Knowledge Management Practices in Academic Libraries: A Case Study of King Abdulaziz University Central Library

Mohammad Arif, Muna Alsuraihi

0185

King Abdulaziz University, Saudi Arabia

527

1- Background

The new phenomenon known as "Knowledge Management" (KM) was started and has been popularized in the business world since the late 1990s (DiMattia 1997). It was the business world that first recognized the importance of knowledge in the global economy in the digital age. The applications of KM have spread to other organizations including higher education and academic libraries (Wen 2005). Budd (1998) sees academic libraries as human organizations, so they are subject to the same sort of influences that many other organizations must deal with. Therefore, the changing environment of academic life demands new competencies for academic librarians (Mahmood, 2003). Foo et al (2002) highlights a number of important challenges facing academic libraries such as Services and Access, Instructions and Research, Resources and Collection Development, Administration and Cooperation, and Staff and Training. In this new environment the knowledge and expertise of academic librarians need to be seen as the library's greatest asset. Several scholars' define KM as a process of practices affecting knowledge, which include creating, acquiring, capturing, identifying, organizing, storing, representing, transferring, sharing, and reusing knowledge to enable an organization to achieve its goals and objectives (Branin 2003; Daud and Alimun, 2008; Davenport and Prusak 1998; Jain 2007; Jashapara 2005; Lee 2005; Lloria 2008; Priti 2007; Skyme 1997; White 2004).

However, the management of knowledge has long been seen as the domain of the information profession. Lee (2000) pointed out that librarians and information professionals are trained to be experts in information searching, selecting, acquiring, organizing, preserving, repackaging, disseminating, and serving. Ahmed et al (2002) argue that KM is a new paradigm in academic libraries in the sense that concerted efforts need to be exerted to manage knowledge systematically.

Trivedi (2007) defined KM in academic libraries as:

"not managing or organizing books or journals, searching the internet for clients or arranging the circulation of materials. However, each of the activities can in some way be part of the knowledge management spectrum and process. Knowledge management is about enhancing the use of organizational knowledge through sound practices of knowledge management and organizational learning. Thus knowledge management is a combination of information management, communication and human resources".

Jantz (2001) stated that the basic goal of KM within academic libraries is to improve library effectiveness and productivity. KM can help transform the academic libraries

into a more efficient, knowledge sharing organization. Earl (1997) pointed out that KM enables academic libraries to generate organizational knowledge for institutions of higher education.

Davenport et al (1998) studied 31 different KM projects in 23 companies and identified four types of broad objectives for these projects: (1) to create knowledge repositories; (2) to improve knowledge access; (3) to enhance the knowledge environment; and (4) to manage knowledge as an asset. Each of these types of project objectives can be applied in academic libraries.

Porbst, Raub & Romhardt (2000) indicated that knowledge creation is an important process of KM, which focuses on the development of new skills, new products, better ideas and processes that are more efficient. Bhatt (2002) pointed out that knowledge

creation refers to the ability to originate novel and useful ideas and solutions. Shanhong (2000) argued that from the academic libraries perspective, knowledge creation implies more awareness of user' needs. However, to succeed, academic libraries needs to be part of the university's knowledge creation process by collecting, organizing and making the university's intellectual assets, regardless of whether they are explicit or tacit, accessible in digital form. In addition, academic libraries can help in managing the faculty's and department's knowledge by developing their knowledge repository's ontology. Moreover, academic libraries should participate in developing the institutional repositories; by creating knowledge map and institutional "Yellow Pages". Finally, by routinely collecting data through daily library operations, it can be used to create and share knowledge that contributes to the improvement of teaching and research. By creating knowledge from existing data, libraries add value to integrated library systems. Academic Libraries can improve knowledge access for both internal and external resources by developing and maintaining its (OPAC), Using up-to-date technology to disseminate information, and developing information literacy courses for its users (Hardesty 2000; Bainton 2001). Providing new services based on new methods such as data mining techniques, text mining, portals, web mapping tools, social networking mechanisms (Web 2.0), and brainstorming applications (Anderson, 2007; Benson and Favini, 2006; Coyle, 2007; Patrick and Dotsika, 2007).

Regarding enhancement of the knowledge environment, academic libraries can become the knowledge organization using KM techniques within its organization such as planned knowledge sharing activities, stored enquiry services, using mentoring systems and rewarding those who share their knowledge and experience.

