Turkish Online Journal of Distance Education-TOJDE January 2015 ISSN 1302-6488 Volume: 16 Number: 1 Article 11

IMPORTANCE OF KNOWLEDGE MANAGEMENT IN THE HIGHER EDUCATIONAL INSTITUTES

Ms. Sangeeta NAMDEV DHAMDHERE
Librarian, Modern College of Arts,
Science and Commerce,
Ganeshkhind, Pune, INDIA

ABSTRACT

Every academic institution contributes to knowledge. The generated information and knowledge is to be compiled at central place and disseminated among the society for further growth. It is observed that the generated knowledge in the academic institute is not stored or captured properly It is also observed that many a times generated information or knowledge in the academic institute is not known to any one and remains as grey literature, which might be useful if proper recoding is maintained in the organization. In fact academic environment is treasure of knowledge but it is not organized properly and hence utility is also lacking and cause for the repetitions of the activity. This project is undertaken under Board of University and Colleges, University of Pune for finding importance of KM of past knowledge of an institute. Also study on data capture, data analysis, data categorization, data mining, data mapping, knowledge mapping, concept mapping, indexing, linking and repackaging of knowledge, tools, techniques, strategies and copyright issues in sharing this knowledge through knowledge base.

Keywords: **Knowledge management, knowledge sharing, Tacit knowledge management, knowledge management strategies, knowledge management policies in higher education.**

INTRODUCTION

Knowledge management (KM) is a new immerging field in the academic environment. Many upcoming conferences and seminars at national and International level are on Knowledge Management. Many International Universities are actively participating in KM related activities and doing research. It is now becoming popular in Education field due to need to disclose the intellectual power available in institution for sharing experiences. It has great potential and should have equal and even greater significance for education sector. Knowledge builds on knowledge and past events helps in generating new knowledge.

The main source of generation of knowledge is human efforts which are developed through conducting good educational activities, research activities and generating innovative concepts in the area of interest. All knowledge generating organizations like industries, R and D centers, and higher education academics from colleges to universities are in search of new concepts in their subject of interest and also contribute to knowledge through various means.

They are considered as "Knowledge Houses" where knowledge flows from teachers to students and new knowledge is created. The information generated is covered in different forms and

sources like books, journal articles, thesis or dissertations, technical reports, fact finding reports, case studies, patents, development of test methods and standards, different scholarly communications etc. Every academic institution contributes to knowledge. The generated information and knowledge is to be compiled at central place and disseminated among the society for further growth. It is observed that the generated knowledge in the academic institute is not stored or captured properly It is also observed that many a times generated information or knowledge in the academic institute is not known to any one and remains as grey literature, which might be useful if proper recoding is maintained in the organization. In fact academic environment is treasure of knowledge but it is not organized properly and hence utility is also lacking and cause for the repetitions of the activity.

Knowledge Management (KM) in educational institution makes good sense and a good combination of intellectual output of the academic organization if preserved well using technology. The KM efforts could be monitored by the libraries and disclose it along explicit knowledge to the users, but tacit knowledge compilation is difficult as it is preserved at individual level. But librarian could make better efforts in making available such kind of knowledge with the support of the knowledge developers using technology to capture tacit knowledge generated in the organization. In this role of each and every staff and student is very important as its not sole responsibility of Librarian.

Rashtriya Ucchatar Shikshan Abhiyan (RUSA) is giving importance to employability of the students. The new goal for educational institutions today is to develop such knowledge base of student's knowledge (both tacit and explicit) including their capabilities and skills with the help of latest technologies. It will help to students to pick up their capabilities, talents, prior knowledge and experience and work on that to enlarge and adapt this knowledge more effectively and easier to cope up with present environment. This knowledge base can be useful to students as self motivator, self knowledge manager, team building, innovator and problem solving agent.

This research is for finding importance of KM of past knowledge of an institute. Also study on data capture, data analysis, data categorization, data mining, data mapping, knowledge mapping, concept mapping, indexing, linking and repackaging of knowledge, tools, techniques, strategies and copyright issues in sharing this knowledge through knowledge base.

ORIGIN OF THE RESEARCH PROBLEM

Based on the various considerations to develop a Knowledge Management or Institutional Repository or a Knowledge Base for an academic institution in the ICT era and digital media, it is found economical and useful similarly new emerging strategies which enhanced the accessibility to traditional, grey and institutional knowledge by developing open access to literature. Self archiving trends, sharing of thoughts using web tools are added in the process of KM development.

Developed countries have managed KM however developing countries are pursuing to this activity. In India among many projects few projects like "Shodh Ganga", "Vidya Nidhi","TKDL" projects and scholarly communications in the form of different publications, are developed to communicate information to users. To support such activities educational institutes have to initiate the development of Knowledge base, which may be benefited to develop a network of knowledge developed at academic institutional level using technology. A preliminary effort towards development of Knowledge Base for an academic institution will be tried in this project.

It is present need of an organization to transform and recreate themselves by destroying the existing knowledge system and by inventing new ways of thinking and doing. The knowledge has to built on its own, frequently enquiries, intensive and laborious interaction among the staff, students and group of the institute rather acquiring knowledge from outside. The institutes going to involve in to cope dynamically with the changing environment needs to create information and knowledge efficiently. The staff and students should be active in innovation. Each individual in the institute must have responsibility to create new knowledge and transfer it into organizational knowledge.

Author observed that there are very few rare educational institutes in India we found who capture their students and teachers tacit knowledge too and preserve to give access to society to build new knowledge. These educational institutes conduct various activities and strategies for staff and students to inculcate research culture and create new knowledge(discussed in detail in this report).

Most of them are published as article, project reports or theses form and preserved. But apart from this explicit recorded knowledge many times tacit knowledge of people (hidden in the mind) is not recorded properly. In IT industry various strategies are applied to capture tacit knowledge of experts and they keep record. If not done and if expert leaves the job for better opportunity in between that industry suffers. Similarly selected tacit knowledge capturing activities must be recorded in educational institutes. They are no doubt will be used for submitting reports asked by various funding and grading agencies, universities, industries, foreign collaborations. Also to strengthen the alumni association also this Knowledge management practice will be very powerful.

