center and meeting place for all staff and students as well as being open to the public. Thus, the main customers of the library are: researchers, staff at Linnaeus University, students, and the public. At the university library, you can find group study rooms, student desks, computer labs, quiet study rooms, and café. The library also hosts the university’s writing lab. The library offers all students, researchers and staff at Linnaeus University a wide range of databases, thousands of journals and over 360 000 books. More information can be found on their website (www.lnu.se). The library has 37 employees and six Library students that are working in different library departments. Every day around 2000 customers visit the Linnaeus University library.

The second case study is the University of Jordan Library (UJL). The library was established along with the establishment of the university in 1962. It occupies a total area of (10,500 Sm.), In addition to (4000 Sm.) Occupied by its 15 sub-reading rooms distributed throughout the colleges of the university and its different scientific centers to offer its services to the students of all colleges. The university has paid special attention to its library by providing it with an adequate budget to enrich its collections of books, periodicals and other information resources, and by adopting the modern technology and the use of information technology. UJL consists of 4 departments and 12 divisions; it offers services to the university community including the students, the faculty members, and the administrative staff, the researchers
outside the university, and individuals and institutions from the Arab and foreign world. The average number of library users ranges between 7000-10,000 per day. UJL opens (90 hrs.) a week. UJL is a depository center for theses and dissertations defended and acknowledged at the universities that are members of the Association of the Arab Universities since 1986. The center contains around 50,000 theses till now. The library holdings exceed more than (1008000) library materials such as; (books, periodicals, thesis and audiovisual materials). And the number of its employees is about 88. The students occupy 900 seats for studying at the main library (http://library.ju.edu.jo/E/about_library.aspx).

3.4 Data Collection

The main way of collecting data includes interviews, observations, documents, and audiovisual material were used to achieve the objective of our study. These are the basic methods for collecting data in qualitative research. Semi-structured interviews approach to all the interviews was conducted. By using semi-structured interview approach gives the researchers greatest flexibility and assists them in keeping focus on identifying questions and digging deeper into the questions (Creswell, 2009).

**Interviews**

Interviews are the most important technique to serve scientific research studies such as the qualitative research method. Alternative for each question was added for interviews as it will be easier for the librarian to understand what was exactly meant in our questions and kept us focusing on our aim of the study. Semi-structured interviews were carried out. The questions were formulated on the basis of reviewing literature, mainly in this study the interview questions were developed depending on Avlin 2005, Mavodza 2010, and Sharma & Chowdhury 2007 where they have done related work on KM and ICT field. Relevant questions were selected from these studies to formulate the final interview questions.

The interviews including 30 questions in the study were divided into three key areas KM, KM practice, and ICT (appendices 1-3) to achieve the goal of the study:

1- The KM: This theme examines through the questions the importance and value of KM and information management in the consciousness of the respondents as well as in their working lives.
2- KM activities: questions about disclosure practices of the respondents with regard to KM and knowledge sharing that surround these cognitive processes. Also, it aims to stand on the policies of libraries in supporting the KM practices.

3- ICT and its availabilities: This part reveals the knowledge of librarians about ICT within the library, barriers to ICT employment in the library, and problems faced by the University library in using IT for KM.

Several interviewing methods were used in the study including face to face and Skype. This style of interviews is open-ended questions and can present the participant views and opinion. In order to increase the effectiveness and the rigor of the interview questions, the questions were piloted with some of the librarians and their suggestions were considered while finalizing the interview questions. Further, leading questions will be avoided to ensure interpretive validity (Given, 2008).

LUL librarians were interviewed in their offices. The interviews were conducted in a semi structured manner which helped the interviewer to raise more question to get the needed information. In case of UJL the librarian were interviewed using Skype to collect main data due to the geographical distance as it was not feasible to meet them in person. Also I got a help from my friends in UJL in case I have extra question I wanted to inquire about it.

Observations
The observation at LUL was helpful in knowing the work carried out daily by the staff and the way of communication virtually. Observation in UJL was not possible to conduct in this study due to time of study and distance limitations.

Documents
Questions were asked related to KM and knowledge sharing taking into consideration the previous research and available literature. E-mails were also used to send out questions and get responses and other data from the same interviewees. We prepared the interview questions in advance and also raised unprepared questions of relevance when interacting with the interviewers during the conversations.
Audiovisual material
Interviews were conducted by Skype with a librarian in Jordan after getting previous permission. Also, audio recording of oral interviews with librarians in LUL was done after previous permission to make sure about registering all information.

Interviewing procedure in the study
The data are collected by interviewing six librarians in each of LUL and UJL and interview take between 30-50 minute depending on the response time, the selection of respondents depended on the library organizational structure, librarian from different organization level such as management level and subject librarian and IT librarian.

3.5 Accuracy of data collection
The validity of the findings was assured by following the recommendation by (Creswell, 2008). Several sources of information were obtained by interviewing personal in libraries from different divisions and at different positions in library. The observations were also served as another source of information. Also, several methods of data collection were used including face to face interviews, Skype, and via emails. The thesis was reviewed by a colleague in the classes and their input was useful.

3.6 Ethical Considerations
Ethical considerations have been carefully followed in designing the questions for carrying out the interviews. Interviewees will be given the opportunity to speak freely and ask anything relevant to the questions during the interview to increase their understanding. The interviewees were promised that interviews can be withdrawn at any time during the interview session. The audio recording of the interviews during data collection were made after interviewees were informed before recording. All the gathered information will be used for academic purposes. Confidentiality was kept on mind especially if any organization or person refuses to publish any information.
3.7 Analyzing the data

For the purpose of analysis, our research findings from the interviews, observations and documented material were summarized. The interview notes are maintained and used for further evaluation and analysis. The text was shared with the interviewee for textual verification and approval of the content that could be displayed and also to have a common understanding of the events.

Research often precedes in “overlapping stages” with data collection and data analysis an integrated activity (Mellon, 1990, p. 25). The collected data from interview were described by using text, and tables. The data analysis has been performed since the starting of data collection but a complete analysis was done by end of data collection. This data was then added to the data gathered from the observations, and analysis of documents in the case. The analysis process has gone through different stages as follows (Creswell, 2008):

- Organizing the data and reflection on its overall meaning
  The large data collected from interviews, observations, and documentation as well as notes recorded during the initial data collection was sorted depending on the source of information. This way of organization can help to facilitate easy access to the required information. It can also help us to confirm that data collected are sufficient for our analysis.

- Data classification (coding)
  Data classification was performed to ease the data analysis by dividing the data into different groups in case every group deal with one title concern this study and can generate helpful information for each topic in this research.

- Results formulation
  A discussion of the theme as well as the relation between themes was conducted. The finding obtained after classification were presented in tables under titles such as KM, knowledge sharing, ICT, etc. The tables helped in making overview on the results of the study.

- Results discussion
  At this stage the results were analyzed and interpreted taking into account theories and previous studies. Data/information, previous studies and literature on the subject of the study were served to verify and discuss the findings.
4. EMPIRICAL FINDING

In this chapter, qualitative findings were presented. The understanding of KM and employment of KM practice within the selected libraries from the library staff perspective were evaluated. Also the library ICT and its challenges were discussed.

After the data was collected from respondents, it was divided and presented based on their relation to the research aims and questions (see sections 4.1 and 4.2). The data was then aggregated based on the selected alternatives (by librarians) of each question as illustrated in tables 1-7. The tables present the answer that got a preference majority i.e. at least 3 out of 6 respondents had the same answer. Tables 1-7 have three columns which contain respectively the questions asked, the library’s university i.e. LUL or UJL, and the answers of librarians.

4.1 Knowledge management

The level of understanding of KM at UJL and LUL was evaluated and expressed opinion of the librarians about the relation between knowledge and information was illustrated (Table 1)
Table 1. Level of understanding of KM at UJL and LUL.

<table>
<thead>
<tr>
<th>Questions</th>
<th>Library</th>
<th>Librarians answers</th>
</tr>
</thead>
</table>
|           | Linnaeus University Library | - KM involves information management; KM and information management are not the same.  
- Knowledge is based on information, but knowledge and information do not have the same meaning.  
- Information is a way to have knowledge, so knowledge can be created by information use.  
- We are doing KM but under another name.  
- KM is valuable for the organization’s success. |
|           | University of Jordan Library | - Librarian disagrees that knowledge and information have the same meaning.  
- Information is a way to have knowledge.  
- Knowledge can be created by information.  
- KM is valuable for the organization’s success. |

To have an idea of what the librarians think about knowledge and information we asked about the relationship between knowledge and information. At LUL,
- (6) respondents disagree that knowledge and information have the same meaning, while (4) agree that information is a way to have knowledge.
- (6) disagree whether the KM and information management are same, while no one agree.
- (6) agree that KM involves information management. Concerning whether knowledge can be created by information use all responses agrees.

While at UJL,

- (5) agree that information is a way to have knowledge. (1) Opted not to give an opinion.
- (3) agree that KM involves information management, (2) opted not to give an opinion.
- Concerning whether knowledge can be created by information use (5) agree with that.

