USE OF KNOWLEDGE MANAGEMENT TOOLS IN ACADEMIC LIBRARIES

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ABSTRACT - *Thisstudy specifies the usage of knowledgemanagement tools in Academic libraries. Knowledge management tools are very effective for library activities such as knowledge creation, knowledge capture and knowledge sharing. It highlights the results of the research conducted to identify the knowledge management tools that are used to manage knowledge in academic libraries. In addition, it attempts to highlight frequently used knowledge management tools, most preferable information sources, efficiency of library staff to manage knowledge in the library and also problems faced while using knowledge management tools. And noted that internet, intranet, blogs and Institutional Repositories have been used more frequently in academic libraries.*

***Key Words*:** Knowledge management, AcademicLibraries, Tools, Information Sources.

1. INTRODUCTION

Traditional (manual) methods of managing knowledge have been changed with the advent of knowledge management tools. Tools are one of the essential elements of knowledge management, which assists in managing the information/knowledge of the individuals, group and organization. Knowledge management (KM) tools support library staff to create, capture, store, exploit, share and apply knowledge in a more effective way. "A good Information Technology Infrastructure is not a sufficient condition for the success of knowledge management but a necessary condition for it" (Arrora 2002)**1**. "In computer systems the weakest link has always been between the machine and human because this bridge spans a space that begins with the physical and ends with the cognitive" (McCampbell et al., 1999)**2**. An appropriate type of KM Tool selection depended on the size, need and infrastructure of the academic library. Information Professionals must feel that their functions (KM Activities) are made easier by use of KM Tools. The purpose of this paper is to explore the use of knowledge management tools to manage knowledge in academic libraries. Drawing evidence from the data collected through questionnaire. This study mainly concentrates on effective use of knowledge management tools in academic libraries. Particularly engineering college libraries in Bangalore City.

2. OBJECTIVES

➢ To know the awareness of knowledge management tools by library professionals/users.

➢ To know the purpose of using knowledge management tools in the library.

➢ To identify tools used for searching information source available in the library.

➢ To know the efficiency of library staff in handling KM Tools in the library.

➢ To know the user satisfaction level by using KM tools in the library.

3. METHODOLOGY:

Survey method has been used for the present study, and questionnaire form the major data collection tool for collecting necessary data. A structured questionnaire was designed to measure the use of knowledge management tools in academic libraries through five-point likert scale from "very useful" to "of no use". The survey is designed to cover the knowledge management tools, frequently used KM tools, purpose of using KM tools, most preferable information sources, efficiency of library staff in handling KM tools and to identify the problems faced with KM tools. Questionnaire was sent to 60 respondents (students) studying in different engineering college. In all 60 completely filled in questionnaires were collected, the response rate was 100%. The collected data has been analyzed systematically to find out the effective use of knowledge management in academic libraries.

4. PREVIOUS RESEARCH:

The review of literature clearly shows that the knowledge management tools play a very essential role in academic libraries to improve the library service to better visibility. Information technology should be seen as a tool to assist the process of knowledge management like knowledge creation, codification, organization, preservation and dissemination in any organization (Dougherty 1999)**3**. The concept of knowledge management tools are broad and difficult to define. Even though many a times it has been said that information technology has the potential to redefine the management and control of innovation on a global basis through the removal of barrier such as time and distance (Egbu 2000)**4**. Knowledge management refers to the use of modern technologies, such as the internet, intranet, lotus notes, software filters to systematize, enhance and expedite knowledge management (Alavi&Leidner 2001)**5**. Knowledge management is designed to help organizations in

determining how well they collect, store, retrieve and share knowledge. Tools, when used, speed up the knowledge management process and reduce/removes the repetitions. Thus, knowledge management tools are to ease the knowledge management activities. Such as, knowledge creation, knowledge capture, knowledge store and knowledge share and also improve efficiency and effectiveness of knowledge management service.

5. DATA DISCUSSION;

The results of the study, presented below, provide an indication of knowledge management tools used by academic libraries to manage knowledge.

5.1. Background of Knowledge Management Tools

5.1.1. Internet: The origin of internet began in 1960.When the ARPA (Advanced Research project Agency) was started by the department of Defense.Later named as DARPA (Defense Advanced Research project Agency). In 1962-63 JCR Licklider, student of MIT propose the concept called "Galactic Network" he introduced global network of computers for the first time. In 1964 Paul Baran, an engineer at RAND Military think tank developed a conceptual model of communication called distributed communications. In his first network experiment, two computers communicated directly with one another. In 1966 Lawrence Roberts plan for ARPANET which dealt with the concept of computer networks and first networking protocol TCP/IP was introduced by Robert kahn and Vinton Cerf,it became the most widely used protocol by 1983 throughout the world. John Postel established the internet assigned numbers authority in 1988. In 1990 the first internet dial up access were introduced at world.std.com. The same year Tim Berners Lee developed WWW. Then onwards ARPANET has been dismissed and replaced by the NFSNET. InterNIC was used to create directory/database, registration and information services for the internet. Finally in 1995 the US Federal networking council (FNC) passed resolution using the term Internet. The above history clearly defines the influence of the internet in the world.