RESEARCH OBJECTIVES

The main objectives of this research project are

- **To create knowledge base of captured tacit and explicit knowledge of staff and students/ Institute**
- **To study the application of ICT and web technology for creating knowledge base**
- **To share resources or knowledge of an Institute**
- **To preserve knowledge of an Institute**
- **To study the current situation and/or problems of knowledge management practices and strategies used in the selected NAAC "A" Grade academic institutes in Pune.**

- **To identify and analyze the development of knowledge management processes, strategies used including critical success factors of knowledge management.**
- **To organize and manage tacit as well as explicit knowledge of the organization**
- **To find out biggest hurdles in implementing KM in educational institutes.**
- **This article provide guidelines for educational institutes regarding collecting, capturing, analyzing, classifying, indexing, repackaging and sharing the explicit and tacit knowledge recorded and captured through various activities conducted in institutes for staff and students using technology.**

REVIEW OF RESEARCH AND DEVELOPMENT IN THE SUBJECT

International Status

Knowledge management education sector is being spoken since 2000. Later few researchers like Nanoka, Takeuchi, Sveibi, Polanyi, etc developed different tools, methods, models and theories in this area. Some universities in United States have started pioneer introduction to KM since 2000. KM is seen there as a set of activities that help improvement of information and knowledge exchange in the decision making process.

Rowley (2000) mentioned that the educational sector has always been recognized as the focal point for various knowledge processes, namely, knowledge creation, dissemination and learning. We believe that effective knowledge management is of vital importance for: increasing the quality and efficiency of education and research, for retaining the best professors and researchers, for developing new curricula, for improving cost efficiency and for exceeding the limits of time and space allowing for the fulfillment of student expectations anywhere and at anytime.The goal of Institutes like Institute of the Study of K M in Education, ISKME, California were to help education institutions to enlarge their capacity of gathering and sharing information and knowledge, to implement that on troubleshooting, and to support research and continual improvement of their work (Petrides, 2003)

V. P. M's polytechnic is a well renowned self-financed polytechnic in educational sector in Maharashtra. This institute works with the mission of "Imparting creative learning through innovative methodologies to expose the talents" since from its inception (1983). The knowledge workers (seekers) and knowledge seekers had together developed a good KM system. The perception of Knowledge Management among academic staff is that their work involves managing knowledge.

So they are the managers of their own knowledge and hence are already involved at some level in KM. The different recipes are to be used to transform ignorance into knowledge. Faculty uses all technology and tools to transfer the knowledge to students. Environment developed in the institute not only helps in knowledge transaction but also provides all opportunities to manage and develop knowledge to each individual.

Serban and Luan (2002) claimed that colleges and universities exist to create and share knowledge. Later in 2003 Tippins stressed that managing knowledge in HE is often very difficult because of several bureaucratic and cultural factors which present obstacles.
There is a lack of social interaction which influences effectiveness of the communication process and the creation of social networks, and also a lack of interest because of complacency and disengagement from the learning process. Geng, et al. and Gibb, A (2005) mentioned in 21st Century the power of successful university depends on its ability to create, manage and use knowledge in the most effective way. KM in HE is the art of increasing value from selected knowledge assets which could improve its effectiveness.

Since the Dearing report, global competition has intensified and high-level skills and knowledge have become ever more central to the UK's economic success (Higher Education Funding Council for England, 2006). Shattock (2003) contends that one of the most significant changes in the way we think about universities today is how we identify its success. Given all of these changes to the Higher Education system in the UK, he further contends that universities do not all start from the same position and that historically, locationally, and financially, their positions could be very different (Cranfield and Taylor, 2007). But how do these factors affect

an institutions' ability to respond to change effectively to ensure competitive advantage? In this context, how do institutions perceive the importance of KM?

In 2011 KM study was conducted in 3 public universities in Slovenia, 44 public faculties and about 110 000 students enrolled in public HE institutions. The study was focused on the teaching staff of faculties, and selected 2 public faculties from the area of social sciences, using two criteria. The first criterion applied was the number of enrolled students, and the second was the level of the implementation of ICT (Information and Communication Technology) in support of learning and teaching at HEIs.

What is Knowledge?

Knowledge is an important source for value creation in an organization and needs to be managed carefully-Massa and Testa (2009). It is a vibrant force in the rapidly changing global economy and society. Kidwell (2000) discussed Knowledge, which starts from the basic facts called data, which covers only raw data or facts or numbers, based on these facts information is generated. The information generated is captured in various documents and databases and made it available to use which gets searched by researchers using information technology systems, and information retrieval systems. The reason behind this is unless information is used and applied with an experience then adds value in to it, till then it does not become knowledge. Knowledge includes insight and wisdom of employee and could be used for decision making. It is also embedded in work processes, teams and exists in all core functions of an organization as well as its systems and infrastructure. For the Japanese, Knowledge means wisdom acquired from the perspective of the entire personality. With reference to the educational institute, input by teacher is the data for the student, when he understands the things given by data that is information for the student when he analyses the information it becomes knowledge aspired by him and when he applies in the field it becomes his wisdom.

Oxford Dictionary and Wikipedia resources (http://english.oxforddictionaries.com http://www.wikipedia.org) explain the meaning of Knowledge which includes facts, information, descriptions, and/or skills acquired through experience or education. It can refer to the theoretical or practical understanding of a subject. It can be implicit (as with practical skill or expertise) or explicit (as with the theoretical understanding of a subject); and it can be more or less formal or systematic.

Cavell (2002) defined the term and stated that Knowledge acquisition involves complex cognitive processes, which involves perception, learning, communication, association and reasoning; while knowledge is also said to be related to the capacity of acknowledgment in human beings. Knowledge is generated and used for various purposes.

Types of Knowledge

There are two types of knowledge viz. explicit knowledge and Tacit Knowledge
Explicit Knowledge: is recorded and well documented information that helps in taking action and also expressed in formal language. It is published and made available for use like primary, secondary information sources and also covers packaged, communicable, transferable, and also easily available. It can be articulated, captured, presented and codified in various forms like words, numbers, specifications, facts, rules, reports, blog post, email or other sort of printed (books and journals) and digital asset, policies and shared without need for discussion. It is about past events or objects there and then. It is transmittable in formal and systematic language.

Tacit knowledge: is knowledge people carry around in their head. It is embedded within the head/minds of researchers of the institution or organization or research unit etc. It covers insights, perceptions, expertise views, techniques and skills, which is unique to the person. Tacit knowledge is not communicated in written form as it is purely personal, specific to any field, and even very difficult to capture, share verbally and transfer in the society. Tacit knowledge is personal, context-specific and therefore hard to formalize and communicate. This (Know How) knowledge is very useful but maintained as trade secretes by the individual person and not easily transmitted to the information society. Tacit knowledge has different characteristics as compared to explicit knowledge. Alhawary (2011) defined tacit knowledge, which is experimental, intuitive, and experience based knowledge that cannot be expressed in words, sentences, and formalized or articulated and therefore difficult to share also. Generally knowledge we refer to is explicit in nature meaning expressed in terms of words and numbers and knowledge could be shared. According to Ramanuj and Kesh (2004) tacit knowledge can only be exploited by effective communication and share.

