Professional Education in Higher Educational Institutions: A study on Knowledge Management through E-Governance Model

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Abstract- In recent times, higher education is not favourable time period. Various challenges and pressures are associated with it. Professional Education requires collaborative use of workers, employees in an organization or company. The key professionals involved in knowledge management programs are information technologists and human resource manager including information professionals. So, there is great need to maintain indulgence and adoption of latest standards in field of professional education so as to gain global leadership positions.

In simple words, Knowledge Management (KM) is task of developing, sharing and analyzing knowledge obtained through individual's experience within organization. The following paper revolves around the conceptual framework in lieu of Knowledge Management (KM) practices in various B-Schools and universities in Delhi like Jamia Milia, GGSIPU, Delhi University, JNU etc.

In this paper, e-governance model and its application on professional education has also been presented. E-governance is best approach for bringing transformation to employees' lives. It may lead to interaction of organization in process of education plan and management of institutions.

Keywords- Knowledge, Knowledge Management (KM), Information and Communication Technologies (ICT), E-Learning, E-Governance.

Literature Survey

It seems that golden period when educational institutions are treated as temples of education has gone from our lives. With increasing conditions of marketplace and latest technology trends, educational institutions have become shops serving educational business.

There are several studies and efforts led on KM principles and techniques towards learning education. But, concept of Knowledge Sharing has not been defined. Knowledge Management (KM) is sea of concepts and practices used in universities to perform following strategies [1]:
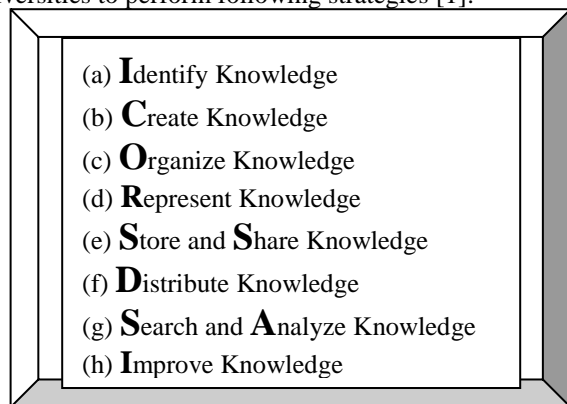

(a) **I**dentify Knowledge

(b) **C**reate Knowledge

(c) **O**rganize Knowledge

(d) **R**epresent Knowledge

(e) **S**tore and **S**hare Knowledge

(f) **D**istribute Knowledge

(g) **S**earch and **A**nalyze Knowledge

(h) **I**mprove Knowledge

Fig1: Strategies of Knowledge Management (KM)

All strategies employ methods and Software tools for promoting KM in higher education systems. Various universities have failed to cross first step of KM (i.e. identification) due to lack of technology, infrastructure facilities, lack of communication and business techniques. Various views by different professionalists are given as:

- In most organizations, the key professionals involved in knowledge management activities are human resource managers, process & product developers, and information technologists (Taylor, 2001)
- Kautz (2002) investigated the use of an IT-supported knowledge management system (KMS) that is embedded in knowledge management framework in a large, global IT consulting company.
- The implementation of an appropriate knowledge management program in universities has potential of improving student's actual knowledge, improving managerial skills and contributes to global position in marketplace (Heisig & Vorbeck, 2001).

I. INTRODUCTION

With advent of time and era of Internet, students prefer receiving information quickly. They wish ti perform multiple tasks at one time, low tolerance of lectures and depends on ICT [2]. So, universities need to expand

themselves in terms of skills and knowledge. The way of managing information by any institution is also one of crucial factor in estimating the ranking of a given institution. It is directly connected to KM as KM is effective allocation of resources like staff, lecture details, courses, student's information etc.

The faculty members in various colleges must not adhere themselves to conventional education techniques. They must provide flexible teaching to students with the help of modern computational methods and analysis tools. There are various issues that need to be notices like:

- Various approaches in KM area
- Pros and cons of these approaches during implementation.
- Reasons to use KM principles.

There are two factors that can make any university to limit sky in terms of knowledge and skills are: Availability of technology and Knowledge Management (KM). Some universities have benefitted themselves by investing in knowledge resources while some of them are facing challenges.

Fruitful plans and recommendations should be made in all universities to improve knowledge sharing and reform decision making.

The following sections of paper are as follows: Section 2 gives brief description of KM and its importance in higher education. In Section 3, various approaches of KM are presented. It lists improvements that should be carried out within institution itself as well as by government. Section 4 deals with e-governance model and its application in increasing growth of education in universities. Section 5 concludes about following paper.