Another question was what the librarians in LUL and UJL think about KM. We raised the question, what do they think about KM? At LUL, The results of the study show that
- All of the sample agreed that they are doing KM within the library but not under the name of KM,
- Among the respondents, one disagrees that KM is valuable to succeed, and (4) agree with that while (1) opted not to give an opinion.

While at UJL, the results of the study show up
- (2) of the study sample opted not to give an opinion if they heard about KM, (4) disagree that they never heard of KM.
- Among the respondents, one disagrees that KM is valuable to succeed, and (4) agree with that while (1) opted not to give an opinion.

4.1.1 Knowledge retention
Organizations are at greater risk of losing knowledge which is held by individuals who leave the organization. Retrieving and storing tacit knowledge is very important. This is because those employees, who leave the organization, will take their tacit knowledge which may not be documented. Table 2 shows the knowledge retention in LUL & UJL.
Table 2. Librarians in UJL & LUL think about knowledge retention

<table>
<thead>
<tr>
<th>Questions</th>
<th>Library</th>
<th>Librarians answers</th>
</tr>
</thead>
<tbody>
<tr>
<td>We studied knowledge retention by exploring:</td>
<td>Linnaeus University Library</td>
<td>- The needed knowledge is located in the central information system, the heads of the library’s staff, personal computer, and sometime in paper documents.</td>
</tr>
<tr>
<td>- Where the knowledge is located.</td>
<td></td>
<td>- Adequate knowledge that facilitates doing tasks.</td>
</tr>
<tr>
<td>- Librarian sources of knowledge.</td>
<td></td>
<td>- Needed knowledge quit enough in the department and the librarians find the required knowledge.</td>
</tr>
<tr>
<td>- Knowledge which they get is enough.</td>
<td></td>
<td>- Barrier to store information/ knowledge is lack of time.</td>
</tr>
<tr>
<td>- Barrier to store information efficiently and effectively</td>
<td>University of Jordan Library</td>
<td>- Most of required knowledge in paper-based documents, personal computer, and rarely central information system.</td>
</tr>
<tr>
<td></td>
<td></td>
<td>- The required knowledge is difficult to find.</td>
</tr>
<tr>
<td></td>
<td></td>
<td>- The available knowledge in the department is not enough to use.</td>
</tr>
<tr>
<td></td>
<td></td>
<td>- Barriers to store are not having inefficient technologies, organizational policy, and lack of time.</td>
</tr>
</tbody>
</table>
To know where the knowledge is located, the following question was asked: most of the knowledge that library staffs need to do their work is located in. At LUL,
- (3) of respondents agree that needed knowledge is located in paper documents, while (2) disagree.
- Furthermore, (4) agree that needed knowledge is located in the heads of department members, while no one disagree with.
- Large numbers of respondents agree (5) that in a central information system, the needed knowledge is located, while no one disagrees.

On the other hand, at UJL,
- (4) of respondents agree that needed knowledge is located in paper documents, while (1) disagree.
- Large numbers of respondents agree (5) that in a central information system, the needed knowledge is located, while no one disagrees.
- In addition, There were (3) agree that is located in personal computer and no one disagree.

Library staff needs to increase awareness and understanding of the work. This can be done with interacts with the sources of the library to get knowledge, to get the knowledge you need to identify the source of knowledge that you want, determine the source of knowledge is varied from the librarian to be other. At LUL, we asked about librarian sources of knowledge and if the knowledge which they get is enough. The result was
- About the adequate knowledge that facilitates doing my tasks, (6) agrees.
- In addition, when we asked about whether the available knowledge in my department is enough to use, (3) agree and (1) disagree.

While on UJL point of view, we asked about librarian sources of knowledge and if the knowledge which they get is enough. The result was
- (1) was agreed with exact knowledge that I require, while (3) disagree.
- In addition, when we asked about whether the available knowledge in my department is enough to use, (1) agree and (3) disagree.

To meet the needs of the staff is a main goal of any effective management in any organization. Also, the fulfillment of the needs of the staff is the standard by which we judge on how far the efforts in this area of progress. If it is
difficult to get knowledge within the library environment means that there are problems with staff to share the knowledge which they have. So it is important to know what is the most important barrier to store information efficiently and effectively within the library because that will affect the knowledge retention in the library?

At LUL, All the respondents agree that the main barrier to store information is the lack of time (too busy).

While at UJL,
- (4) of respondents agree that the lack of time (too busy) and (1) disagree.
- Also (3) agree that the current technology is not efficient, while (1) disagree.
- (3) of respondents agree with organizational policies, while (1) disagree.

4.1.2 Knowledge sharing

The sharing of information in an organization is vital and, thus, the organization must assign each department/group member a specific role. It is best for the management to distribute these roles among organization’s individuals. The extent of knowledge sharing within LUL & UJL was evaluated as shown in table 3A (LUL) and table 3B (UJL).
Table 3. Librarians think about the knowledge sharing environment A) LUL and B) UJL.

Table 3.A.

<table>
<thead>
<tr>
<th>We studied knowledge sharing by exploring:</th>
<th>Linnaeus University Library</th>
</tr>
</thead>
<tbody>
<tr>
<td>- Knowledge sharing environment?</td>
<td>- Knowledge concept is difficult to articulate.</td>
</tr>
<tr>
<td>- Interaction between individuals?</td>
<td>- Library databases or the shared computer drive may not have all knowledge which they need.</td>
</tr>
<tr>
<td>- What they do when they stuck in your work?</td>
<td>- Librarians were satisfied by collaborating to accomplish tasks.</td>
</tr>
<tr>
<td>- Sharing of information.</td>
<td>- Librarians agreed that member interaction is helpful for both knowledge sharing and creation.</td>
</tr>
<tr>
<td>Difficulties in sharing information</td>
<td>- Librarians were ready to collaborate with other organizational units.</td>
</tr>
<tr>
<td></td>
<td>- Librarians were able to accept responsibility for failure.</td>
</tr>
<tr>
<td></td>
<td>- Librarians often consult with divisional Supervisor and other departments within the library when they are stuck.</td>
</tr>
<tr>
<td></td>
<td>- Sharing of information occurs with other colleagues in the university in formal ways.</td>
</tr>
<tr>
<td></td>
<td>- Sharing information occurs with other colleagues in the library in formal ways.</td>
</tr>
<tr>
<td></td>
<td>- Librarians do not know about other people’s knowledge needs sometimes.</td>
</tr>
<tr>
<td></td>
<td>- The organizational guidelines are not clear about sharing or need more improvement</td>
</tr>
</tbody>
</table>

To increase the transfer and sharing information in the organization, the organization must assign each department/group member a specific role; these roles are distributed to complement each other. It is best for the management to distribute these roles for individual by themselves. To know how the knowledge is transferred within the library the following question was asked; what is the library staff view of the environment for knowledge sharing in LUL?
The results after investigation are illustrated as follows:
- Knowledge concept is difficult to articulate (5) agree and no one disagrees.
- Knowledge in the shared drive can be applied to the current state with the least need to seek out or create new knowledge (3) agree and (1) disagree.

The organization must motivate public relations between staff at work as it develops and improves the performance and quality of service provided to public clients. Doing this development movement is not quick but persistent and consistent with the passage of time will reach the organization to a satisfactory level in terms of efficiency. The efficiency is distinct in terms of performance, and the interaction between individuals. To understand the interaction between individuals, we ask librarians what they think about the members of their department. This question allows us to be more aware of the library culture.

The results after investigation are as follows:
- Satisfied to accomplish tasks by collaborating (5) agree and (1) neither agrees nor disagree while no one disagrees.
- Helpful for both knowledge sharing and creation; all respondents agree.
- Ready to collaborate with other organizational units (5) agrees and (1) neither agrees nor disagrees while no one disagrees.
- Able to accept responsibility for failure (4) agree while (2) neither agree nor disagree.

An organization must support or help workers recognize, think and reflect about the problems that they face by giving them the framework and the means by which to allow decisions to solve the problem. The specific objectives of the organization as a whole, individual and departments as a part of that can affect the transfer or sharing of knowledge. So the following question asked to the librarian, what will you do when you are stuck in your work?

The results after investigation, when the librarian stuck they contact the division supervisor the result shows that a large number of responding (4) agree, while non-disagree.

A question about sharing of information was given to know if the library staff shares the information between themselves or within the department or if
they share information with other employees in the university. The results which found after investigation are:

- Sharing of information occurs with other colleagues in the university in formal ways (3) agree while (1) disagree.
- Sharing information occurs with other colleagues in the library in formal ways (5) agree while non-disagree.