The principal investigator mainly focuses on the tacit knowledge that employee, teachers, students, processes, systems of academic institutes have but they have difficulty in expressing or articulating it. There are two types of tacit knowledge one is knowledge of researchers which could be shared by both individual and groups. Another is tacit knowledge which can convert to explicit so that can be shared among the institute. Sternberg says that the knowledge which has not yet been converted into explicit is called as tacit knowledge.

Knowledge Creation

The process by which new knowledge is created within the organization or institute in the form of new products, services or systems becomes the cornerstone of innovative activity. The key to successful innovation process lies in the mobilization and conversion of tacit knowledge into explicit recorded knowledge.

Knowledge creation takes place in two forms. The one is where conversion takes place between tacit knowledge and explicit knowledge.

And other is where knowledge created by individual is transformed into knowledge at the group and organizational levels. Knowledge creation fuels innovation. Organizational knowledge is created during the conversion from tacit to explicit and back to tacit knowledge that organizational knowledge. Individuals create knowledge and an organization cannot create knowledge without them.

Therefore organizational knowledge creation is a process that amplifies the knowledge created by individuals and crystallizes it as a part of the organization network. To create knowledge organization has to provide the context for interaction among individuals across intra and inter organizational levels. It includes not only innovation but also learning, which can shape and develop approaches to daily work. Nonaka (1995)

Sources of Generation of Knowledge

The knowledge is generated in all the organizations, institutions, research centers, educational organizations, industries, and also in academics in different forms like books, projects, papers, dissertations, thesis, etc. But all the knowledge is not made available to public use. The knowledge made available is in explicit form only. The tacit knowledge is hard to get in to reality. Though IPR system now developed to protect the innovative ideas and benefited to the researchers by protecting knowledge in different heads like copy right, patents, trademarks,

geographical indicators etc but still few concepts are reserved as trade secret and not made available for general use. In educational institutions many concepts are filed locally and they remain as Grey Literature. Such intellectual information need to be compiles at institutional level and expert databases could be generated for use.

What is Knowledge Management (KM)?

KM is an old process initiated since 50s in the form of quantitative management and EDP which later extended to conglomeration (60s), portfolio management and strategic planning with automation (70s), TQM (80s), information system, intranets and extranets (90s) and recently since 2000 onwards KM is popularly used. (Gupta)KM is a process of transforming information and intellectual assets in to value. Knowledge is made available to take action when user needs it. Knowledge is considered as key to generate breakthrough ideas. The real focus of knowledge management is on "doing the right thing" instead of "doing things right". It provides a framework within which the organization views, processes as knowledge processes and all business processes, which involves creation, dissemination and application of knowledge towards organizational sustenance and survival.

According to B. Gates (2000), "the knowledge management-is a very clever term to describe a very simple subject. You manage data, documents and the attempts of the employees.

Your goal is to enrich the common work possibilities, including the exchange of thoughts, the usage of successful ideas and the coordination of actions towards the common goal. The management of knowledge must guarantee that the
required knowledge will reach certain people at certain time, so that people can take certain actions."

Ramanujan and Kesh (2004) described KM as "an organization's ability to gather, organize, share and analyze the knowledge of individuals and groups across the institution in ways that directly impact performance". It is a process through which organizations generate value based on their intellectual capital. Duffy, J.(2000) mentioned KM as a discipline of enabling individuals in an organization to collectively acquire, share and leverage knowledge to achieve business objectives. It is formal process that engages an organization's people, processes and technology in a solution that captures knowledge and delivers it to the right people at the right time. KM for the organization consists of its ability to acquire knowledge from its own experience and sources and from experiences of others and to judiciously apply that knowledge in fulfilling the mission of the organization.

Why Knowledge Management?

Knowledge Management can transform organizational new levels of effectiveness, efficiency, and scope of operation, using advanced technology, data and information are made available to users for effective productivity. Knowledge Management is continually discovering organizational tacit knowledge. It is also useful for building knowledge, for problem solving and decision making purpose.KM is applied today across the world, in all industry sectors, public and private organizations and humanitarian institutions and international charities. KM, as a discipline, must result in better achieving, or even exceeding objectives. The purpose of knowledge management must not be to just become more knowledgeable, but to be able to create, consolidate, transfer and apply knowledge with the purpose for better achieving objectives. Most individuals, team and organizations today continually 'reinventing the wheel' which is very costly and inefficient activity, whereas a more systematic reuse of knowledge will show substantial cost benefits immediately. Effective knowledge management, using more

collective and systematic processes, will also reduce our tendency to 'repeat the same mistake'. Effective KM, dramatically improves quality of products and or services. (http://www.knowledge-managementonline.com/index.html)

IMPORTANCE OF KM IN EDUCATIONAL INSTITUTIONS

Biloslavo and Trnavcevic (2007) expressed the importance of KM in higher education; similarly Dawson (2000) expressed term as "KM is especially important for organizations, comprised of experts where success depends upon generation, utilization and uniqueness of knowledge base. It would seem to be appropriate to consider higher educational institutions as organizations comprised of experts who contribute to knowledge base.

Internationalization of higher education, lifelong learning, and paradigm shift from teaching to learning, new technologies and globalization are the key factors in developing knowledge management. KM manages huge data systematically and therefore it will be a powerful tool to enhance productivity and reduce cost in the collection of a huge volume of data. It is very difficult to record tacit knowledge created by institutional staff. Many a times staff leaves the Institute and his knowledge goes along with him. If KM practice is being operated in an institute as a continuous activity then only the generated knowledge could be captured and recorded as well preserved for future use. Similarly inspecting officers while visiting and assessing the gradation of the institution's educational development and contribution reviews all tacit and explicit knowledge of past years, and in such practices KM plays a vital role.

Knowledge is the key for decision making and strategy creation. Knowledge should transfer into an action but unfortunately it does not happen always. In order to sustain in competitive world all educational institutes should implement effective tools for knowledge management. Barbara Friehs (2000) mentioned following assignments for effective KM.

- **Mobilize the hidden implicit/tacit knowledge**
- **Integrate knowledge from organization and make it accessible to all**
- **Identify the missing knowledge**
- **Create new knowledge**
- **Make knowledge more accessible and usable**
- **Create knowledge sharing culture to experiment and learn**
- **Evaluate and reflect learning processes**
- **Codify new knowledge.**

KM helps educational institutes to improve their capacity of gathering and sharing information and knowledge and apply these to problem solving and support the research and continual improvement of their work. KM of the educational system must reflect and comprise information at all levels starting from management level to student level in order to improve professional knowledge of employees, to achieve quality of lecturers and students. In all countries the government releases many funds for such activities.