5.1.2. Intranet: Intranet history bound up with thedevelopment of internet. Intranet created by using World Wide Web software. It provides a platform for sharing/transferring information within the organizations. It helps in quick and easy information transfer. The modern intranets are fully interactive. Intranets allowed users to create individual web pages and customize the format then add content specific as per their requirements.

Internet/Intranet utility in Library:

- Internet/Intranet used for effective communication and knowledge sharing.

- Its main goal is to find information which is often hiding in stack of documents.

- It has become a comprehensive tool used to search and retrieve the information in library.

- Internet helps in duplicate check of information through web.

- Rapid transfer of information from one library to another.

- Internet helps in searching of library documents at anywhere in the world using WEBOPAC.

- It helps to achieve academic excellence.

- Internet used for communication, recreation and information sharing.

Majority of the respondents are aware of the knowledge management tools used in academic libraries. Their responses have been analyzed and given in table no. 1 (Mean value 4.9 and 4.6) and also the tools used most frequently to search and retrieve the relevant information is evident in table no. 2 (Mean value 4.7 and 4.6). Internet and Intranet are used for the purpose of study, to update subject knowledge, for project work and for writing articles etc,.are well received and applied in their library services.

5.1.3. Blogs: Justin Hall created first blog in 1994 whenhe was a student at Swarthmore College. But he called it as homepage not blog. He started writing online daily entries that linked through Index page. In 1997 Jorn Barger introduced the term weblog. The term Blog was shortened from weblog by programmer Peter Merholz in 1999. At the same year Merriam-webster declares the blog as their word of the year. Blogger was introduced by Evan Williams and Meg Hourihan at Pyra labs. In 2000 significant growth has been noticed. By 2002 Heather Armstrong was fired for discussing her job on blog. "Dooce, Dooced" this comment posted on her blog regarding her employer, it refers to job description on blog. In 2003 Google buys blogger from pyra and launches adsense and incorporates matching ads to blog content. The first video blog started in the year 2004. In 2005 Type pad launches type pad mobile (Mobile blogging tools) in the same year Andrew Sullivans popular blog daily name changed to Time.com. Time.com gets advertising and earns revenues from the blog. The political parties have also created their own blogs partly for advertising purpose. Individuals started posting daily events on their blogs it become very popular platform to share or transfer information virtually.

Features of Blogs

▢ Blog allows the users to communicate through the comment section attached to each individual post.

▢ Blogs provide opportunity to access the archives, previous posts to the readers. The archive links are usually in a sidebar on the page.

▢ Blogs give links to other posts.

▢ Blog contain text, image, video etc., (Multimedia).

▢ Blogs creates one to one and one to many connections.

Blogs are the online personal diaries entries created by individuals. Most of the respondents expressed their positive opinion on blogs. Awareness and frequency of use of blogs shown in the table no. 1 and 2 (Mean value 4.3). Knowledge of blogs and usage are well received by respondents.

5.1.4. Institutional Repository: The first InstitutionalRepository started in 1991 by Paul Ginsberg. It was a physics repository known as arxiv. Later it covered many other subjects like mathematics, computer science, nonlinear sciences, statistics, quantitative finance, etc. It was maintained by Cornell University Library. In 1994 the first scholarly proposal for an institutional archive was written. The noble prize winner Joshua Lederberg introduced the term institutional rather than disciplinary archives. The case for institutional repository started from the scholarly publishing and academic resources coalition (SPARC) set up by the Association of Research Libraries (ARL) in 1998 to address the issue of high prices of scientific journals. Open Archive Initiative developed during 1999. In 2001 the University of Southampton introduced Eprints a software package supporting open access deposit of research materials. In 2002 Massachusetts Institute of Technology (MIT) launched the Dspace software to manage self-archiving of research articles by MIT faculty. Inspired by MIT many libraries and universities also created repository for their faculty publications.

Features of Institutional Repository:

▢ Institutional Repository helps in speedy communication within the organization.

▢ It helps visibility of gray literature.