The volume of knowledge has increased a hundred times of what it was in the past. Organizations seek a better exchange of ideas, allowing greater use of mental resources available and the best possibility for innovation and development. However, there are barriers limiting developments which are caused by the individual, organization, technology, etc. A following question was given: what are the difficulties in sharing information with others from other departments within your library? The results in found after investigation and they show that:

- No proper guideline on sharing (3) agrees while non-disagree.
- I have no idea about other people’s knowledge needs (3) agree while non-disagree.
We studied knowledge sharing by exploring:

- Knowledge sharing environment?
- Interaction between individuals?
- What they do when they stuck in your work?
- Sharing of information.
- Difficulties in sharing information

- The concept of knowledge is difficult to clearly articulate.
- The knowledge stored in a central location cannot be directly applied.
- The tasks of my department change frequently, we have to seek new knowledge that is not directly available in the library databases or on the shared computer drive.
- Knowledge in the shared drive can be applied to the current state with the least need to seek out or create new knowledge.
- The librarians were not satisfied by collaborating to accomplish tasks and members interaction knowledge sharing and creation
- Librarians were ready to collaborate with other in organization if there are clear guidelines for that.
- Librarians often make use of documented procedures within the library when they stuck.
- Sharing information rarely occurs with other colleagues in the library in formal ways.
- Sharing information rarely occurs with other colleagues in the university in formal ways.
- There are no proper organizational guidelines on sharing.
- The bureaucratic procedures involved in sharing are complicated.
- There is no proper IT platform to share information with.
- Librarians do not know about other people’s knowledge needs sometimes.
To increase the information transfer and sharing in an organization, the organization must assign each department/group member a specific role. These roles are distributed to complement each other. It is best for the manager to distribute these roles for individual by themselves. To know how the knowledge is transferred within the library, the following question was asked, what is the library staff view of the environment for knowledge sharing in UJL?

The answers of the question came as follows:
- Knowledge concept is difficult to articulate (4) agree and (1) disagree.
- In dynamic environment knowledge in a central location may not be directly applied and without extensive modifications (4) agree while (2) disagreeing.
- Knowledge from the shared drive can be used after making a few changes to adapt the retrieved knowledge to the present state (3) agreed while (1) disagree.
- Knowledge in the shared drive can be applied to the current state with the least need to seek out or create new knowledge (4) agree while (1) disagree.

The organization must motivate public relations between staff at work as it develops and improves the performance and quality of service provided to public clients. Doing this developing movement not quick but persistent and consistent with the passage of time will reach the organization to a satisfactory level in terms of efficiency. The efficiency is distinct in terms of performance, and the interaction between Individuals. To understand the interaction between individuals, I asked librarians what they think about the members of their department. This question allows us to be more aware of the library culture. The results after investigation are as follows:
- Satisfied to accomplish tasks by collaborating (1) agree and (2) neither agree nor disagree while (3) disagree.
- Ready to collaborate with other organizational units (2) agree while (3) disagree.

An organization must support or help workers to recognize, think and reflect about the problems they face by giving them the framework and the means by which to allow decisions to solve the problem they face. The specific objectives of the organization as a whole and for individuals and departments as part of that can affect the transfer or sharing of knowledge. So the
following question were asked to the librarian, what you will do when you are stuck in your work? The results which found after investigation that the librarian uses documented procedures of the library (3) agree while (1) disagree.

To know if the library staff shares the information between themselves or within the department, and if they share information with other employees in the university. I asked the librarian a question about sharing of information. The results which found after investigation are as follows:

- Sharing information rarely occurs with other colleagues in the library in formal ways (4) agree and (1) disagree.
- Sharing information rarely occurs with other colleagues in the university in formal ways large number agree (5) while no one disagree.

The volume of knowledge has increased a hundred times of what it was in the past. Organizations seek, through better exchange of ideas, allowing greater use of available mental resources and the best possibility for innovation and development. But there are barriers limiting developments, which caused by the individual, organization, technology, etc. I asked the librarian, what are the difficulties in sharing information with others from other departments within your library? The results showed that:

- No proper guideline on sharing (3) agrees also (2) disagree.
- The bureaucratic procedures in sharing are complicated (3) agree while (1) disagree.
- The IT platform to share information on is not appropriate (3) agree while (1) disagree.
- No idea about other people’s knowledge needs (3) agree while (2) disagree.
4.1.3 Knowledge creation

This section investigates the issue of knowledge creation activity. To investigate the ownership of the knowledge-required by a librarian at LUL & UJL, I asked them whether it is owned by them, library, both, or depends on the librarian's effort. Table (4) shows the result:

Table 4. Librarians think about the knowledge creation

<table>
<thead>
<tr>
<th>Questions</th>
<th>Library</th>
<th>Librarians answers</th>
</tr>
</thead>
<tbody>
<tr>
<td>We studied knowledge creation by exploring:</td>
<td>Linnaeus University Library</td>
<td>- The required knowledge belongs to the librarian and library. Also depends on the librarian's efforts.</td>
</tr>
<tr>
<td>- The knowledge owned .</td>
<td></td>
<td>- Encouraging the attendance of courses or workshops or conferences.</td>
</tr>
<tr>
<td>- Staff Development.</td>
<td></td>
<td>- The development staff.</td>
</tr>
<tr>
<td>- Developing staff expertise’s plans.</td>
<td></td>
<td>- Training is available when new tools are in use or the existing tools are changing.</td>
</tr>
<tr>
<td>- The regular performance appraisal.</td>
<td></td>
<td></td>
</tr>
<tr>
<td>University of Jordan Library</td>
<td></td>
<td>- The required knowledge belongs to the librarian and library.</td>
</tr>
<tr>
<td></td>
<td></td>
<td>- Depends on the librarian's efforts.</td>
</tr>
<tr>
<td></td>
<td></td>
<td>- Developing staff expertise’s plans.</td>
</tr>
<tr>
<td></td>
<td></td>
<td>- The regular performance appraisal.</td>
</tr>
<tr>
<td></td>
<td></td>
<td>- Encouraging the attendance of courses or workshops or conferences.</td>
</tr>
</tbody>
</table>

At LUL, the results which found after investigation are as follows:
- (3) Of respondents agree that it depends on the librarian's efforts, (2) opted not to give an opinion while no one disagree.
- Large number of respondents (4) agreeing on that the required knowledge belongs to the librarian and library, (2) neither agrees nor disagrees.

To get an idea about the development of staff issues, I asked the librarians some related questions such as staff development, development plans, and training availability.
At UJL, the results which found after investigation are as follows:
- (4) Of respondents agree that it depends on the librarian's efforts, (2) opted not to give an opinion while no one disagree.
- Large number of respondents (5) agreeing on that the required knowledge belongs to the librarian and library, (1) neither agrees nor disagrees, while no one disagree.

To get an idea about the development of staff issues, I asked the librarians questions related to staff development, development plans, and training availability. At LUL, the results which found after investigation are as follows:
- The development staffs (3) agree while no one disagrees.
- Developing staff expertise’s plans (4) agree while no one disagrees.
- The regular performance appraisal (3) agrees while no one disagrees.
- Encouraging the attendance of courses or workshops or conferences all agree with that.
- Training is available when new tools are in use or the existing tools are changing (5) agree while non-disagree.

While at UJL, the results are as follows:
- Developing staff expertise’s plans (3) agree while (1) disagree.
- The regular performance appraisal (4) agrees while no one disagrees.
- Encouraging the attendance of courses or workshops or conferences is (4) agree while (1) disagree.

4.1.4 Knowledge acquisition

Creative thinking, persuade skill, managing change, and strategic planning are examples of the skills which may be involved in librarian duties. The previous points were investigated as shown in Table 5.
Table 5. Librarians thinking about the knowledge acquisition

<table>
<thead>
<tr>
<th>Questions</th>
<th>Library</th>
<th>Librarians answers</th>
</tr>
</thead>
<tbody>
<tr>
<td>We studied knowledge acquisition by exploring skills which may be involved in librarian duties</td>
<td>Linnaeus University Library</td>
<td>- Lateral thinking, adapting your thinking to suit changing concepts and perceptions about library service.</td>
</tr>
<tr>
<td></td>
<td></td>
<td>- The power to persuade skills in the context of libraries.</td>
</tr>
<tr>
<td></td>
<td>unemployed</td>
<td>- Managing change rather than merely enduring it</td>
</tr>
<tr>
<td></td>
<td>University of Jordan Library</td>
<td>- Advocacy and strategic planning</td>
</tr>
<tr>
<td></td>
<td></td>
<td>- Project management capacity</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Strategic planning is ok.</td>
</tr>
<tr>
<td></td>
<td></td>
<td>- Lateral thinking, adapting your thinking to suit changing concepts and perceptions about library service, advocacy, and the power to persuade skills in the context of the library is quite good.</td>
</tr>
<tr>
<td></td>
<td></td>
<td>- Missing skill such as Managing change and Project management capacity.</td>
</tr>
</tbody>
</table>

The results obtained at LUL, with regards to the questions presented in Table 5, are as follows:

- Lateral thinking that is, adapting your thinking to suit changing concepts and perceptions about library service all of respondents agree.
- The power to persuade and sell your skills in the context of library all of respondents agree.
- Managing change rather than merely enduring it all of respondents agree.
- Advocacy all of respondents agree.
- Strategic planning all of respondents agree.
- Project management capacity (5) agrees and non-disagree.