KM gives most effective way to transfer efficient methods, models, ideas, practice is creating network as field of interaction that will provide circulation of them, as well as underpin innovation and development. For underdeveloped countries exchange of material resource can be useful. Faculties can mutually invest into resources they share. The exchange of information and knowledge in network like mutual newsletters, meetings, conferences, seminars and symposiums can serve as an instrument for knowledge and idea transfer and good practice.

Education systems are becoming market oriented from its basic democratic and decentralize system. Universities and academic institutes are considered to be responsible for students' achievements in a democratic, contemporary and flexible educational system. In return they get certain compensation for their effort and responsibility. So student's knowledge, skills, talents should be preserved in the knowledge base. It helps them to create new knowledge and gives platform to newly enrolled students.

In educational institute's researchers, faculty experts, students contribute regularly to knowledge base by generating new concepts. Internationalization of higher education needs to share the organizational contribution/knowledge. Therefore Knowledge management provides techniques for capturing tacit knowledge hidden in experts/individual mind and practices and records it for future use. At the time of gradation of the institution's educational performance all tacit and explicit knowledge of past years can make available at one place with searching facility. KM can transform organizational new levels of effectiveness, efficiency, and scope of operation, using advanced technology, data and information made available to users for effective productivity. KM is continually discovering organizational tacit knowledge. It is also useful for building knowledge, for problem solving and decision making purpose. Quality and Service improvement is also achieved.

Knowledge Sharing and Open Access Moment

Knowledge Sharing is defined by Yu et.al.(2010) as "Processes that involve exchanging knowledge between individuals and groups". According to Liaw, et.al (2008) Knowledge sharing is one of important goal of an organization where all individuals' experiences and knowledge can be transferred as an organizational asset and maintained for future learning and creating new knowledge with the help of ICT. Knowledge sharing is the transfer and communication of knowledge. It is an activity through which knowledge is exchanged among people, friends, or members of a family, a community, an organization or collaborative parties. It is "making available what is not known" according to Awad & Ghaziri (2004). Institutions need to have significant consideration for knowledge sharing in order to achieve effectiveness in knowledge management (King, et.al, 2002; Shin, 2004). Effective knowledge sharing is at the heart of organizational life. For universities it is the core of their existence. Knowledge is shared not only with students and society, but it is also shared between faculty staff and in collaboration with external enterprises.

Nonaka(1995) focuses in his study on knowledge sharing and transfer inside organization. He mentioned knowledge sharing gives rise to an overall view of an organization not as a machine for processing information but as a living organism in which everyone is a knowledge worker.

Alhammad et al (2009) concluded after interviewing 300 academicians that they are less interested in sharing their knowledge than administrators.

Jain et al (2007) mentioned the tacit knowledge academics possess constitutes the bulk of a university's intellectual capital. For such knowledge to have any real utility and constitute a source of value creation, it must be continually shared. In olden days the tacit knowledge was used to share normally face to face. But now due to electronic technology we can remove the barrier of communication with the people located in different parts of the world. Through email, chat, and online communication system knowledge sharing and initiation of communication become easy.

Tseng (2008) stated that recent development in IT and Web technology have made it easier to interact with staff and students, employees, suppliers and other partners, thereby improving operations.

Developments in KM focused on proving electronic databases, network systems and software to encourage the distribution of knowledge (Chow and Chan, 2008). With the help of technology now open access moment has also initiated all over world and receiving increased attention of scholars and academicians, librarians. Open access gives better visibility for researcher's scholarship. It has been observed that open access articles are cited by other authors more frequently than comparable articles that aren't openly available. No researcher wants to waste time and money conducting a study if they know it has been attempted elsewhere. But, duplication of effort is all-too-possible when researchers can't effectively communicate with one another and make results known to others in their field and beyond.

Knowledge Management and Sharing at Institutional Level

The role of knowledge professionals and managers in developing KM in the educational institute is to coordinate the information related activities and clustering the data properly. But the main challenge is to capture tacit knowledge and manage it in developing repository. Copyright issue is also to be taken into consideration while capturing and presenting knowledge. The knowledge professionals (librarians and KM Committee)needs to capture different skills like information retrieving, evaluation, analysis, organization, collaboration and security and safety of data and ICT skills etc for proper management of knowledge.

The coverage of literature in the repository depends irrespective of types and formats published in local institute and parent organization. Directories and dictionaries of organization, staff related activities, reports submitted to various organization, rules and policies, different training material, syllabus, question papers, e-learning material, maps, charts, organizational structure, lectures, educational videos and OPAC of the library. However, while developing knowledge base few elements to be considered are consistency, interactivity, user friendly interfaces, simplicity, flexibility, accuracy and timeliness and currency of data is to be maintained (Aswath, 2009).

Tools and techniques required for developing KM are finance, ICT Infrastructure, standards, information tools (Directories, dictionaries, etc), human resource, physical space (library, departments).

Lau and Tsui (2009) mentioned that KM and knowledge sharing tools such as search engines, internet, intranet and peer to peer knowledge tools, all help learners to learn from anywhere and anytime and within the learning environment. Such tools help them to share their interest, information and knowledge to create new knowledge.

Information, domain experts from library and technology, collaborations with departments, team of staff, and concepts of data mapping are basic factors required for development of effective databases, knowledge bases as well as repositories, portals, gateways, websites etc. Leading factor for development of KM and KS is library and information centre and librarians and information experts who can handle and categories the implicit or tacit knowledge generating in an organization and record it properly using standard methods.

Various skills are also required like data capture, data analysis, data categorization, data mining, data mapping, knowledge mapping, concept mapping, indexing, linking and repackaging are only reared by library professionals hence every academic organization shoulder this task to library professionals for effective use of tacit knowledge. But proper support from management, administration, technical advisors, computer experts, software developers should coordinate with library professionals in this activity. Further, motivation factor is also to be considered by the management. Various practices and trends are also useful for knowledge management purpose like generation of IR, data repositories, digital repositories, web tools (RSS Feed, Blog, Twitter, Facebook, social networds, moodle, Drupal, Blackboard, etc), development of portals, knowledge gateways, links to search engines and web/Internet based information resources, user groups, subject groups, expert groups, grey literature. An organization can develop its own portal or webpage giving links to internally developed databases and links to different institutional repositories. positories in the institute are many but prominent benefits are better return on investment, better bibliographic control of tacit knowledge, better dissemination of organizational goals and practices, for providing value added services, sharing valuable knowledge among different types of users and develop collaborative practices, avoid reinventing the wheel, solving problems using the literature, generation of new knowledge and concept and centralization of data.

A successful knowledge management implementation in an educational institute is a bigger challenge when compared with commercial outfits.