▢ IRs store and preserve intellectual output of the institution

▢ IR provide services to faculty, researchers and administrators to archive their creativity/ published materials

Institutional repository is an archive for collecting, preserving and retrieving the intellectual output of an organization. Respondents opinion and the related mean value 4.2 in relation to Institutional Repository is shown in table no. 1 and 2 (Mean value 4.2 and 4.3). Indicating perceived value and importance of IR by respondents.

5.1.5. Audio Conferencing/Tele Conferencing: In 1876Alexander Graham Bell initiated the first telephone call to his assistant Mr. Watson. The conversation was " Mr. Watson come here, I want you" (Bell, AG) after this invention Bell and Watson made attempt to world's first long distance telephone call that was one way call between Brantford and Paris, Ontario, Canada and the first two way long distance conversation between Cambridgeport and Boston, Mass USA. In 1877 and 1878 the commercial telephone service were offered, the same year the first UK telephone company was established. National Bell Telephone Company founded by Bell in 1879. Massachusetts, USA recorded first used telephone numbers in 1880. Then the competition existed between three companies namely, Western Electric Manufacturing Co., Western Union Telegraph Company and National Bell Telephone Company were offering telephone service. In 1885, American Telephone and Telegraph (AT & T) was started offering private telephone service. During 1893 Local phone Companies used Party line (Telephony) to connect local farm families. It helped to connect Doctors and Pharmacists with their office or shop respectively and it was financially feasible service. During 1900s Party line were introduced to further decrease the cost in cities and extend the phone service in rural communities. In the beginning of the 20th century, the phones growth increased. In 1950 direct-dial service replaced with number operators, the world's first hands free speakerphone and the first transatlantic cable being laid between Canada and Scotland. This is the brief history of audio conferencing / tele conferencing.

Features of Audio Conferencing

▢ Audio conferencing reduce travel cost.

▢ It can be accessible anywhere in the world (Geographical distance)

▢ Speedy Communication

5.1.6. Video Conferencing: It is an advanced version ofaudio conferencing. The first video conferencing started in 1960 by AT & T at New York's World fair. It was a picture phone. Video conferencing was demonstrated between Osaka & Tokyo in 1976. In 1980 broadband service like integrated services digital network ISDN started, it transfers the voice and video at the same time in one line. In 1990s IBM introduced the first personal computer based video conferencing. After the emergence of CU-See me for windows during 1995, video conferencing became commercial to public. The first video conference between North America and Africa took place in the same period. Virtual room video conferencing system (VRVS) was launched in 1997. It had helped researchers and scientists

for large Hadron Collider project in US and Europe. By 2000 video conferencing was freely available to those who had internet accessibility. The TV reporters used video conferencing to broadcast live, War on Terror from Afghanistan in 2001. Multipoint video started in 2004. The HD high definition resolution becomes a standard video feature in 2010. Advanced multimedia systems like video, voice, skype, cloud based service app, video chat services emerged in 2014.

Features of Video Conferencing

- Video conferencing reduced the travel expenses.

- It saves time and money.

- It helps effective communication.

- It provides easy and cost effective solution

- It allows quick decision making and problem solving.

Audio and Video conferencing are the most powerful tools used for effective communication. It is also cost effective and accessible throughout the world. The respondents opinion is analysed and given in table no. 1 and 2 (Mean value 3.9, 3.9, 4.1 and 3.9). Indicates the familiarity with regard to audio/video conferencing.

5.1.7. Web Portal: Web portals originated from websearch engines through web push technology in the mid-1990s. Portals were so popular in business field applications called business to business (B2B) and business to consumers (B$_2$C). The term portal derives from Medieval Latin word portale. It means "city gate" portal as a doorway or an entrance or a gate especially one that is large and imposing says American Heritage Dictionary (Zhou, Joe 2003). Web portal customizes and retrieves the relevant information from the web with the help of search engines. Many types of portals available such as,

1. Public Portals/Government portal

2. Enterprise portal

3. Search portal

4. Corporate portal

5. Cultural portal

6. Stock portal

7. Tender portal

8. Job portal

9. E learning portal

10. Knowledge management portal

Portals are browser based applications.

Features of Web portal

- It provides unique content based on the linked account information.

- Personal login is required.

- Secured access point for personalized information.

- Cost reduction

- Organizational unification
- It is an interactive web application.

Web portal also known as gateway or cyber door is a most effective tool used for searching, storing and retrieving of information through web. Most of the respondents are aware of this tool and also used frequently, analyzed data is presented in the table no. 1 and 2 (Mean value 3.8). Indicating the need for improvement and updation of knowledge in the field of web portals.