In recent years, numerous research activities have recognized the importance of knowledge as an asset to an organization (Gandhi, 2004; Rowley, 1999). Academic libraries have acknowledged that because they have been traditionally responsible for the organization of knowledge (Prokopiadou, Papatheodorou, & Moschopoulos, 2004; Stern, 2003). However, academic libraries can manage knowledge as an asset; by recognize the value of knowledge in an organization, maintaining close cooperation with the university administration, realizing their role in managing knowledge asset of the institute and managing copyright issues.

2- Knowledge Management in Academic Libraries

Review the library literature on KM in libraries reveals that, all types of libraries are

applying some KM principles in the provision of library services. Townley (2001) pointed out that special libraries, especially business and corporate libraries, are taking the lead on KM research; and academic libraries, public libraries and digital libraries are in the limelight. The literature review also reveals that within academic libraries, public services are taking the lead in the research and implementation of KM (Wen 2005). Jantz (2001) examined important issues of KM within academic libraries and concluded that reference librarians can play a major role in implementing KM as information intermediaries.

In academic libraries, a reference librarian usually refers to a significant number of resources in a variety of formats, such as books, journals, pamphlets, newspapers, circulating books, vertical files, picture files, outside sources, the library catalog, electronic databases, and the internet to answers questions. This process of identifying information for patrons has allowed reference librarians to acquire a vast amount of tacit, as well as explicit, knowledge (Ralph & Ellis 2009).

Gandhi (2004), Lamont (2004) and Stover (2004) argued that it is impossible for any individual reference librarian to have complete and accurate recall of all the materials in the collection and the best tools or resources to use for any specific question. Historical and empirical literature which has been cited over the years in the United States, England, Australia, Canada, New Zealand, and Germany, has shown that reference librarians provide accurate answers 55% of the time (Crowley and Childers, 1971; Myers, 1979; Hernon and McClure, 1986; Kaske and Arnold, 2002; Profeta, 2006). As a result, reference librarians sometimes provide inaccurate information (Crowley & Childers, 1971; Dewdney & Ross, 1996; Hernon & McClure, 1987; Olszak, 1993). Because mistakes continue to be made by reference librarians, it is important that a solution be found. One way to benefit reference librarians would be to capture this communal knowledge and house it in one place for future use (Gandhi, 2004; Roberts, 2005). A process that could facilitate the capture and storage of this knowledge for later sharing is the process of managing knowledge, or KM.

Gandhi (2004) suggested Knowledge Management System (KMS) for reference work, which could help reference librarians to:

☐ Systematically collect, organize, and record the explicit and tacit knowledge;

☐ Increase efficiency in locating answers to frequently asked questions,

☐ Improve decisions regarding sources to consult;

☐ Improve knowledge sharing;

☐ Acquire more in-depth knowledge of the library and its resources;

☐ Better understand the types of questions asked at the reference desk;

☐ Improve collection development; and

☐ Improve patron access to information.

Academic reference librarians have also taken advantage of the World Wide Web to build online communities of practice through email listservs, usenet newsgroups, discussion boards, and collaborative digital reference applications to manage and share their collective knowledge. These allow librarians to consult with hundreds of colleagues throughout the world about difficult or sticky reference questions and provide librarians with access to library collections beyond their own collections, hence

improving the likelihood of the question being answered correctly. Questions and answers were stored in an archive database. These FAQ files become knowledge repositories that can be archived repeatedly.

Another area that where academic reference librarians can take advantage of is the data mining and data warehouse applications. Dwivedi and Bajpai (2004) stated that, since

the data of the library continuously growing with an exponential rate and the main problem is how one can reference the required information from the large amount of redundant information of the library. This can be possible by applying data mining techniques, so one can say that the data mining is the future of reference service. Branin (2003) surveyed the field of collection management over the last fifty years and described the development in three stages:

 The Collection Development Era 1950 - 1975: This stage was characterized by collection building through acquisition and selection. It was the era of scouring in-print and out-of-print book vendor catalogs, clearing out the inventories of book stores, raiding foreign libraries, and international book buying trips.