Collaboration of Educational Institutes, Industrial Organizations and Government in Knowledge Sharing

To share knowledge means to learn, understand, extend and repeat the information, the ideas, the views and the resources with each other, connected with, on a specific ground. Due to globalization and use of ICT the whole world has become one village and communication has become fast. Globalization demands that our society needs to move faster, work smarter and take more risks than at any time in our history. Earlier due to communication gap in research area duplication of research occurred. But now with open access moment everyone is sharing his knowledge with others through internet media and so it is obviously good for research development. Universities, publishers, libraries and individual researchers started sharing knowledge in the form for consortia, associations, groups with all. The changing research culture playing important role in knowledge sharing as day by day knowledge is adding new dimensions from the corners of the world in every field.

Collaboration between Universities, Industrial organizations and Government can play an important role in the field of knowledge sharing. Knowledge becomes meaningful when it is utilized on practical ground.

The researchers invent it and the industrial firms' puts it in practice. Concept of collaboration for research work is not new. The relationship between Industries and Universities seems to be blossoming in many forms all over the world. Many countries like U.K., Germany, US, France, Japan, Canada, Brazil, South Africa are involved in this kind of collaboration on International level too. In India, attempts are made and efforts are increasing in this direction.

Collaboration is needed to pull out the knowledge from thesis to in practice. Knowledge which is generated in research works at university level lies in thesis unused in libraries. In Universities research work goes on and on haphazardly without any specific direction and coordination. Collaboration with industries gives specific direction to research speedily and

takes forward the knowledge to avoid reinventing and repetition of research work. It helps to grow knowledge faster which is very much essential for knowledge society. It flow fresh and pure knowledge directly from universities for industries and finally reduces the time for research at the industrial level.

According to Parekh (2009) collaboration helps in Sharing valuable knowledge, avoiding re-inventing the wheel, reducing redundant work and cost for invention, Creating knowledge with the help of experts and experienced persons, giving a right direction to the enthusiastic intelligent students, making them experts of future, solving problems aroused at primary level which will save time, money and man power. It gives idea of which kind of change industrial firms wanted? Which kind of problems they are facing and to solve it, which kind of research works they are expecting from the university will be cleared well in advance. Maximum production with the lowest cost is the main aim of all enterprises if they were raw materials, or machinery and technology or management deals. By collaborations, the firms will inform university and university will frame the research work as per the needs to fulfill the aim.

Role of university library is much more important in this kind of collaboration. University librarian is knowledge manager and act as link between various departments and industrial firms. Universities are making it compulsory to deposit one copy of all research work, papers, thesis, project reports, etc in the university library to maintain, preserve and share. Knowledge managers from enterprises or industries can access the available material in the library and inform the concern departments, faculties and research students. This way research work starts its journey.

After compilation of work, a copy of work will be given to the librarian. He then circulates that work to the party to apply the knowledge. For any help again researchers again contact to knowledge managers for further information and this cycle continues. Knowledge is generated, shared, used and again reused. In this whole work of knowledge life cycle library is an axis.

Colleges are abiding to send all information about research and other activities to the University. University conducts many activities to make staff and students participate in various activities to create new knowledge. It is necessary to maintain separate databases of tacit and explicit knowledge of students and staff year wise to colleges to report to University or any funding agency.

Efforts made by Government, UGC and RUSA in Developing KM

In relation to knowledge management and resource sharing Government of India has taken initiative in all departments. All Government organizations, ministries are providing maximum information on their website. That is beneficial to all citizens. Government is promoting use of technology in terms of funds and trainings too. Now affordable tablet PCs are boon to all school going children in India.

At International level India has started collaborative efforts in education like exchange (staff, students) programs, fellowships, scholarships, etc with major countries like USA, UK, and other exchange programs. UGC is calling research projects from the researchers to motivate them and making them available on their website too. Provides funding for conferences, seminars, etc which is for nothing but knowledge management and sharing activity. UGC CEC has a vast repository of 17000 educational video programs and nearly 1000 such programs are being added to this collection every year. Programs are telecasted through Vyas Higher Education Channel.

In the first phase of XIth plan UGC proposed to cover 200 Universities and 5000 colleges across the country for achieving the desired objectives by using Broadband, Wireless, DSL, Leased line/TDM/FTDMA VSAT/SCPC/DAMA/Radio Frequency link for establishing connectivity depending upon the geographical location for accessing global resources including multimedia based educational content though networking of colleges and universities and for providing platform for collaboration among teachers and students using communication networks and better access to e-contents, digitization of Indian Intellectual content (thesis/dissertations), union catalogues of books, serials, secondary serial, current holdings etc and other non-book materials for universities and colleges, providing audio/video conferencing systems at universities.

Through eprashala of inflibnet project http://epgp.inflibnet.ac.in/about.php MHRD, under its National Mission on Education through ICT (NME-ICT) has assigned work to the UGC for development of e-content in 77 subjects at postgraduate level. UGC gives funds about 7lakh per subject to the project investigator to create the content and its quality is the key component of education system. High quality, curriculum-based, interactive content in different subjects across all disciplines of social sciences, arts, fine arts & humanities, natural & mathematical sciences, linguistics and languages is being developed under this initiative named e-PG Pathshala. This is very good initiative undertaken by the MHRD and UGC to capture tacit knowledge of teachers in their subject and convert it in digital form (explicit) and made available to all students in India.

In 12th comprehensive plan of Rashtriya Uchchatar Abhiyan for the development of state higher education system for ensuring access, equity and quality. Among the many objectives of RUSA following are very much related to knowledge management and sharing.

- **Ensure governance, academic and examination (and evaluation) reforms and establish backward and forward linkages between school education, higher education and the job market.**
- **Expand the institutional base by creating additional capacity in existing institutions and establishing new institutions in un-served and underserved areas by way of up gradation and consolidation.**
- **Ensure adequate availability of quality faculty in all higher educational institutions and ensure capacity building at all levels.**
- **Create an enabling atmosphere in institutions to facilitate research and innovation.**
- **Integrate the skill development efforts of the government through optimum interventions.**
- **Promote healthy competition amongst states and institutions to address various concerns regarding quality, research and innovation.**

The criteria for sanctioning the various grants they asked to share the information of their institutes related to students and teachers, their research work, collaborative work, etc. Component 11 of RUSA is faculty improvement. States will be given funds to develop faculty, improve academic and pedagogical skills of teachers, and develop innovative strategies to enhance quality of teaching, research and innovation by teachers. States may select any of the existing training institution or even a university or Academic Staff College for this purpose

Under Component 16 Funds will be provided to create and maintain strong data systems at the State level for surveys and analysis that could provide information to the national MIS. The RUSA MIS and All India Survey on Higher Education (AISHE) will be integrated. Hence all the participating institutions/states will be mandated to participate in the AISHE and provide detailed information so that the data on State Universities and Colleges can be consolidated. Under this scheme up to 2crore Rupees sanctioned for each state to centrally designed information system to cover all participating bodies and institutions. To provide a common tool to generate standardized information that would help in monitoring progress of reforms, utilization of resources etc.