5.1.8. News Bulletin/News letters: News bulletin andNews letters are the first materials of an organization creation. It is the best ways to share information with the members of an organization. It covers internal information about the organization and its ongoing activities. The newsletters are informative and useful reference tools. News letters are regular in nature and some organizations send it monthly, some quarterly to other organization to create awareness of their activities/functions. These days newsletters accessible electronically under the theme of "go green".

Features of News Bulletin/News Letters

- They are in readable format (space, color, font size etc.,)

- They are very informative, interesting and understandable.

- They contain graphics and images.

- They provide contact information and address of particular organization.

- They give information about events, sports, ongoing activities of an organization.

- ⬚ They cover brief information about organization.

- ⬚ They are reliable and consistent

- ⬚ They provide quality presentations.

News Bulletin/News letters are the communication tools that update knowledge of members with ongoing activities of the organization. The respondents opinion on this tool is provided in table no. 1 and 2 (Mean value 3.8 and 3.7).

5.1.9. Data Warehousing: Bill Inmon known as father ofdata warehousing coined the term data warehouse in 1970s. He worked as a data professional and become expert in relational data modeling and data integration. In 1980s the concept of the "Business data warehouse" was introduced by IBM researchers Barry Devlin and Paul Murphy in their article 'An architecture for a business and information systems' in IBM systems Journal. With this experience in data modeling and integration Inmon stared a company named Prism Solutions in 1991. And released the prism warehouse manager product, which was the first product for creating and managing a data warehouse. He organized many seminars on developing data warehouses, and wrote a book on Building the Data warehouse in 1992. It has become a milestone for IT professionals till today to provide theoretical background for the data warehouse. The first data warehouse Toolkit was published by Ralph Kimballs in 1996.

Features of Data warehousing

- ⬚ Data warehouse contains large amount of data

- ⬚ Data warehouse is subject oriented

- ⬚ It permits access to stored information easily

- ⬚ It support management decision making

- ⬚ It is Non-Volatile

- ⬚ It is a combination of data from multiple sources into one comprehensive and easily manipulatable database.

- ⬚ Data warehouse covers queries, analysis and reports.

Data warehousing contains multiple heterogeneous sources. It stores large amount of information electronically. The respondents opinion is shown in table no. 1 and 2 (Mean value 2.8 and 2.9). Knowledge of data warehousing usage in academic libraries is not encouraging.

5.1 Awareness and Frequency of use of Knowledge Management Tools

The respondents were asked to rank their awareness and frequency of use of knowledge management tools to find/search the information/knowledge in libraries on a 5 point scale. Table 1 presents the mean score for each of the tools listed. The mean values for the awareness and frequency of use of knowledge management tools were calculated on the following scale 5=Very Highly, 4=Highly, 3=Medium, 2=Low, 1=Very Low.

Table 1: Awareness and Frequency of use of Knowledge Management Tools

Sl. No.	KM Tools	Awareness Mean Values	Frequency of use Mean Values
1.	Internet	4.9	4.7
2.	Intranet	4.6	4.6
3.	Blogs	4.3	4.3
4.	Institutional Repository	4.2	4.2
5.	Audio conferencing	3.9	4.1
6.	Video conferencing	3.9	3.9
7.	Web portal	3.8	3.8
8.	News Bulletin/News letters	3.8	3.7
9.	Data Warehousing	2.9	2.8

From the above data it is evident that, most of the sample elements are aware as well as frequently use knowledge management tools like Internet, Intranet, Blogs and Institutional Repository. These are closely followed by Audio conferencing and Video conferencing. This suggests that knowledge management tools used for identifying, creating, capturing, organizing and sharing of knowledge/information in academic library. And Internet is a most familiar tool used by respondents. These tools assist users to browse relevant

information available on web; here we can find that, the task of identification, capture and sharing of information through internet. Most of them use blogs to post and share the useful information such as their course materials, previous year question papers and also use KM tools for effective communication.

The Knowledge management tools that ranked lowest in terms of their mean value were not much familiar among respondents. Such as News Bulletin/Newsletters and Data Warehousing. Data warehousing permits access to stored information easily. However, the above data indicates that data warehousing are ranked as least preference by majority of respondents. They may not be well aware and used frequently of these knowledge management tools. Over all the data provides the clear picture about majority of the respondents are well aware and used frequently of knowledge management tools in library.

5.2 Purpose of using knowledge management tools

Respondents were asked to rank their opinion according to the purpose of using knowledge management tools in the library. The below table presents the mean score of responses for each elements. The mean values were calculated using the following scale 5=very useful, 4=useful, 3=of some use, 2=of little use, 1=of no use.