While at UJL, the results which found are as follows:
- Lateral thinking that is, adapting your thinking to suit changing concepts and perceptions about library service (2) agree while (1) disagree.
- The power to persuade and sell your skills in the context of library (2) agrees and (2) disagree.
- Managing change rather than merely enduring it (1) agree while (4) disagree.
- Strategic planning (2) agrees while (1) disagree.
- Project management capacity (1) agrees and (1) disagree.

4.1.5 Knowledge organization

It is important to know what kind of materials the library has. Therefore, I asked the librarians about the contents of the repository at LUL and UJL. The answer of this question is illustrated in the table 6.

Table 6. Librarians thinking about the knowledge organization

<table>
<thead>
<tr>
<th>Questions</th>
<th>Library</th>
<th>Librarians answers</th>
</tr>
</thead>
<tbody>
<tr>
<td>We studied knowledge organization by exploring what kind of materials the library has</td>
<td>Linnaeus University Library</td>
<td>- Annual reports.</td>
</tr>
<tr>
<td></td>
<td></td>
<td>- An institutional conference proceeding.</td>
</tr>
<tr>
<td></td>
<td></td>
<td>- Multimedia material.</td>
</tr>
<tr>
<td></td>
<td></td>
<td>- A library resource</td>
</tr>
<tr>
<td></td>
<td>University of Jordan Library</td>
<td>- Annual reports.</td>
</tr>
<tr>
<td></td>
<td></td>
<td>- Multimedia material.</td>
</tr>
<tr>
<td></td>
<td></td>
<td>- A library resource</td>
</tr>
</tbody>
</table>
At LUL, the results which found after investigation are as follows:

- Annual reports (5) agree while one disagrees.
- An institutional conference proceeding (5) agrees while one disagree.
- Multimedia material (4) agrees while (1) disagree.
- A library resource (3) agreed while (2) disagree.

While on UJL point of view, the results are as follows:

- Annual reports (5) agree while no one disagrees.
- Multimedia material (4) agrees while (1) disagree.
- A library resource (3) agrees while (1) disagree.
### 4.2 ICT

Table 7. ICT implementation and level of personal qualification at LUL and UJL.

<table>
<thead>
<tr>
<th>Questions</th>
<th>Libra ry</th>
<th>Librarians answers</th>
</tr>
</thead>
<tbody>
<tr>
<td>We studied ICT by exploring:</td>
<td>Linnaeus University Library</td>
<td>- Training is not needed in the development and administration of databases and library systems, hardware maintenance, digital content management including digital and virtual libraries, metadata management, computer programming, and web site/portal development and maintenance.</td>
</tr>
<tr>
<td>- Qualified personnel in the library.</td>
<td></td>
<td>- Training is needed in the development and management of bibliographic databases. Also they are not sure about KM and network administration.</td>
</tr>
<tr>
<td>- Challenges and barriers to ICT use.</td>
<td></td>
<td>- Difficulty in recruiting and retaining qualified ICT staff.</td>
</tr>
<tr>
<td>- Problems faced in using IT for KM.</td>
<td></td>
<td>- Disagree that the barriers because of inadequate ICT hardware and software.</td>
</tr>
<tr>
<td>- Training is not needed in the development and administration of databases</td>
<td></td>
<td>- Disagree that the barriers because of lack of ICT hardware and software.</td>
</tr>
<tr>
<td>- Training is needed in the development and management of bibliographic databases.</td>
<td></td>
<td>- Disagree that the barriers because of lack of qualified staff in ICT among library personnel.</td>
</tr>
<tr>
<td>- Difficulty in recruiting and retaining qualified ICT staff.</td>
<td></td>
<td>- Disagree that the barriers because of lack of commitment by top management.</td>
</tr>
<tr>
<td>- Disagree that the barriers because of inadequate ICT hardware and software</td>
<td></td>
<td>- Disagree that the barriers because of difficulties in training library staff with appropriate ICT skills.</td>
</tr>
<tr>
<td>- Lack of time to learn.</td>
<td></td>
<td>- Disagree because of lack of training.</td>
</tr>
<tr>
<td>- Every day use did not integrate into normal working practice.</td>
<td></td>
<td>- Disagree because of lack of identifying the proper IT tool.</td>
</tr>
<tr>
<td>- Disagree because of lack of training.</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
An important issue for an organization to succeed is to have as much as possible of qualified personnel. Therefore, I explored which ICT and information management areas are staffed by qualified personnel in LUL. Also, if adequate staffing or skill is lacking in an area, I asked them to indicate whether training is needed. The results at LUL are as follows:

- Development and administration of databases and library systems, all of respondents agree.
- Hardware maintenance, all of respondents agree.
- Digital content management, including digital and virtual libraries, all of respondents agrees.
- Development and management of bibliographic databases (2) available, while (4) training is needed.
- Metadata management, including MARC, all of respondents agree.
- Computer programming, all of respondents agrees.
- Web site/portal development and maintenance, all of respondents agree.
- KM (3) available, while (3) training is needed.
- Network administration (3) available, while (3) training is needed.

While at UJL, the responses are as follows:
- Development and administration of databases and library systems (2) available, while (4) agree that training is needed.
- Hardware maintenance (5) available, while (1) training is needed.
- Digital content management, including digital and virtual libraries (4) available, while (2) training is needed.
- Development and management of bibliographic databases (3) available, also (3) training are needed.
- Metadata management, including MARC (5) available, while (1) training need.
- Computer programming (6) available, while no one agrees that training is needed.
- Web site/portal development and maintenance (6) available, while no one agrees that training is needed.
- KM (2) available, while (4) training is needed.
- Network administration (4) available, while (2) training is needed.

There are different challenges and barriers to ICT use apply to UJL & LUL. Inadequate ICT hardware and software, lack of ICT hardware and software, and lack of budget for ICT are examples of these barriers. At LUL, the result shows that:
- Inadequate ICT hardware and software, no one agree and (3) disagrees.
- Lack of staff qualified in ICT among library personnel, no one agrees while (3) disagree.
- Difficulty in recruiting and retaining qualified ICT staff (3) agrees while (1) disagree.
- Lack of commitment by top management in my institution no one agrees while (3) disagree.
- Difficulties in training library staff with appropriate ICT skills (1) agree while (4) disagree.
On the other hand, at UJL the result shows that:

- Lack of ICT hardware and software (3) agree while (1) disagree.
- Lack of budget for ICT (5) agrees while no one disagrees.
- Low skill levels of library users no one agree while (4) disagree.
- Lack of staff qualified in ICT among library personnel (1) agree while (4) disagree.
- Difficulty in recruiting and retaining qualified ICT staff no one agrees while (5) disagree.
- Library lacks updated ICT strategy (4) agrees while (1) disagree.

Knowing the problems which may face UJL and LUL in using IT for KM is important. Therefore, the problems which UJL and LUL may have was investigated. At LUL, the result shows that:

- Lack of training (1) agrees while (3) disagree.
- Lack of identifying the proper IT tool no one agree also (3) disagrees.
- Lack of time to learn (4) agree while (1) disagrees.
- Every day use did not integrate into normal working practice (3) agree and (1) disagree.

While at UJL the result shows that:

- Lack of identifying the proper IT tool (3) agrees also (1) disagrees.
- Lack of user uptake due to insufficient communication (4) agree while (1) disagree.
- Every day use did not integrate into normal working practice (4) agree while (1) disagree.
5. ANALYSIS AND DISCUSSION

In this chapter, the data presented in chapter four will be interpreted with the help of the theory and all of our gathered information is analyzed. According to (Wilkinson, 2000, p. 77), “the role of analysis is to bring data together in a meaningful way and enable us as researchers to interpret or make sense of it.”

5.1 Knowledge management

The analysis and interpretation of the results in this chapter were guided by themes from the findings that were based on the investigated research questions. There were difficulties to ask directly about the KM and for the use of official and personal information resources by interviewing. Thus, the observation of the general operational processes in the library to show the processes in which KM could fit like knowledge retention, sharing, organization, acquisition, and creation was used.