Aswath and Gupta (2009) mentioned that universities are faced with a challenge to create and disseminate knowledge to society. They need to share information and knowledge among the academic community within and outside the institution.

KM has become a key issue in the universities due to changes in knowledge culture. They are not isolated entities but engage in teaching, research and community services. Therefore, knowledge created in university through research and teaching should be relevant to the society, and promoting knowledge as a major factor of business of the university and higher education institutions. Many Universities like University of Pune already started giving maximum information through their website, websites. (Syllabus, notifications, student's portals, question papers, previous circulars, GR, guidelines, departmental information, etc). Libraries are started developing portal for sharing online available research material to their users. Similarly for the tacit knowledge sharing and collective efforts has to be made at each and every educational institute which is nothing but output to our research community and finally to the nation.

Key Factors in Developing KM in Institute

Chen and Burstein (2006), Aswath and Gupta (2009) discussed the issues related to successful KM strategy and suggested three components and key factors in developing KM i.e. people, policy/processes and technology. The component of people related to technology experts, knowledge professionals (teachers), knowledge managers (Library professionals), students etc. Technology covers all related technology which includes hardware and software packages (Roberson and Brun, 2005).

Culture is also an essential component while developing KM base (HUI King-Chung, 2001) which covers culture of openness, sharing of information, working in teamwork, motivation for contribution to knowledge base etc.

Steyn, G.M suggested following questions should be examined by educational institutions:

- **How do knowledge model skills of higher education institution compare to those of competitors?**
- **How does the commitment of top management of knowledge model compare to that competitors>**
- **What unique aspect of the university allows it to enhance or sustain high quality knowledge model practices?**
- **What knowledge model practices have to be enhanced or sustained to capitalize on these unique aspects of the university?**

KM Process

David Skyrme mentioned that KM process comprises processes of creating, discovering knowledge, knowledge sharing and learning, and knowledge organization. Creation and discovery of knowledge is characterized by data or text mining, content analysis, processes simulation, communities of practice, review, knowledge sharing, mapping of knowledge. Clark (2004) identified following four processes of knowledge management.

1. **Knowledge gathering or acquisition**
2. **Knowledge storage and organization**
3. **Knowledge distribution**
4. **Knowledge application**

Let's discuss these processes one by one.

Knowledge Acquisition or Gathering

It comprises discovering existing knowledge to know what we know, gaining knowledge from outside resources and creating new knowledge. Before gathering and acquisition of knowledge there is process called knowledge identification. In this process one needs to identify the information about knowledge that the organization has and what knowledge needs in order to become more competitive. Only the organization which identifies itself as a learning organization is capable of managing its knowledge.

Knowledge Storage and Organization

The knowledge acquired, gathered and created needs to be organized and store in the form of database which enable to access it at anytime and utilize it. For that application of technology and indexing skills requires along with adequate infrastructure.

Knowledge Sharing or Distribution

The created knowledge on individual level or gained must be shared and distributed in on organization or society in order to become usable. The main reason of sharing the individual knowledge to entire organization is that knowledge should not be disappear if that employee leaves the organization.

The scope of knowledge sharing should not be limited to organization but should be share among users, competitors, society and entire environment so that reinventing the wheels or duplication of efforts can be avoided and help in achieving better financial results.

Knowledge Application: Once the knowledge is shared among different group of people that knowledge should be apply for better return and create new knowledge and add new innovation to the knowledge database. If the gathered, stored, created and shared knowledge will not be applied properly the whole process will be in vain. So for proper application knowledge and KM process should be communicated to users.

KM process in any higher education system involves knowledge acquisition in which students and teachers acquires knowledge from Library resources like books, journals, reports, projects, theses and dissertations or we can say from Primary, secondary and tertiary resource and all online resources accessed from Internet. Students and teacher can create knowledge via classroom teaching or interaction. Various kind of activities are conducted in educational

institute to capture, create new knowledge and motive students to contribute to new knowledge area by conducting various activities like classroom teaching, brainstorming sessions, various competitions, projects, assignments, etc. All newly created knowledge should be stored in explicit form like digital form. This knowledge needs to map, analyze, classify, catalogue and at last this knowledge gets ready to share and apply. Different policies needs to be design and get sanction by the management of the college related to what kind of knowledge should be capture and preserved, how long it should be preserved, how to process it, etc.

Challenges in Developing KM

Though the KM practice is beneficial to all institutes including academic still awareness of its development is not yet practiced by college authorities. There is need to create knowledge sharing culture amongst the staff and students as they afraid to share and exchange their own knowledge. Use of ICT and development of advanced skills in teaching professionals for contributing, communicating, capturing, recording and sharing knowledge is lacking. A suitable policy need to be designed regarding the information and knowledge capturing and sharing among the academic professionals within organization using intranet or extranet for group of branches situated at different places under the same management. Infrastructure and technical help from ICT managers, network managers is necessity to all academics.

Moreover, the educational system is now a day's becoming market oriented. They are responsible for student's and staff's achievements. They are answerable to higher governing body. So there should be motivating environment among educational institutes. Faculties are challenged today with different pressures of globalization, extracurricular activities, research, interdisciplinary subjects and complexity of global education market. Educational institutes are now becoming entrepreneurs. Gibb, A A stated in 2005 that global competition pressures are spread in three categories Individual response, Organizational response and Social response.

New demands from educational institutes are preparing students for lifelong learning, distance learning and short educational as well as professional courses and training, global mobility, adaptation of different cultures, part-time job, work in different organizations , increasing employability of graduates so that they will able to take family as well as social responsibilities, giving them value education. Salmi in 2000 mentioned new challenges to educational institutes and organizations in today's knowledge economy are globalization, growing significance of knowledge and information-communication technologies.

Professional knowledge, capabilities of educational institutes and research created or output has become key factor to the success of an educational institutes. Therefore fundamental need for managing knowledge and make available and accessible necessary knowledge and make use of that knowledge for problem solving or creating new knowledge. Gibb, A A rightly said in 2005 that in 21st century the power of successful educational institute depends on its ability to create, manage and use knowledge in the most effective way.

Knowledge Manager looking after this activity needs following skills;

- **Leadership to assemble information and policy development**
- **Friendly association with staff and student to share views regarding knowledge repository**
- **Create the knowledge base by involving contributors to add their knowledge**

- **Knowledge of ICT and Web designing technology to be sheltered for the proper growth and management**
- **Data analysis, mapping, mining, linking and repackaging to be practiced**
- **Knowledge of copyrights**
- **Dissemination of knowledge though various means to be practices**

The Suggested Process for Knowledge Management in Academic and Educational

Based on the various considerations to develop a KM or IR or a knowledge base for an academic institution in the ICT era and digital media it is found economical and useful similarly new emerging strategies which enhanced the accessibility to traditional, grey and institutional knowledge by developing open access to literature. Self archiving trends, sharing of thoughts using web tools are added in the process of KM development.