 The Collection Management Era 1975 – 2000: This stage was characterized by constricting budget, the emergence of information technology revolution, and digital technology coming to the forefront. Libraries "emphasized "management" over "development" in the collections field of librarianship. The focus shifted to more than collection development policy to include materials budget allocation, collection analysis, many use and user studies.

 Knowledge Management Era 2000 onwards: This stage characterized as the emergence of the digital age, multiple formats of information resources, and focus shifted from "ownership" to "access". Budd (1998) emphasis that library collections are no longer collections comprised almost entirely of printed materials but collections comprised mostly of materials in multiple formats and media. Corrall's (1998) claim that KM, when applied to libraries, often becomes how to manage recorded knowledge, that is, library materials.

Few articles on KM dealt with the operation of the technical services. Turvey and Letarte (2002) argue that "The library world is characterized by fast-paced change, and perhaps no other area as much as the field of cataloging." And they tried to define cataloging as a very important aspect of KM in an increasingly digital world. Wen (2005) suggests that how to effectively use our staff (human resources) and how to improve the efficiency and effectiveness of our technical services operations should be the real focus of KM in academic libraries.

The digital library is another area that KM has been actively applied to. Rydberg-Cox, et al. (2000) equates Knowledge Management to "the new document delivery and knowledge management tools" in a digital library.

3- King Abdulaziz Central libraries

The Main Library at the male campus is the host for the deanship of library affaires which oversee all library activities in and outside the main campus. The female libraries keeps track of the Deanship's and is administrated by the vice dean of female libraries. On the other hand, historically, library services at King Abdulaziz University (KAU) started in its simplest form in 1965 at an apartment and in October 1967 the central

library at the male campus was opened and library services started to grow from that day. A library for the female campus started with a small library in 1971 and started to grow until it moved to its current main building in 1988. Both central libraries also have branch libraries inside the main university campus and abroad.

Since this study focuses on the two main central libraries, it is suitable to add that the number of library staff working at the male central library is 46 and 44 at the female central library. Moreover, the male central library holds 448004 books and 23952 references whereas the female central library holds 174491 books and 9228 references. In addition, the libraries at both campuses offers all types of library services and make available electronic databases of e-journals, e-books, and dissertations and other formats under the umbrella of the Saudi academic consortium which offers a huge number of electronic resources.

4- Research Objectives

The aim of this study is to identify the perception of KM concept held by the academic librarian's staff and their radiance for implementing KM at KAU Central Library in Jeddah, Saudi Arabia.

To achieve this aim, the following objectives were formulated:

 To determine the levels of understanding of the concept of KM;

 To determine the benefit from the implementation of KM.

 To analyze the KM activities needed to enhance the environment for proper KM practice;

 To determine the skills and expertise needed by academic librarians to participate effectively in KM activities;

 To determine the degree of involvement of academic librarians in KM sharing; and

 To determine the challenges that might face the academic librarians in implementing KM.

5- Research Questions

 What is the level of understanding of knowledge management among the staff of the KAU (male & female) Central library?

 What is the relationship between information management and knowledge management?

 What is the benefit from the implementation of knowledge management?

 What are the types of activities most needed to enhance the environment for knowledge management practice?

 What knowledge management skills are needed by library staff?

 Dose Knowledge sharing practices occurs in the libraries?

 What challenges do library staff see the most?

6- Research Design

The study employed the descriptive research design utilizing the case study approach. Participants for the study comprised of all academic librarians across various sections of the KAU main libraries of both male and female campuses. The study provided a questionnaire for all librarians to collect data about the perception of KM practices at KAU two central Libraries. A questionnaire was sent to all male central library 46 staff

KAU's and 44 staff at the female central library. In all 73 completed questionnaires were returned. This represents a response rate of about 81%. The data was analyzed using SPSS to generate descriptive statistics and Chi-Square test was applied to obtain any significant differences between the three demographic variable used in this study, which were gender, years of experience and qualification in their views to all statements provided in the questionnaire.

7- Results and discussions

Analysis of the results is based on showing the descriptive data of the respondents and their views on the statements provided in the questionnaire. Furthermore, a chi-Square statistical analysis was used to determine the relationship of their answers on all statements based on three main variables used in this study, which were gender, years of experience, and qualifications.

7.1- Demographic Information

The following graphs show the demographic information of the respondents from the case study survey results.