Table 8. KM at LUL and UJL

<table>
<thead>
<tr>
<th>Library</th>
<th>Key Finding</th>
</tr>
</thead>
<tbody>
<tr>
<td>LUL</td>
<td>Staffs in LUL do understand the meaning of KM and practiced in their job but not under the name of KM.</td>
</tr>
<tr>
<td>UJL</td>
<td>The concept of KM was familiar, but KM practice not that much used in daily life by librarians.</td>
</tr>
</tbody>
</table>

The understanding of KM at UJL was investigated. Generally, from our sample the concept of KM was familiar but they are not participating well in daily life by librarians. At the same time librarian was motivated for the result of this study as the result will present the evaluation of KM practice within the library. In other hand, the majority of the staffs in LUL do understand the meaning of KM which is practiced in their job but not under the name of KM as illustrated in table 1 and 8. Also the library staffs at LUL agree that a lot of improvement had done in recent years within different level in the library and currant library structure support more smooth sharing between the librarians.
According to (Jain, 2007) academic libraries can work together within their associated institutions to collaborate and share knowledge. Therefore, understanding of the KM, knowledge generation, knowledge acquisition, knowledge organization, knowledge storage, knowledge sharing, and knowledge retention is part of KM practice (Daud, Rahim, & Alimun, 2008; Jain, 2007; Jashapara, 2005; Nonaka and Takeuchi, 1995; Rowley, 2003). The expectation from libraries has been tremendously increased, in connection with the current developments and demands (Malhan, 2009), in LUL and UJL, they believe that adoption of KM will help most of the staff to get better workflow, thus, will improve the service in general. It will promote knowledge access and dissemination (Bornemann et al., 2003; Mavodza, 2010).

5.1.1 Knowledge retention

Knowledge retention important for converting available information to useful knowledge. Knowledge retention is important as organizations are at greater risk due to the possibility of losing knowledge held by individuals or a group that interacts within an organization or when they are about to leave the organization (Newman & Conrad, 2000). There are different sources of knowledge and information: emails, contracts, proposals, reports, copyrights, work processes, procedures, products and individual employees with memory in their heads (Inmon, O’Neil, & Fryman, 2008).
Table 9. Knowledge retention at LUL and UJL

<table>
<thead>
<tr>
<th>Library</th>
<th>Key Finding</th>
</tr>
</thead>
<tbody>
<tr>
<td>Linnaeus University Library</td>
<td>- The sources of knowledge can be obtained from paper based sources, individual employees with memory in their heads, a central information system, departmental and individual computers.</td>
</tr>
<tr>
<td></td>
<td>- The policy in LUL aimed at creating an inventory of organizational intellectual assets in support of Voyager system, Medarbetare, ‘S’ system, and avoiding their loss in an organization by keeping employee in touch with each other.</td>
</tr>
<tr>
<td></td>
<td>- All of respondent agrees that at LUL they find the knowledge which they need to do their jobs.</td>
</tr>
<tr>
<td></td>
<td>- The librarians had no problem in storing information which they received in an efficient and effective way if they get time.</td>
</tr>
<tr>
<td>University of Jordan Library</td>
<td>- The source of knowledge mainly can be obtained from the personal computer and papers based documents.</td>
</tr>
<tr>
<td></td>
<td>- They have lacked in OM but the library try to improve that by implementing new library system ‘Horizon’ which can help them develop work environment.</td>
</tr>
<tr>
<td></td>
<td>- The librarian at UJL show there is a deficiency in the sources to get knowledge even in finding exact knowledge that is required in the job or the available knowledge in departments is not enough to use.</td>
</tr>
<tr>
<td></td>
<td>- The barrier to store information efficiently and effectively within the library mainly because there is no good or appreciate technology which can help in this matter.</td>
</tr>
</tbody>
</table>

At UJL as shown in table 2 and 9, the respondent agrees that the source of knowledge mainly can be gathered from the personal computer and papers based documents. While at LUL, the sources of knowledge can be obtained from paper based sources, individual employees with memory in their heads, a central information system, departmental and individual computers. It can be concluded that central information system at LUL has good procedures to save and retrieve knowledge when it's needed.

Knowledge retention at LUL is considered to be dependent on the existence of an environment for sharing knowledge. The building of organizational memory (OM) was used to keep the library information from any loss.
However, the OM is considered to be under KM which involves the capture, cataloguing, preservation, and dissemination of the expertise and knowledge that is part of OM. Policies and procedures can be used in housing OM (Özdemir, 2010). In UJL, they have lacked in OM but the library tries to improve that by implementing new library system ‘Horizon’ which can help them to develop a work environment. In other hand, the policy in LUL aimed at creating an inventory of organizational intellectual assets in support of Voyager system, ‘Medarbetare’, ‘S’ system, and avoiding their loss in an organization by keeping employee in touch with each other. These support both tacit and explicit knowledge in the library.

Library staff needs to increase awareness and understanding of the work. This can be done by interacting with the sources of the library to get knowledge, getting the needed knowledge to identify the source of knowledge that you want, determining the source of knowledge varied from the librarian to another. Table 2 and 9 indicate that the librarian at UJL found a deficiency in the sources to get knowledge even in finding exact knowledge that is required in the job. They found also the available knowledge in departments is not enough to use. From the same table, it can be noticed that all of respondent agrees at LUL that all needed knowledge are available to do the jobs.

Knowledge retention activity constitutes our most important activities of KM because this process back to the organizational memory which includes written documents and information stored from many sources. This leads over time to the accumulation of organizational knowledge to be stored especially when it is supported by information technology (Stein & Zwass, 1995; Spender, 1996). The process of storing knowledge is a bridge between the collection and retrieval of knowledge, so the focus in the process of storing knowledge must be about the size of the context in which it will be contained (Stein & Zwass, 1995; Spender, 1996). In case of UJL the respondents agreed that the barrier to store information efficiently and effectively within the library mainly because there is no good or appreciate technology which can help in this matter. The librarians believed that there are difficulties sometime to store because the time is limited. However, they think if they have a supported technology where they can store easily and smoothly. At LUL most of the librarians had no problem in storing information which they received in an efficient and effective way if they get
time as illustrated in the table 2 and 9. Also the table shows that all of the respondents agreed if they have more time, they can have a better storing of information and knowledge. As a conclusion librarian in UJL has a problem with knowledge retention, but no problem exists in the case of LUL.

5.1.2 Knowledge sharing

According to Dierickx and Cool (1989) accumulated knowledge assets i.e. Organization’s OM, as stocks of knowledge, can be considered as knowledge streams within and between organizations which may contribute to the accumulation of knowledge. The connections between knowledge seekers and the providers of needed knowledge can be facilitated by flows (Holtshouse, 1998). This will lead to make knowledge flow and sharing mechanisms for encouraging knowledge retention. In addition, it is essential for employees to get the knowledge which they need to accomplish their task successfully (Hall, 2001; De Geus, 1997).

Table 10. Knowledge sharing at LUL & UJL

<table>
<thead>
<tr>
<th>Library</th>
<th>Key Finding</th>
</tr>
</thead>
<tbody>
<tr>
<td>Linnaeus University Library</td>
<td>- The employees consult with others to solve their problems when they stuck.</td>
</tr>
<tr>
<td></td>
<td>- The library staffs are supportive of knowledge sharing and creation, all of respondents agree that his department member is doing it, also they willing to collaborate with other units.</td>
</tr>
<tr>
<td></td>
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<td>- The communication and sharing of ideas are existed and there was spurring of library staff to present attractive ideas.</td>
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<td>- Tasks of departments change frequently so always have to seek new knowledge that is not directly available in the library databases or on the shared computer drive.</td>
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<td>- Sometimes we don’t not know about other people’s knowledge needs</td>
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The librarian tries to solve problems depending on his own experiences without trying to communicate with other colleges. Some librarians are not satisfied with other colleges in department in supporting knowledge sharing and creation. In UJL the information sharing occurs constantly with other colleagues in both university and library in the formal way. The librarians agreed that there are several reasons for not implementing a good or needed information technology tools. The main reason is that the library budget is imitated in information technology. The knowledge stored in a central location cannot be directly applied without extensive modifications because of the fast-paced dynamic environment that my department operates. The concept of knowledge is difficult to clearly articulate. The tasks of department change frequently and always having to seek new knowledge that is not directly available in the library databases or on the shared computer drive. There are no proper organizational guidelines on sharing. The bureaucratic procedures involved in sharing are complicated. There is no proper IT platform to share information with. Do not know about other people's knowledge needs.

<table>
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In UJL the librarian tries to solve problems depending on his own experiences without trying to communicate with other colleges (table 3 and 10). In the case at LUL, the employees consult with others to solve their problems when they stuck. According to (Parirokh, Daneshgar, & Fattahi, 2008) the collaboration and the knowledge sharing will be enhanced if the employees are aware of the knowledge value which their colleagues have. Furthermore, individual attributes and skills may affect the KM environment (Al-hawari, 2007). At UJL, some of librarians are not satisfied with other colleges in department in supporting knowledge sharing and creation (table 3 and 10). It can be observed that the collaboration within the library is not much good. At LUL, the library staffs are supportive of knowledge sharing and creation and all of respondents agreed that their department member is doing it; also they are willing to collaborate with other units (table 3 and 10). Also they agreed that they are satisfied in collaborating to accomplish tasks.
In UJL the information sharing occurs constantly with other colleagues in both university and library in the formal way (table 3 and 10). They are using different ways to communicate with them such as face to face conversation, procedure manuals, email, papers, and phone. In LUL, the communication and sharing of ideas exist. It can be seen that the information sharing occurs constantly with other colleagues in the library in the formal way and not that much with other college in the university. Also there was spurring of library staff to present attractive ideas. From interviews with the librarians, the available communication tools were found to be the electronic mail or phone to transfer the information between staff; they have also used different communication channels in the library like face-to-face conversations, meetings, written-documents, and library internal chat system ‘Medarbetare’ where the librarian can at any time contact with each other if the other member is online. Also, it includes sharing platform where librarian can share the events, work, tracks ideas, etc. As well as they can upload documents and share them with each other. The use of these modern technologies improves the environment favorable to KM practice in the sharing of knowledge. There was a good degree of sharing of knowledge in LUL. It is also found that the internet was the most-used system at LUL, and had the potential for wide knowledge transfer and sharing possibilities. In fact, most of the library staff used the internet to share the required knowledge and information. In UJL, the librarians are not too much satisfied with knowledge sharing and they believed it can be better if they have the appropriate facility for that.