Developed countries have managed KM however developing countries are pursuing to this activity. In India among many projects few projects like "Shodh Ganga", "Vidya Nidhi", "TKDL" projects and scholarly communications in the form of different publications, are developed to communicate information to users. To support such activities educational institutes have to initiate the development of KM base, which may be benefited to develop a network of knowledge developed at academic institutional level using technology. A preliminary effort towards development of KM model for an academic institution is tried in this article considering the suggested based of Chen and Burstein (2006) and others.

In this model various components have been considered from knowledge generation/creation, capture, store/assembly, repackaging, and sharing/disseminating/exploring/exploitation. This knowledge is better used for learning, teaching and regenerating new knowledge base. Since, explicit knowledge is handled by library and information centers on the similar grounds tacit knowledge as well as explicit grey knowledge developed at institutional level need to be managed by library professionals along with network or ICT managers. The components of the model involves like generators of information from academic faculty, data compilers related to Knowledge Management and librarian, information or knowledge repackaging or mining library activities and finally technological assistance to develop databases or IR or KMB etc.

The development of KM needs factors like information, domain experts from library and technology, collaborations with departments, team of staff, and concepts of data mapping. These are basic factors required for development of effective databases, knowledge bases as well as repositories, portals, gateways, websites etc. Leading factor for development of KM is library and information centre and librarians and information experts who can handle and categories the implicit or tacit knowledge generating in an organization and record it properly using standard methods. Various skills are also required like data capture, data analysis, data categorization, data mining, data mapping, knowledge mapping, concept mapping, indexing, linking and repackaging are only reared by library professionals hence every academic organization shoulder this task to library professionals for effective use of tacit knowledge. But proper support from management, administration, technical advisors, computer experts, software developers should coordinate with library professionals in this activity.

Further, motivation factor is also to be considered by the management. Various practices and trends are also useful for knowledge management purpose like generation of IR, data repositories, digital repositories; web tools (RSS Feed, Blog, Twitter, Facebook, social networks, moodle, Drupal, Blackboard, etc), development of portals, knowledge gateways, links to search engines and web/Internet based information resources, user groups, subject

groups, expert groups, grey literature. An organization can develop its own portal or webpage giving links to internally developed databases and links to different institutional repositories. Tools and techniques required for developing KM are finance, ICT Infrastructure, standards, information tools (Directories, dictionaries, etc), human resource, physical space (library, departments). The benefits gained due to development of knowledge repositories in the institute are many but prominent benefits are;

- **Better return on investment**
- **Better bibliographic control of tacit knowledge**
- **Better dissemination of organizational goals and practices**
- **For providing value added services**
- **Sharing valuable knowledge among different types of users and develop collaborative practices**
- **Avoid reinventing the wheel**
- **Solving problems using the literature**
- **Generation of new knowledge and concept**
- **Centralization of data**

The role of knowledge professionals and managers in developing KM is to coordinate the information related activities and clustering the data properly. But the main challenge is to capture tacit knowledge and manage it in developing repository. Copyright issue is also to be taken into consideration while capturing and presenting knowledge. The knowledge professionals needs to capture different skills like information retrieving, evaluation, analyzation, organization, collaboration and security and safety of data and ICT skills etc for proper management of knowledge. The coverage of literature in the repository depends irrespective of types and formats published in local institute and parent organization. Directories and dictionaries of organization, staff related activities, reports submitted to various organization, rules and policies, different training material, syllabus, question papers, e-learning material, maps, charts, organizational structure, lectures, educational videos and OPAC of the library. However, while developing knowledge base few elements to be considered are consistency, interactivity, user friendly interfaces, simplicity, flexibility, accuracy and timeliness and currency of data is to be maintained (Aswath, 2009)

CONCLUSION

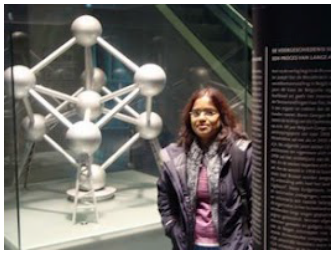
Higher education is a center of knowledge creating, delivering, and learning for society. On international level too knowledge sharing policies between two and more countries are going on. For the development of nation it is must. Discussions and exchange of information is very common among staff, students and scholars now days. This is the base for the generation of innovative concepts. Through open access movement everyone is able to access the information through internet. But at local and institutional level attempts are required for capturing tacit knowledge of individuals and sharing for new vision.

In today's open access system every researcher and user are getting information at their finger tips. For the development of country all western countries has already taken initiative to share the knowledge online which helps in avoiding repetitive work and better products are coming out. Open Access initiative is boon to researchers and if at every organizational level the better management, use and sharing of available resources/knowledge both explicit and tacit occur it leads to overall development of educational system and nation at fast speed. Knowledge plays a crucial role in the progression of institutions. The process ofknowledge sharing plays a

significant role in determining the outcomes of knowledge management in institution. Universities and colleges are the core producers of new science. So at every organizational level such attempt has to be made for the benefit of working team and society.To maintain institutional tacit and explicit knowledge use of ICT, web technology along with digitization technology will help to search and give access to it. Each and every student and staff should be participating in this activity. It is not sole activity of any single person but it is collaborative activity.

Time to time audit of this knowledge is needed by the concerned experts. KM in educational institute will surely help in various report generation, strengthening alumni association, improving employability of students, to improve quality of staff and students performance, decision making and problem solving, generating funding and industry academia collaboration.

BIODATA and CONTACT ADDRESSES of the AUTHOR



Sangeeta N. DHAMDHERE is currently a Librarian and Associate Professor at Modern College of Arts, Science and Commerce, Ganesh-Khind, Pune, India. She has more than 13 years of experience as a librarian. She has completed computer-related courses and has expertise in library automation and digital libraries. She has published about 30 papers in national and international journals and conference proceedings and published one book with IGI Global, USA. In 2008, she received a VLIR fellowship to attend the International Training Program STIMULATE-8 in Brussels, Belgium. She is a member of a few LIS National and International associations and is presently pursuing her PhD and multiple research projects. She is an Editorial Board Member of few reputed international peer reviewed journals, and magazines.

Ms. Sangeeta NAMDEV DHAMDHERE
Librarian, Modern College of Arts,
Science and Commerce, Ganeshkhind, Pune, INDIA
Mobile: + 9109822935320(M)
Email: modernlibrary.sangeeta@gmail.com

Author's note for Financial Support
To undertake this project financial grant is provided through the Board of Colleges and University, University of Pune, Maharashtra, India.