Figure (1)

Respondents by Gender

Figure (2)

Respondents by Years of Experience

Figure (3)

Respondents by Qualification

Respondents to the questionnaire were 47.9% male and 52.1% were female. About 76.7% of the respondents held (BA or Graduate degrees) 39.3% were male and 60.6% were female. About 65.8% of the respondents have been working for more than 6 years in their library environment 52.1% were male and 47.9% were female. This shows that most of the respondents should have good knowledge of their library, its policies, culture and work environment.

7.2- Understanding Knowledge Management

Figure (4)

Level of Understanding of KM

Figure (4) demonstrates the level of understanding among academic library staff in both male and female central libraries. As shown in figure (4) about 80.8% of the respondents in both libraries understand the concept of KM very clear or clear to some extent, which indicates a positive foundation for the implementation of KM practice as a basis for KAU central libraries activities. A statistical test applied on all three variables, result shows there is only a relationship between gender and understanding the concept of KM. It found statistical significance ($x_2 = 2.163$ DF =2) between males and females in understanding the concept of KM, with females showing more understanding of the KM concept. When comparing these results with the respondents' qualifications, it showed that the number of females (14) with graduate degree exceeded

the number of males with graduate degrees (5) and this is an indicator that understanding the concept is better among highly qualified librarians.

However, there is a need to develop some training programs or workshops for the academic library staff to have a better understanding of the concept of KM; especially for those whom the concept of KM is not clear to.

7.3- The Relationship between KM and IM

Table (1)

Knowledge Management and Information Management

The Relationship Between (KM) and (IM) is that:	Agree	Neutral	Disagree
1 Knowledge depends on information.	83.6%	12.3%	4.1%
2 KM is the same as IM.	21.9%	27.4%	50.7%
3 KM includes IM.	76.7%	20.5%	2.8%
4 Information use can lead to knowledge creation.	84.9%	13.7%	1.4%

	Agree	Neutral	Disagree
5 IM is working with objects, while KM is working with people.	58.9%	23.3%	17.8%
6 Information is structure brick of knowledge, whereas, knowledge embraces organizational values, beliefs and action.	86.3%	12.3%	1.4%
7 KM success depends on the use of knowledge whilst IM achieves its success on the preservation and retrieval of information.	76.7%	19.2%	4.1%
8 IM targets at acquiring, storing, retrieving and disseminating information but KM focuses on sharing, creating, learning and enhancing information for organizational improvement.	79.5%	20.5%	0.0%
9 KM targets both explicit and tacit knowledge, while IM focuses mainly on documented explicit knowledge.	68.5%	26.0%	5.5%

As shown in table (1) 21.9% of the respondents agree that KM is the same as IM. This is about the same percentage for those whom answer the level of understanding to the concept of KM are not very clear 19.20%. However, the overall picture as indicated from table (1) shows that most of the respondents 68.3% understand the differences between the KM and IM concept. Nonaka & Takeuchi (1995) stated that "although the

terms "information and "knowledge" are often used interchangeably, there is a clear distinction between information and knowledge".

However, a statistical test shows there is only a mildly significant difference ($x_2 = 5.206$ DF = 2) that exists between males and females librarians in the statement (KM is the same as IM) with (24) Females librarians disagreeing more than male librarians (13). This goes along with their previous answer to understanding the KM concept.

7.4- Benefit of implementing KM

Table (2)

Benefit of Knowledge Management Implementation

Implementing knowledge management practices at the Library can lead to achieving the following:

	Agree	Neutral	Disagree
1 Achieve the library goals efficiently.	90.4%	9.6%	0.0%
2 Create new knowledge.	90.4%	8.2%	1.4%
3 Enabling knowledge sharing & transfer.	90.6%	9.6%	0.0%
4 Enables me to accomplish tasks quickly.	89.0%	11.0%	0.0%

	Agree	Neutral	Disagree
5 Improve my job performance.	87.7%	12.3%	0.0%
6 Useful in my job overall.	86.3%	13.7%	0.0%
7 Enables me to react more quickly to change.	82.2%	16.4%	1.4%
8 Speeds up the process of decision making.	86.3%	13.7%	0.0%
9 Promotes the concept of institutional work environment.	79.4%	17.8%	2.8%

Table (2) reflects the benefits of implementing KM practice for the academic librarians and the library as a whole. With 86.9% of respondents on average agreeing on all statements provided, which indicate that academic librarians not just understand the KM concept but also understand that implementing KM practices at the library can help them doing their task and help achieving the library objectives as a whole. Moreover, the strong rating of the statements in table (2) it might indicates that there is no resistance and a welcoming mode for the implementation of KM and its future benefits.