University library face difficulties in document managements and availability of desired information in reasonable time. This might happen as a result of poor communication between librarians, between libraries and university's database, and the lack of strategies to manage such issues (Fabunmi, 2009). According to (Bornemann et al., 2003) information technology is considered as an important tool which could enhance and support the KM environment. The use of information technology in KM can improve the ability of communication between librarians. This will be beneficial in saving time and improving the functional level (Laudon & Laudon, 2004). Information technology can support knowledge creation, sharing, and storage. Information technology can enhance the interaction of individual, group, and organizational knowledge. According to the results in table 3 and 10, information technology platform to share information and knowledge is lacking. While at LUL there is a good information technology support which
makes the usage of KM easier and useful. Another important issue is funding. Hayes (2007) discussed that many IT tools can be used to support the KM processes. Therefore, the available budget determines the usage of these technologies. In UJL the librarians agreed that there are several reasons for not implementing a good or needed information technology tools. The main reason is that the library budget is imitated in information technology. In case of LUL the available budget at LUL is fair enough to have the required information technology.

Generally, the knowledge sharing exists in UJL with some problems or challenges, which can be extracted from table 3 and 10. The knowledge stored in a central location cannot be directly applied without extensive modifications because of the fast-paced dynamic environment that my department operates in. The concept of knowledge is difficult to clearly articulate, the tasks of department change frequently so the librarian always has to seek new knowledge that is not directly available in the library databases or on the shared computer drive, there are no proper organizational guidelines on sharing, the bureaucratic procedures involved in sharing are complicated, there is no proper IT platform to share information on, and do not know about other people's knowledge needs. These are the main knowledge sharing challenges in UJL, it can be concluded at LUL that the challenges can be seen in table 3 and 10. As the tasks of department change frequently they always have to seek new knowledge that is not directly available in the library databases or on the shared computer drive, the concept of knowledge is difficult to clearly articulate, there are no proper organizational guidelines on sharing, and sometimes they don’t not know about other people's knowledge needs. These are the main knowledge sharing challenges at LUL.

5.1.3 Knowledge creation

Once the information is retrieved then the next step is to create the knowledge. According to Baskerville and Dulipovici 2006, an organizational culture that understands and values KM is characterized by knowledge culture. Therefore, the knowledge creation will depend on the behavior of information retrievers. Based on that, knowledge creation and its processes are important for KM success. It was found by Nonaka and Takeuchi, 1995 that new knowledge creation and the exploitation of the existing knowledge play an important role in KM.
Policies have direct effect in enhancing the knowledge creation (Hamid, Nayan, Bakar, & Norman, 2007). It was found that by having more motivations for individuals such as rewards, the contribution towards knowledge creation by individual will be increased (Barquin, 2001).

Table 11. Knowledge creation at LUL & UJL

<table>
<thead>
<tr>
<th>Library</th>
<th>Key Finding</th>
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| Linnaeus University Library | - At LUL, the reward system is needed to create reusable knowledge resources, reuse existing knowledge resources, and contribute to a library or collection of reusable knowledge resources. The librarians believe that if you are doing a good job (and that is up to leaders to define), so your reward could be a better salary, better possibilities of attending courses, conferences and possibilities to develop yourself in your job.  
- LUL had technological challenges including limited computer skills, difficulties in coping with changing technology. |
| University of Jordan Library | - They believe that the reward system is good to motivate the staffs to improve their skills and try to interact with other librarians. A reward system can make the librarian more active within the library in different level.  
- At UJL the developing for staff plans, regular performance appraisal, and encouraging the attendance of courses, workshops, or conferences can be seen as a source of information. |

At LUL, the reward system is needed to create reusable knowledge resources, reuse existing knowledge resources, and contribute to a library or collection of reusable knowledge resources. The librarians believe that if you are doing a good job (and that is up to leaders to define), so your reward could have a better salary, better possibilities of attending courses, conferences and possibilities to develop yourself in your job. In other hand at UJL, they believe that the reward system is good to motivate the staffs to improve their skills and try to interact with other librarians. A reward system can make the librarian more active within the library in different level. The process of obtaining explicit knowledge of implicit knowledge can be triggered by several methods such as formal meetings, dialogue, brainstorming, and teamwork (Daud, Rahim, & Alimun, 2008; Cook, 1995). Conflict between
individual interests and library expediency in the ownership of knowledge should also be considered. Table 4 and 11 shows that the knowledge belongs mostly to both librarian and library. At UJL the developing for staff plans, regular performance appraisal, and encouraging the attendance of courses, workshops, or conferences can be seen as a source of information in Table 4 and 11 within department in the library. In LUL, meetings and discussions were seen by many library staffs as an important for obtaining information. Library staffs understand the value of trained employees and the importance of staff training (Table 4 and 11). From interviews with librarians, LUL had technological challenges including limited computer skills, difficulties in coping with changing technology. Previously, the library had been working semi-manual. Today the library looks forward to applying the latest technology, which help and support the workflow such as ‘Medarbetare’, ‘S system’, one search, and RFID (Radio-Frequency Identification). It can be concluded that LUL operated through different information environment along with the newly developed technologies. The library has tried to make the research resources available in order to give more support to knowledge creation. In the other hand, UJL have to adopt new strategies to support knowledge creation in the library.

5.1.4 Knowledge acquisition

When considering knowledge acquisition, which involves elicitation, collection, and analysis of knowledge, it is important to consider the knowledge in the head of experts since experts have vast amounts of knowledge (Rao, 2005; Burton, 1999). In order to obtain this kind of knowledge, i.e. expert knowledge, Srikantaiah and Koenig (2000) suggested using knowledge “expert systems.” That will allow having knowledge not only from textbooks but also from human experts. Therefore, it is important to identify the individuals who are experts in the organization and try to benefit from their knowledge.
Table 12. Knowledge acquisition at LUL & UJL

<table>
<thead>
<tr>
<th>Library</th>
<th>Key Finding</th>
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| Linnaeus University    | - They have exchanged librarian with another university in USA, also they are in touch with others universities' libraries in Sweden.  
- They have a high level of skills such as creative thinking; persuade skill, managing changes, advocacy, strategic planning, and project management capacity. This is important for capturing knowledge that resides in the heads of individuals. |
| University of Jordan Library | - They are trying to cooperate with other university libraries in Jordan, also they have a well documented repository but there is a lack of quick access to it.                                              |

From interviews, there are many experts in LUL who work in administrative or non-administrative positions and have a different academic background. This will, thus, be useful to expertise and knowledge to non-expert librarians. Furthermore, it is important to validate, save, and maintain this knowledge for future work. Also, they have adopted a good strategy where they have exchanged librarian with another university in USA, also they are in touch with others universities' libraries in Sweden. In case of UJL they are trying to cooperate with other university libraries in Jordan, also they have a well documented repository but there is a lack of quick access to it.

According to (Wen, 2005) knowledge acquisition can be improved by providing training programs for staff. These training programs will increase the expert level for the staff by increasing their knowledge. Staff development is available as seen in the previous section. LUL and UJL acquire knowledge from different resources such as individuals, documents, and databases.

Another important issue is acquiring knowledge from information technology experts. The level of skill required is based on how much technology or the level of technology used in the library (Mchombu, 2007; Bhatt, 2001). In order to benefit from the available technology, individuals must have the skill in information technology. Generally, individuals at LUL have the ability to
use the available technology. From the interviews and observing response, the LUL is seeking the appropriate technology to harness tacit knowledge. As skills are important for capturing knowledge that resides in the heads of individuals, Table 5 and 12 shows that librarians at LUL have enough skills to work in KM environment. This is because that they have a high level of skills such as creative thinking; persuade skill, managing changes, advocacy, strategic planning, and project management capacity. In other hand, UJL strategic planning, lateral thinking, adapting thinking to suit changing concepts and perceptions about library service, advocacy, and the power to persuade skills in the context of the library is quite good.

5.1.5 Knowledge organization

Knowledge organization can be seen when an organization uses the knowledge and regards it as an asset (Rowley, 2001; Schein, 1985). The organization has to make an effort to increase the knowledge awareness and have it within its values and culture (Jantz, 2001). Having knowledge organization indicates that the knowledge must be accessible and available at any time needed (Crowley, 2005; Hatch, 2012).