Table 2: Purpose of using KM Tools

Sl. No.	Purpose of using KM Tools	Mean Values
1.	For Study	4.6
2.	For Project work	4.6
3.	For update subject knowledge	3.2
4.	To know forth coming conferences/seminars/ workshops	2.5
5.	For writing article	2.3

Table 2 reveals that, majority of the respondents agree that knowledge management tools are very useful for their study and for project work. They may collect few similar project reports already done by some individuals/ group of individuals somewhere else. Looking in to these project reports students will get some idea to prepare their own project report and also choose fresh topic and check the duplicate work with the help of KM tools in library. Information on forth coming conferences/seminars and for

writing articles were ranked least priority purposes of KM tools usage. It shows that majority of respondents concentrates on their academic curricula activities only. They stick to pattern of examinations and scheme of evaluation. Most of them are not much interested in conference/seminar/workshop etc., participation.

5.3 Most preferable Information Sources

The primary objective of any academic library is to satisfy users need in terms of providing relevant information/knowledge. To fulfill their needs library should enhance the collection, both print and electronic. There are two types of knowledge available in library one istomanage documented knowledge called explicit/tangible knowledge. And other knowledge is in the mind of human beings called tacit/intangible knowledge. Below listed information sources, (tangible) which are available in library and responses of users are analysed and presented in table 3.

Table 3: Most Preferable Information Sources

Sl. No.	Information Sources	Mean Values
1.	Books	4.6
2.	Full text journals	4.6
3.	News papers	4.5
4.	Project Reports	4.4
5.	Encyclopedia	4.3
6.	Online reference sources	4.3
7.	Dictionaries	4.2
8.	Databases	4.1
9.	Subject Gateways	4.0
10.	Digital archives	3.9
11.	Online discussion forum	3.5
12.	Abstracting and Indexing journals	3.4

Table 3 indicates that books, full text journals, newspapers and project report are the most preferable information sources in the library. Respondents visit the library to find relevant sources to fulfill their academic activities and also to enhance/improve their knowledge. Data collected deviate the present trend of more and more people are for more and more e-resources.The information sources that ranked lowest in terms of their mean values were mostly less used by respondents. Such as online discussion forums and abstracting and indexing journals.

5.4 Efficiency of Library Staff in handling KM tools

Library staff/ Information professionals should have expertise to handle KM tools to enhance knowledge management life cycle which includes knowledge creation, capture, store, organize, share and manage to provide library services effectively. Table 5 presents the mean scores of responses regarding library staff efficiency in handling knowledge management tools in library.

Table 4: Efficiency of Library Staff

Sl. No.	Efficiency of library staff	Mean Values
1.	Majority are efficient	4.6
2.	All are efficient	4.5
3.	Majority are not efficient	4.3

The above table 4 suggest that majority are efficient in handling knowledge management tools and few respondents have stateted that majority are not efficient to handle knowledge management tools to find/search and retrieve the information in library, may be due to lack of training and awareness about KM tools. However the data reflects that majority of the library staffs are efficient to handle KM tools in library.

5.5 Problem faced with Knowledge Management tools

Respondents were asked to rank their opinion according to the order of preference of difficulties of using knowledge management tools in library.

Table 5: Problem faced with Knowledge Management tools

Sl. No.	Problem faced with KM tools	Mean Values
1.	Lack of knowledge to use KM tools	4.6
2.	Lack of knowledge to identifying the proper KM tools	4.3
3.	Lack of support by library staff	4.2
4.	Some technical problems	4.1

The above table presents the mean scores which highlight that majority of the respondents had problems like lack of knowledge to use knowledge management tools and also lack of knowledge to identification of the proper knowledge management tools are the major issues faced by respondents, followed by the lack of support by library staff and some technical problems to use KM tools to find and retrieve the information in the library.

6. CONCLUSION

The Present research finding indicates that knowledge management tools play a vital role in academic libraries to search and retrieve the relevant information to fulfill the users need. Knowledge management tools help to improve the efficiency of knowledge management services in library. Study results have shown that some library staff do not have sufficient skills to handle KM tools, to overcome these difficulties, information professionals should undergo training programs regularly and also attend conferences/seminar/workshops to enhance the skills to handle KM tools in library. Some respondents have faced problems while using KM tools to search the information, to resolve these issues information professionals should conduct library orientation programs for freshers periodically and library staff should assist the users in the use of KM tools in searching/browsing information in the library. Finally this study emphasizes that KM tools are very appropriate and effective to manage knowledge in academic libraries

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