7.5- KM Activities

Table (3)

Knowledge Management Activities

The following activities needed to enhance the environment for knowledge management practices;

	Agree	Neutral	Disagree
1 Facilitates strong culture of knowledge sharing.	76.7%	17.8%	5.5%
2 Focus on identifying personal expertise.	65.8%	26.0%	8.2%
3 Create system to capture the tacit knowledge of employees.			

57.5% 31.5% 11.0%

4 Availability of knowledge enabling
technology.
67.2% 23.2% 9.6%

5 Survey of knowledge within the library. 54.8% 31.5% 13.7%

6 Focus on creativity and innovation. 75.3% 15.2% 9.5%

7 Written knowledge management policy. 58.9% 28.8% 12.3%

8 Strong partnership with other libraries. 72.6% 19.2% 8.2%

9 Identify knowledge required in next five
years.
54.8% 37.0% 8.2%

10 Establish knowledge repository. 56.2% 30.1% 13.7%

Table (3) results shows that the most KM activities seen by respondents to be implemented to enhance KM practices environment at the libraries are "Facilitates strong culture of knowledge sharing" 76.7%, "Focus on creativity and innovation" 75.3% and "Strong partnership with other libraries" 72.6%. However, table (3) shows that there is a strong tendency towards agreeing of implementing KM activities provided in comparison with a weak disagreement from the respondents towards implementing those activities. This means that the academic library staff understands that implementing these KM activities will enhance the KM practices environment, but the library administration still need to work on those who answered neutral or disagree to make them ready to join and understand the benefits of implementing KM in the library.

7.6- KM Skills

Table (4)

Knowledge Management Skills

To implement KM effectively & efficiently
you needs to develop the following skills:
Agree Neutral Disagree

1 Skills for fostering good learning
environment.
90.4% 9.6% 0.0%

2 Skills for creating openness and trust. 89.0% 9.6% 1.4%

3 Team working skills. 91.8% 8.2% 0.0%

4 Interpersonal & communication skills 87.7% 12.3% 0.0%

5 Skills for creating staff supportive
environment.
91.8% 8.2% 0.0%

6 Listening/ dialoguing skills. 87.7% 12.3% 0.0%

7 Skills for fostering creativity and new ideas. 90.4% 9.6% 0.0%

The results form Table (4) shows that academic librarians are in need of skills and competencies that could help them in engaging in KM activities. This means that the library administration should work on developing those skills through different programs.

7.7- KM Sharing
Table (5)
Knowledge Management Sharing

To do your work or to accomplish specific
tasks you might use the following sources of
information:
Agree Neutral Disagree
1 Consult with colleagues in my department. 89.0% 9.6% 1.4%
2 Consult with my divisional supervisor. 87.7% 9.6% 2.8%
3 Make use of documented procedures with the
library.
87.7% 8.2% 4.1%
4 Consult with other departments within library. 79.4% 9.6% 11.0%
5 Consult with colleagues from other academic
libraries.
65.8% 20.5% 13.7%
6 Use other library resources such as (Books,
Reference Materials, Databases, etc)
82.2% 13.7% 4.1%
7 Consult with the library director. 75.3% 15.2% 9.6%
8 Consult academic professionals. 82.2% 11.0% 6.8%
9 Use the internet social networks and
professionals dissection groups.
69.8% 19.2% 11.0%

Table (5) reflects the knowledge sharing environment of academic librarians when performing their tasks. Result from table (5) shows that about 80% on average of the respondents agree on all statements provided, which indicates that academic librarians in both campuses are involved in constant interactions with information sources and with their colleagues for acquiring knowledge, and they believes in knowledge sharing as a source of information and this results in accumulation of a vast amount of knowledge and experience. According to Nonaka & knonno (1998), communication between colleagues, which results in conversion of tacit and/or explicit knowledge, is possible through the sharing of ideas and will result in self-development.