Knowledge classification and codification are important for information retrieval and usage. They encourage the access and usages of knowledge thus encourage the creation of new knowledge (Baskerville & Dulipovici, 2006). According to Al-hawari (2007) KM can be seen as a mixture of the human and technical by most of the managers. Narratives that illustrate the tacit knowledge, embedding knowledge systems, and knowledge models are the mechanisms for articulating implicit knowledge for codification (Baskerville & Dulipovici, 2006).
Table 13. Knowledge organization at LUL and UJL.

<table>
<thead>
<tr>
<th>Library</th>
<th>Key Finding</th>
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| Linnaeus University Library | - Voyager support classifying library materials enhance the process of data extraction, control and provide the context-sensitive to the different resources and services. In addition, Voyager provides the user with an interface which facilitates the searching of different material types, allows multiple databases searching, and receives the results.  
- Most of the materials in the repository of the library contain library resources, multimedia materials, institutional conference proceedings and annual reports. |
| University of Jordan Library| - Contents of the repository Annual reports, Multimedia material, and library resource.  
- In UJL there is no specific way to organize the knowledge.                                                                                   |

In case of UJL, there is no specific way to organize the knowledge. Currently they have Horizon system which can help in that, also other agree that they can do this by themselves by using paper based documents. As we can see from Table 6 and 13, most of the material in the repository of the library contains library resources, multimedia materials, and annual reports. In other hand at LUL, they are using Voyager for the purpose of cataloguing. Voyager support classifying library materials enhance the process of data extraction, control and provide the context-sensitive to the different resources and services. In addition, Voyager provides the user with an interface which facilitates the searching of different material types, allows multiple databases searching, and receives the results. As we can see from Table 6 and 13, most of the materials in the repository of the library contain library resources, multimedia materials, institutional conference proceedings and annual reports.

5.2 Information and communications technology (ICT)

Some librarians believe that the technology is the most important in KM. Organizations that employ technology in the best way to manage knowledge will be better able to survive and continue in the face of competition existing in the market for services and goods (Bhatt, 2001; Cole-Gomolski, 1997). Information technology is used in the collection, classification, preparation
and storage, delivery, and preparation of data between devices, people and organizations through multi-media within the library. It provides more flexibility in dealing with the information and data; and in the presence of databases and the possibility of running distance and in any place, which is available to all and not in the possession of certain persons (Bornemann et al., 2003).

Table 14. ICT at University of Jordan Library

<table>
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<th>ICT at University of Jordan Library</th>
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<tr>
<td><strong>Qualified personnel in ICT</strong></td>
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<tr>
<td><strong>Barriers to ICT in general</strong></td>
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<tr>
<td><strong>Problems faced by UJL in using IT for KM</strong></td>
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Table 15. ICT at Linnaeus University Library

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<th><strong>ICT at Linnaeus University Library</strong></th>
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<tbody>
<tr>
<td><strong>Qualified personnel in ICT</strong></td>
</tr>
<tr>
<td>- Need for training for development and management of bibliographic databases.</td>
</tr>
<tr>
<td>- Not clear about KM and network administration.</td>
</tr>
<tr>
<td>- Qualified personnel are available in the area of development and administration of databases and library systems, digital content management, metadata management, and web site/portal development and maintenance, and computer programming.</td>
</tr>
<tr>
<td><strong>Barriers to ICT in general</strong></td>
</tr>
<tr>
<td>- Low skill levels of the library,</td>
</tr>
<tr>
<td>- Lack of budget for latest ICT,</td>
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<tr>
<td>- Difficulty in recruiting and retaining qualified ICT staff.</td>
</tr>
<tr>
<td><strong>Problems faced by LUL in using IT for KM</strong></td>
</tr>
<tr>
<td>- Lack of time to learn and share</td>
</tr>
<tr>
<td>- Everyday use is not integrated into normal working practice</td>
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An important issue for an organization to success is to have as much as possible of qualified personnel. Therefore, it is explored that ICT and information management areas are staffed by qualified personnel in LUL and UJL also if adequate staffing or skill is lacking in an area. It is shown in Table 7 and 14 at UJL, there is a need for training in the development and administration of databases and library systems. The librarian were not clear about the development and management of bibliographic databases, while qualified personnel are available in the area of Hardware maintenance, Digital content management, including digital and virtual libraries, network administration, computer programming, and metadata management including MARC. In Table 7 and 15, it can be seen that librarians at LUL agree that there is a need for training for development and management of bibliographic databases, while a librarian not clear about KM and network administration. In addition, qualified personnel are available in the area of development and administration of databases and library systems, digital content management, metadata management, and web site/portal development and maintenance, and computer programming.

ICT in LUL and UJL is based on the integration of software with infrastructure devices associated with it to support KM and organizational
learning through free access to knowledge and sharing. This is by technologies that rely on networks that allow access to information and knowledge sources, regardless of considerations of space and time, such as internet network and local-area networks (intranet).

There are different challenges and barriers to ICT usage and employment in the library. Inadequate ICT hardware and software, lack of ICT hardware and software, and lack of budget for ICT are examples of these barriers. These barriers were examined within LUL, and found that library staffs agree that low skill levels of the library, lack of budget for ICT, and difficulty to recruit and retain qualified ICT staff are the main barriers for ICT (Table 7 and 15). In other hand at UJL, library staffs agreed that the main barriers for ICT are lack of ICT hardware and software, Lack of budget for ICT, and Library lacks updated ICT strategy in (Table 7 and 14).

The use of information technology in KM programs is to improve the ability of workers to communicate with each other. The problems can be summarized by the time, place and the functional level (London, 2004). Knowing the problems which may face LUL and UJL in using information technology for KM is important. Table 7 and 5 show the main problem which may face LUL in using information technology for KM that lack of time to learn and share and everyday use did not integrate into normal working practice. In other hands, from Table 7 and 14, the main challenges in UJL are lack of identifying the proper IT tool, lack of user uptake due to insufficient communication, and everyday use did not integrate into normal working practice.

The study highlighted the following results:

- The infrastructure for KM needs to have a supportive organizational culture and effective communication for effective practice of knowledge and information technology.
- The effectiveness of KM is clear in overcoming the obstacles of making tacit knowledge to be explicit knowledge and the fact that knowledge may lose relevance or value over time.
- KM consists of five main activities, which are: retention, acquisition, sharing, generation, and organization. The university libraries can achieve a number of advantages in the existence of KM, including
storage of the deployed and non-structured knowledge, such as core information and experience from people who work in teams and projects and documenting the context of knowledge in the library.

- The value of today's library in the assets of knowledge and KM is in achieving their objectives through the creation of knowledge, innovation, and acquired from various sources. Furthermore, the value is based on the ability to store knowledge in a knowledge base library, and participation in improving the operations and services of libraries than to be published and distributed within the library when it is needed. ICT contributes in the automatization of KM, and to achieve increased speed, efficiency and quality of its operations, if properly used.

- The building of KM and sustainability needs to provide basic infrastructure of the necessary information technology for libraries, which consists of hardware, software and human resources, networking and communications and data are available in library management.

**Recommendations**

Recommendations to enhance the KM environment within University of Jordan Library:

- Increased interest in the library knowledge and its resources through a practice: the library needs to implement KM to increase knowledge sharing, understand the library’s information and knowledge flows, found best practices, and to face the problem in capturing staff’s undocumented knowledge.

- Need to adopt strategies for the library to develop and strengthen the infrastructure for information technology. Also, try to take the advantages of information technology applications in improving the performance of the library in general and KM in specific with consideration of the library budget.

- Reward system: this can be done by giving staff training, workshop, conferences, financial rewards and moral encouragement; this will make staff in the library to be creative.

- Greater coordination between the various departments of the library with regards to identifying the required knowledge and make it
available to those who need in simple ways. This is to get maximum leverage from existing knowledge.

- Building integrated system for the collection, classification, preservation and retrieval of the available knowledge in the library. Also, to make the knowledge available to all employees to take advantage of them in developing their performance and the performance of their organization.

- The library has to measure and observe the progress/barriers of KM initiatives within the library.

- Rebuilding the organizational structure of the library in a manner that fits to the regulatory requirements to embrace the knowledge.

Recommendations to enhance the KM environment within Linnaeus University Library:

- Training of library staffs that are able to teach them how to deal with the various available knowledge in their work, subject to documentation, storage and reproduce a manner that makes it easy to take advantage of them in the future. Find incentives for the library staff to motivate them for creating a knowledge sharing culture.

- Library staff has to increase his attitude towered KM practice, which can help in getting the knowledge from key librarian if they leave or not.