REFERENCES

Alhammad, F, Faori, S. & Abu Husan, L. (2009). Knowledge sharing in the Jordian Universities, *Journal of Knowledge Management Practice*, Vol.10, No. 3.

Alhawary, F. A. & et al, (2011). Building a Knowledge Repository: Linking Jordanian Universities Elibrary in an integrated database system, *International Journal of Business and Management*, 6(4), 129-135.

Aswath, L. & Gupta, S. (2009). Knowledge management tools and academic library services, *ICAL 2009-Vision and roles of the future academic libraries*.

Biloslavo, R. & Trnavcevic. (2007). A Knowledge Management Audit in a higher educational Institution: A Case Study. *Knowledge and Process Management*, 14(4) 275-286.

Bircham- Connolly, H. & Corner et al. (2005). An empirical study of the Impact of question of question structure on recipient attitude during knowledge sharing. *Electronic Journal of Knowledge Management.* Vol. 32(1) pp 1-10.

Branin, J. J. (2003). Knowledge Management on Academic Libraries: Building the knowledge bank at the Ohio State University. *Journal of Library Administration*, 39(4), pp1-56.

Cavell, S. (2002). *Knowing and Acknowledging: Must We Mean What We Say?* (Cambridge University Press, Cambridge), 238–266.

Chen, F. & Burstein, F, A. (2006). Dynamic model of knowledge management for higher education development. 7th International Conference on Information Technology Based Higher Education and Training, 10-13 July 2006.

Chow, W. & Chan, L. (2008). Social network, social trust and shared goals in organizational knowledge sharing. Information and management, 45(7). pp458-465

Consortium for educational communication. Higher Education Channel. Accessed at http://www.cec-ugc.org/ on 12th November 2011 at 8.35pm

De Lusignan, S. & et.al. (2002). A Knowledge Management Model For Clinical Practice. *Journal of Postgraduate Medicine*. Pp297-303CB.

Duffy, J. (2000). The KM technology infrastructure. *Information Management Journal* 34(2); P62-66.

Gates, B. (2000). Remarks by Bill Gates. Intel eXCHANGE e-Business Conference San Francisco, Calif. October 12. Available at: http://www.microsoft.com/presspass/exec/billg/speeches/2000/10-12intelexchange.aspx

Geng, Q. (ed.) (2005). Comparative knowledge management: A pilot study of Chinese and American universities. *Journal of American Society for Information Science and Technology*, 56(10), pp1031-1044.

Gibb, A A. (2005). Towards the entrepreneurial university. Entrepreneurship Education as a lever of change. Available at http://www.ncge.org.uk

Guidelines for innovative/emerging areas during the XI plan period (2007-2012) accessed at http://www.ugc.ac.in/financialsupport/xiplan/innovativeprogremme.pdf on 12th November 2013 at 8.45pm

Gupta, S. & et.al, (n.d.). Knowledge Management in Academic Institute and Role of Knowledge Managers. Pp 153-160 Accessed at http://library.igcar.gov.in/readit2007/conpro/s5/S5_1.pdf

Jussilainen, M. (1999). Intranet as a tool for knowledge management: the case of the Council of State in Finland", International Online Information Meeting, 23, pp111-16.

Hassandoust, F. (2011). Online Knowledge Sharing in Institutes of Higher Learning: A Malaysian Perspective, *Journal of Knowledge Management Practice*, 12(1).

HUI King-Chung, Z. (2001). Knowledge management to be needed in on-line education. A press conference at MIT on Wednesday, April 4th 2001.

Kidwell, J. J. & et al, (2000). Applying corporate knowledge management practices in Higher education, *Educause Quarterly*. 4, 28-33.

Knowledge. (2013). Accessed on 12-10-13. http://oxforddictionaries.com/view/entry/m_en_us1261368#m_en_us1261368

Knowledge. Wikipedia. http://www.wikipedia.org

Knowledge management on-line open source: Why Knowledge management. Accessed at http://www.knowledge-management-online.com/index.html on 7th Sept and 18th Oct 2012.

Lau, A. & Tsui, E. (2009). Knowledge management perspective on e-learning effectiveness. *Knowledge based systems*. 22(4), pp324-325

Liaw, S; Chen, G. & Huang, H. (2008). User's attitude towards web-based collaborative learning systems for knowledge management, *Computers and Education*, 50(3), pp.950-961.

Mass, S. & Testa, S. (2009). A knowledge management approach to organizational competitive advantage: evidence from the food sector. *European Management Journal*. 27(2). pp129-141

Nonaka, J. & Takeuchi, H. (1995). *The Knowledge-Creating Company*, Oxford University Press, New York, USA, 1995.

Parekh, R. (2009). Knowledge sharing: Collaboration between Universities and Industrial Organisations, ICAL 2009: Vision and roles of the future academic libraries. (2009) 147-151.

Patel, M. (2011). To Share or Not to Share Knowledge: An Ethical Dilemma for UK Academics? *Journal of Knowledge Management Practice*, 12(2).

Petrides, L. A. & Nodine, R. T. (2003). *Knowledge management in education-defining the landscape*. The institute for the study of knowledge management in education, Half Moon Bay.

Rashtriya U. & Shiksha A. (RUSA): Draft Guidelines for Consultation (2013) by Government of India. Ministry of Human Resource Development.

Robertson, S. & Caroline, B. (2005). Developing the knowledge management environment, *NLH Knowledge Management. Specialist Library* (Jul-2005)

Rowley, J. (2000): Is higher education ready for knowledge management? *International Journal of Educational Management*, 14(7), pp325-333.

Serban, A. M. & Luan, J. (eds.) (2002). *Knowledge management: Building a competitive advantage in higher education*. New Directions for Institutional Research, No. 113. San Francisco: Jossey-Bass.

Skyrme, D. (1998). "Knowledge management-a fad or a ticket to ride?" available at http://www.skyrme.com/pubs/iis0298.htm

Spark: How Open Access Benefits Researchers http://www.arl.org/sparc/students/researcherbenefits~print.shtml accessed on 4/11/11at 12.00noon

Steyn, G M. (n.d.). Harnessing the power of knowledge in higher education. *Education*, 124(4), p.627.

Tseng, S. (2008). The effects of information technology on knowledge management systems. *Expert Systems with applications*, 35(1&2), pp150-160.

Yu, T, Lu, T. & Liu, T. (2010). Exploring factors that influence knowledge sharing behavior via web logs, Computers in human behavior, 26(1), pp.32-41.

Ziggy, HUI King-Chung Knowledge Management to be needed in on-line education. Press conference at MIT (2001).