Based on the above findings, the library administration should consider the acquisition of knowledge management system for facilitating the above interactions mentioned

above as a positive step towards enhancing the efficiency of knowledge sharing activities among academic librarians and for future KM implementation. White (2004) believes, "KM programs generally fail if there is no knowledge-sharing culture in place".

7.8- KM Challenges
Table (6)
Knowledge Management Challenges

Challenges facing the library in implementing
KM could be:

Agree Neutral Disagree

1 Colleagues do not seem to perceive that there
is an urgent need to share knowledge.
45.2% 20.5% 34.2%

2 I do not see an urgent need to share
information.
16.4% 15.2% 68.5%

3 Lack of sharing knowledge environment. 43.8% 12.3% 43.8%

4 Lack of trust of other people's knowledge. 42.5% 17.8% 39.7%

5 There is no proper organizational sharing
knowledge policy.
56.2% 23.3% 20.5%

6 The bureaucratic procedures involved in
sharing knowledge are complicated
45.2% 27.4% 27.4%

7 My tasks do not require cross-department
knowledge sharing.
27.4% 15.2% 57.5%

8 There is no proper IT platform to share
information.
55.1% 21.9% 23.0%

9 Lack of procedure to facilitate other people's
knowledge needs.
50.7% 19.2% 30.1%

10 Lack of guidelines to support the sharing of
knowledge.
50.7% 15.2% 34.2%

11 There is no difference in job evaluation
between those who practice knowledge
sharing and those who do not.
56.2% 24.6% 19.2%

Results shown in table (6) provide various measures of the challenges facing the library in implementing KM. The most obvious challenges were "There is no proper organizational sharing knowledge policy" 56.2%, "There is no difference in job evaluation between those who practice knowledge sharing and those who does not" 56.2% and "There is no proper IT platform to share information" 55.1%. The stress from the respondents on the lack of proper organizational knowledge sharing policy and there is no proper IT platform to share information as a challenges goes along with their answers on the activities needed to implement KM when they pointed out the need for written KM policy and the need for available of knowledge enabling technology. On the other hand, respondents see that practicing knowledge sharing should be part of the job evaluation and saw its absence as a big challenge.

Moreover, the highest rating for disagreement statements were "I do not see an urgent need to share information" 68.5% and "My tasks do not require cross-department knowledge sharing" 57.5%. Their disagreement with those statements lines with their previous answers in table (5) supporting knowledge sharing.

However, in reading the relationship between variables and rating of those statements, it was found that significant differences ($x_2 = 4.915$ DF = 2), ($x_2 = 5.07$ DF = 2) and ($x_2 = 3.36$ DF = 2) existed between male and female librarians in the following three statements respectively "The bureaucratic procedures involved in sharing knowledge are complicated", "There is no proper IT platform to share information" and "There is no difference in job evaluation between those who practice knowledge sharing and those who do not". For the first statement more male librarians agreed on the statement than female librarians and the male librarians felt that as a challenge more than the female librarians. On the second statement female librarians agreed more than male librarians on the statement, this goes along with the female's better understanding of the KM concept. The third statement more female librarians disagree than male librarians, which means that female librarians felts that the evaluation practices in their campus take in consideration cooperation and sharing when evaluating employees more than what the male librarians felt.

8- Conclusion

This research results has shown that the understanding of KM concept among academic library staff at KAU central libraries is well understood, even though there were some employees who were not sure about the differences in the meaning between KM and IM. Also, the results suggest that the academic librarian staff have very positive attitude towered KM practice, which indicates that the environment at KAU central libraries is ready for starting KM initiatives. However, some challenges needs to be addressed.

References

Ahmed, P. Lim, K. & Loh, A. (2002). *Learning through Knowledge Management*. Oxford: Butterworth-Heinemann.

Anderson, P. (2007). All that glisters in not gold: Web 2.0 and the librarian. *Journal of Librarianship & Information Science*. (39:4) 195-198.

Bainton, T. (2001). *Information literacy and academic libraries: the SCONUL approach (UK/Ireland)*. 67th IFLA Council and General Conference, Boston: USA. August 16-25.

Benson, A. & Favini, R. (2006). Evolving web, evolving librarian. *Library Hi-Tech News*. (7) 18-21.

Bhatt, G. (2002). Management strategies for individual knowledge and organizational knowledge. *Journal of Knowledge Management*. (6:1) 31-39.