- Provide greater knowledge through the development of databases, information, and knowledge to enable staff to access it when they need it in an easy and fast way. Providing a clear guideline for knowledge sharing to optimize information and knowledge resources through shared database, cataloguing, documents, collection for development, and avoiding duplication in the work.
6. CONCLUSIONS

The advances in technologies and high expectation demand all organizations including university libraries to be up to date and satisfy all customers. Therefore, libraries need to improve their infrastructures and continuously train their personnel. One solution to face these challenges is to encourage KM practices in the library system. KM is an active organizational strategy which will allow getting the required knowledge on time. It enables the knowledge sharing, helps to put the knowledge in practice, and improves the organizational performance. The objective of this study was to investigate the understanding of KM and KM practices in universities’ libraries in developing and developed countries, compared and contrasted. A case study was thus conducted to focus on describing and analyzing a particular event inside the library, library staff roles, intervention group or an individual also to gain understanding and meaning of those involved in library systems. Semi-structured interviews approach was conducted and data was collected by face to face interviews, observations, documents, and audiovisual material.

It is found in the study that the KM is very familiar to the librarians, however the KM practices were implemented to different extent especially in the develop country. There was a big gap in utilizing the recent technologies and knowledge and training employee between the developed and developing countries where the developing country was by far up to date. The working culture and budget shortage were the main limiting factors in developing countries.

It can be concluded in the study 1) The KM concept in UJL is well understood and librarians know what the meaning is and what the advantages of KM are. However, Limited implementation and expertise in KM practice in most of KM activities. This resulted from several factors including. Problem in capturing the library staff undocumented knowledge, consuming time in track the knowledge/information, the librarian not motivated to do them tasks in teamwork, and not good or appropriate technology which can help in sharing within the library. 2) Most of the staff does understand the meaning of KM in LUL and practice it. They don’t have problems in the area of knowledge retention, creation, and acquisition. Knowledge transfer and
organization exists in LUL with little challenges. 3) Investments are needed in the technology and human resources to advance libraries in developing countries to cope with recent developments 4) Emphasis to better personal communications should be given in developed countries to overcome any existing challenges.

**Future work**

Future research might investigate the KM and its practice focusing on library users. Based on the study findings, it can be suggested that the following points might be investigated:

1) The role of KM ensures in achieving the university library goals in developing countries. In detail/ inclusive study of KM practice in developing countries as a case.

2) Evaluating the study of University library policy in the light of the requirements and challenges of KM. Obstacles of KM practice in an academic library.

3) It is also interesting to conduct a comparative study of KM practice in university management within developed and developing countries.

4) It is important also to have as a study an investigation about knowledge sharing challenges and barriers which consider one of the critical issues in KM.
REFERENCES


http://ipom.free.fr/M2/MANAGEMENT/km_whatis.pdf


Wamundila, S., 2009. Developing guidelines for a knowledge management policy to enhance knowledge retention at the University of Zambia.


APPENDIX 1
The qualitative findings
Knowledge management (Mavodza, 2010; Sharma, 2007)

1. What is your opinion about the term Knowledge Management? What is the knowledge available in library?

2. What knowledge do you need to carry out your work? Is there any knowledge gaps do you notice?

3. Is there new knowledge created in the process of doing your job duties? Do you use new knowledge collected from external sources?

4. What do you think about the environment for sharing of knowledge in the library?

5. Are you satisfied with the knowledge that is available in the library or in your department to use?

6. Are your colleagues having the ability to collaborate across library units?

7. When a colleague asks you to help with their knowledge needs, what type of knowledge is typically sought?

8. Is the expert librarian Support and move to knowledge sharing and creation?

9. If there is expert librarian will leave, how you can capture his knowledge? There is any procedure to do that?

10. What modern technologies are in use LUL/UJL those enhance the environment for KM?

11. Which programs do you use on a daily basis?

12. What are the tools, methods and techniques used for knowledge retention, transfer, acquisition?
APPENDIX 2
The qualitative findings
Knowledge management activities (Mavodza, 2010)

Section 1: Knowledge management
1. What do you think about the relationship between knowledge and information (Mavodza, 2010):
   - Both have the same meaning
   - Knowledge is based on information
   - Knowledge management and information management are same
   - Knowledge management involves information management
   - Knowledge can be created by information use
   - others

2. What does librarian think of Knowledge Management (KM) (Mavodza, 2010)?
   - Don’t know KM
   - We are doing it but under another name
   - Management fad
   - It is valuable for the organization succeed.
   - others

3. Usually I find (Mavodza, 2010)
   - The exact knowledge that I require
   - Adequate knowledge that facilitate doing my tasks
   - That the available knowledge in my department is enough to use
   - others

4. The required knowledge for your work is normally located in (Mavodza, 2010)
   - Paper-based documents
   - Heads of department members
   - Central information system
   - My personal computer
   - others

5. Your required knowledge in your present job belongs first to (Mavodza, 2010)
6. Are the following typical in your department (Mavodza, 2010)

- The development staff
- Developing staff plans
- Regular performance appraisal
- Encouraging the attendance of courses or workshops or conferences
- Time used for attending the previous activities is taken from your vacation days
- The presence of mentoring incentives
- Training is available when new tools are in use or the existing tools are changing
- Others

7. The following skills are involved in your duties (Mavodza, 2010):

- Creative thinking
- Persuade skill
- Managing changes
- Advocacy
- Strategic planning
- Project management capacity
- Others

8. The repository of the library contains the following material (Mavodza, 2010)

- Only the Constructive Action projects with good grades
- Annual reports
- Institutional conference proceedings
- Multimedia material
- Student course material
- Library resources
- Others

9. Does library has the following problem (Mavodza, 2010)?
- Information lack
- Overload of information
- Reinventing the wheel.
- There is a loss of essential knowledge because a key employee leaving the organization.
- Sharing of knowledge in the organization is poor.
- others

Section 2: Knowledge sharing

1. What is your perception on the environment for sharing of knowledge at Linnaeus University library (Mavodza, 2010)?

- The specific knowledge that I need is found only among experts at library rather than in a central location
- The concept of knowledge is difficult to clearly articulate
- The knowledge stored in a central location cannot be directly applied without extensive modifications because of the fast-paced dynamic environment that my department operates in
- As the tasks of my department change frequently, I always have to seek new knowledge that is not directly available in the library databases or on the shared computer drive.
- I am able to extensively re-use knowledge from the shared drive after making a few changes to adapt the retrieved knowledge to the current situation
- The knowledge that I find in the shared drive can be applied to current situations with little or no need to seek out or create new knowledge
- others

2. Do you think the members of your department are (Mavodza, 2010)?

- Satisfied by collaborating to accomplish tasks
- Supportive for knowledge sharing and creation
- Willing to collaborate across Organizational units
- Accept responsibility for failure
- others

3. To do my work when I am stuck (Mavodza, 2010)

- I often consult with my divisional Supervisor
- I often make use of documented
- Procedures with library
I often consult with other departments within library
I often consult with colleagues from other colleges
others

4. My biggest barrier to being able to store information that I receive more efficiently and effectively is (Mavodza, 2010)

Lack of time/ too busy
Inefficient technology
Poor information systems
Organizational policy/ directives
others

5. Sharing of information

Happens constantly with other colleagues in the university in formal ways to do my job well
Happens constantly with other colleagues in the library in formal ways to do my job well
Happens rarely with other colleagues in the library in formal ways to do my job well
Never happens with other colleagues in the library in formal ways to do my job well
Rarely happens with other colleagues in the university in formal ways to do my job well
others

6. What are the challenges you face in sharing information with people from other departments within the College (Mavodza, 2010)?

Colleagues do not seem to perceive that there is an urgent need to share
I do not see an urgent need to share Information
There is a lack of open-minded sharing environment
There is a lack of trust of other people's knowledge
There are no proper organizational guidelines on sharing
The bureaucratic procedures involved in sharing are complicated
My tasks do not require cross-department information sharing
There is no proper IT platform to share information on
I do not know about other people's knowledge needs
others
APPENDIX 3

The qualitative findings
Library and ICT Facilities (Avlin, 2005)

1. Which of the following ICT and information management areas are staffed by qualified personnel in your library/documentation centre? If adequate staffing or skill is lacking in an area, indicate if training is needed (AVLIN, 2005).

- Development and administration of databases and library systems
- Hardware maintenance
- Digital content management, including digital and virtual libraries
- Knowledge management
- Development and management of bibliographic databases
- Network administration
- Metadata management, including MARC
- Computer programming
- Web site/portal development and maintenance

2. The following barriers to ICT use apply to my Library (AVLIN, 2005)

- Inadequate ICT hardware and software
- Lack of ICT hardware and software
- Lack of budget for ICT
- Low skill levels of library users
- Lack of staff qualified in ICT among library personnel
- Difficulty to recruiting and retaining qualified ICT staff
- Reluctance among staff to use ICT
- Library lacks updated ICT strategy
- Lack of commitment by top management in my institution
- Difficulties in training library staff in appropriate ICT skills

3. What are the problems faced by University library in using IT for Knowledge Management (AVLIN, 2005)?

- Lack of training
- System too much complicated
- Lack of identifying the proper IT tool
- Lack of time to learn
- Lack of user uptake due to insufficient communication
- Every day use did not integrate into normal working practice.
- Unsuccessful due to technical problems