Branin, J. (2003). Knowledge Management in Academic Libraries: Building the Knowledge Bank at the Ohio State University. *Journal of Library Administration.* (39:4) 41-56

Budd, J. (1998). *The academic library: its context, its purpose and its operation.* Englewood, Colorado: Libraries Unlimited.

Corrall, S. (1998). Knowledge management: are we in the knowledge management business?
http://www.ariadne.ac.uk/issue18/knowledge-mgt/ [viewed August. 16, 2011].

Coyle, J. (2007). *WIKIS in the college classroom: a comparative study of online and face-to-face group collaboration at a private liberal arts university*. (PhD thesis) (Kent

State University College, Oh.)
http://www.ohiolink.edu/etd/send [viewed August. 16, 2011].
Crowley, T. & Childers T. (1971). *Information service in public libraries: Two studies.* Metuchen, N.J.: Scarecrow.
Daud, S., Rahim, R.E.A. & Alimun, R. (2008). Knowledge creation and innovation in classroom. *International Journal of Social Sciences*. (3:1) 75-79.
Davenport, T. DeLong, D. & Beers, M. (1998). Successful Knowledge Management Projects. *Sloan Management Review.* (39:2) 43-57.
Davenport, T. & Prusak, L. (1998). *Working knowledge: how organizations manage what they know.* Boston, Mass.: Harvard Business School Press.
Dewdney, P. & Ross, C. (1996). *Flying a light aircraft: Reference service evaluation from a user's viewpoint.*
www.ala.org/ala/rusa/rusapubs/rusq/specialfeatures/rspawardw [viewed August. 16, 2011].
DiMattia, S. & Oder, N. (1997). Knowledge Management: Hope, Hype, or Harbinger? *Library Journal.* (122:15) 33-35.
Dwivedi, R. & Bajpaim R. (2004). *Use of Data Mining in the field of Library and Information Science : An Overview*. 2nd International CALIBER-2004, New Delhi, 512-519.
Earl, M. (1997). Knowledge as Strategy: Reflections on Skandia International and Shorko Films, in *Knowledge in Organizations,* ed. Laurence Prusak. Boston: Butterworth. 1–15.
Foo, S. Chaudhry, A. Majid, S and Logan, E. (2002). Academic libraries in transition: challenges ahead. *Proceedings of the Word Library Summit*, Singapore, April. 22-26.
Gandhi, S. (2004). Knowledge management and reference services. *The Journal of Academic Librarianship.* (30:5) 368-381.
Hardesty, L. (2000). *Do we need academic libraries?* Position paper of the Association of College and Research Libraries (ACRL).
http://www.ala.org/acrl/academiclib.html [viewed August. 16, 2011].
Hernon, P. & McClure, C. (1986). Unobtrusive reference testing: The 55 percent rule. *Library Journal*. (111) 37-41.
Hernon, P. & McClure, C. (1987). *Unobtrusive testing and library reference services.* Norwood, NJ: Ablex.
Kaske, N. & Arnold, J. (2002). *Unobtrusive evaluation of online real time library reference service.*
http://www.lib.umd.eu/groupsdigref/kaskearnold.unobtrusive.html [viewed August. 16, 2011].
Jain, P. (2007). An empirical study of knowledge management in academic libraries in East and Southern Africa. *Library Review.* (56:5) 377-392.
Jantz, R. (2001). Knowledge management in academic libraries: special tools and processes to support information professionals. *Reference Services Review.* (29:1) 33.

Jashapara, A. (2005). The emerging discourse of knowledge management: a new dawn for information science research? *Journal of Information Science.* (31:2) 136-148.
Lamont, J. (2004). Knowledge management at your service: New solutions and sources

for librarians. *Searcher: The Magazine for Database Professionals.* (12:1) 57-61.

Lee, H.-W. (2000). The role of libraries in knowledge management. http://szlibszptt.net.cn/download/km_n_lib.ppt [viewed August. 16, 2011].

Lee, H-W. (2005). Knowledge management and the role of libraries. *Chinese Librarianship: an International Electronic Journal.* (19). http://www.white-clouds.com/iclc/cliej/cl19.htm [viewed August. 16, 2011].

Lloria, M.B. (2008). A review of the main approaches to knowledge management. *Knowledge Management Research & Practice.* (6:1) 77-89.

Mahmood, K. (2003). A comparison between needed competencies of academic librarians and LIS curricula in Pakistan. *The Electronic Library.* (21:2) 99-109.

Myers, M. (1979). The effectiveness of telephone reference/ information services in academic libraries in the southeast. *Digital Dissertations.* Proquest Database. (UMI No. 8008614).

Nonaka I. & knonno, N. (1998). The concept of Ba: Building a foundation for knowledge creation. *California Management Review.* (40:3) 40-54.

Nonaka I. & Takeuchi, H. (1995). *The knowledge-creating company: how Japanese companies create the dynamics of innovation.* New York, Oxford: Oxford University Press.

Olszak, L. (1993). *Mistakes and failures at the reference desk.* http://www.ala.org/ala/rusa/rusapubs/rusq/specialfeatures/rspawardw [viewed August. 16, 2011].

Patrick, K. & Dotsika, F. (2007). Knowledge sharing: developing from within. *The Learning Organization.* (14:5) 395-406.

Priti, J. (2007). An empirical study of knowledge management in academic libraries in East and Southern Africa. *Library Review.* (56:5) 377-392.

Probst, G. Raub, S. & Romhardt, K. (2000). *Managing knowledge: building blocks for success.* Chichester: John Wiley and Sons.

Profeta, P. (2006). Effectiveness of asynchronous reference services for distance learning students within Florida's community college system. *Digital Dissertations.* Proquest Database. (UMI AAT 3212018).

Prokopiadou, G. Papatheodorou, C. & Moschopoulos, D. (2004). Integrating knowledge management tools for government information. *Government Information Quarterly.* (21) 170-198.

Ralph, L. & Ellis, T. (2009). An Investigation of a Knowledge Management Solution for the Improvement of Reference Services. *Journal of Information, Information Technology, and Organizations.* (4) 17-38.

Roberts, G. (2005). Groupware as a knowledge repository: Computers in small libraries. *Computers in Libraries.* (25:4) 29-31.

Rowley, J. (1999). What is knowledge management? *Library Management. (20*:8) 416 - 419.

Rydberg-Cox, J. Chavez, R. Smith, D. Mahoney, A. & Crane, G. (2000). Knowledge Management in the Perseus Digital Library. *Ariadne.* (25). http://www.ariadne.ac.uk/issue25/rydberg-cox/intro.html [viewed August. 16, 2011].

Shanhong, T. (2000). *Knowledge management in libraries in the 21st century.* 66th IFLA Council and General Conference, Jerusalem, Israel, August 13-18. http://www.ifla.org/IV/ifla66/papers/057-110e.htm [viewed August. 16, 2011].

Skyrme, D. (1997). Knowledge Management: Making Sense of an Oxymoron. *Management Insights* (22). http://www.skyrme.com/insights/22km.htm [viewed August. 16, 2011].

Stern, D. (2003). New knowledge management systems: The implications for data discovery, collection development, and the changing role of the librarian. *Journal of the American Society for Information Science.* (54:12) 1138-1140.

Stover, M. (2004). Making tacit knowledge explicit: The ready reference database as codified knowledge. *Reference Services Review*. (32:2), 164-173.

Townley, C. (2001). Knowledge Management and Academic Libraries. *College & Research Libraries*. (62:1) 44-55.

Trivedi, M. (2007). Knowledge management in health science libraries. *Electronic Journal of Academic & Special Librarianship*. (8:2). http://southernlibrarianship.icaap.org/content/v08n02/trivedi_m01.html[viewed August. 16, 2011].

Turvey, M. & Letarte, K. (2002). Cataloging or Knowledge Management: Perspectives of Library Educators on Cataloging Education for Entry-Level Academic Librarians. *Cataloging & Classification Quarterly*. (34:1/2) 165-87.

Wen, S. (2005). *Implementing Knowledge Management in Academic Libraries: A Pragmatic Approach*. Proceedings of the 3rd China-US Library Conference. http://www.nlc.gov.cn/culc/en/index.htm [viewed August. 16, 2011].

White, T. (2004). *Knowledge Management in an Academic Library*: *based on the case study "KM within OULS"*. 70th IFLA Council and General Conference, Buenos Aires, Argentina, 22-27 August.