II. HISTORY OF KNOWLEDGE MANAGEMENT

The word Knowledge Management (KM) is derived from two words- Knowledge and Management. Knowledge in turn is derived from Data and Information. **Data** is raw information related to any topic. **Information** is linked data set made from raw data. Do not mix terms information and knowledge. Information is not Knowledge. **Knowledge** is defined as selecting suitable information and applying it to given problem. Knowledge management (KM) is a collection of processes that govern the creation, dissemination, and utilization of knowledge in an organization (Newman, 1991).

Knowledge is defined as perception/understanding that is gained through some experience or performing some studies and analysis. Management means how to manage knowledge in an efficient manner i.e. how given knowledge is to be **developed, shared and analyzed (DSA)** to enhance the quality of education.
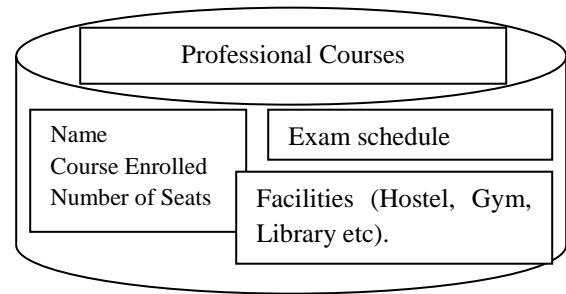
KM is an alarming topic in management area.

Fig 2: Sample of Professional Knowledge Repository

2.1 Issues that hinders growth of professional education in Institutions

Following are issues that hinder the growth of any institution in implementing KM programs [3]:

(a) Failure to maintain collaboration with institutions objective and KM tools: - It means that institution authority spends time and money on those things that have minimal impact on student's performance instead of spending time and money in developing and using KM tools.

**(b) Development of Online Software without knowing the methodology and design of KM practices**.

(c) Dependent on Online Training Programs: - Many institutions focus more in organizing online training programs for student's education. Although It is one of KM tool but significant learning and knowledge is achieved only when student interact with teachers to solve problems. Institution must try to make students more responsive towards teachers**.**

2.2 Benefits of KM in professional education

- KM helps university to gain appropriate information as well as knowledge and applying those using Knowledge Management System (KMS).
- It helps teachers and students to search basic documentation knowledge in less time.
- It makes efficient use of ICT methods to create new innovation theories related to education.
- KM plays vital role in main tasks of any university – Teaching and Research. In context of teaching, it uses various KM tools to facilitate e-learning portal and online transformations at university level. In context of research, seminars, survey are organized and information is distributed to all phases of university.
- It creates modern picture of institution accomplishing latest technology trends for KM.
- It makes knowledge learning interactive and easier among students.

### III. APPROACHES OF KM IN HIGHER EDUCATION

There are mainly three approaches of Knowledge Management (KM).
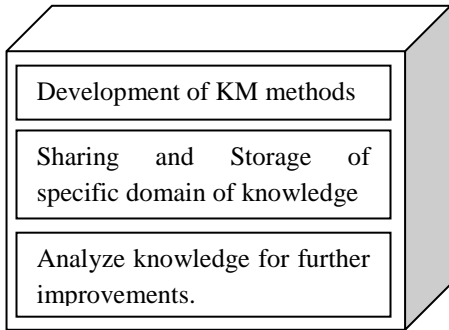

Fig 3: Approaches of KM

(a) Development of Knowledge Management Methods: - It is done with the help of technical experts to develop some e- learning portals for teaching students. Here, we have described about e- learning teaching application that is used in some universities like IPU, JNU etc.

It is web based application that distributes entities of knowledge into different independent modules. E.g. Separate modules for Student Corner, University Corner etc.
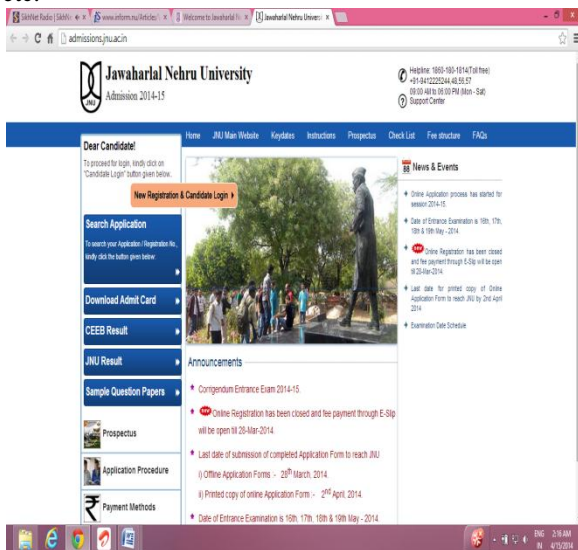
Fig 4: Information Management (Website) of JNU

(b) Sharing of Knowledge: - This approach uses KM tools like email, video conferencing, blogs, chat servers to facilitate the interaction and involvement between faculty and students. This method of visualization increases ability of students to learn from their teachers in existing environmental conditions. It is one of vital factor for improving management of higher education in various Delhi universities.
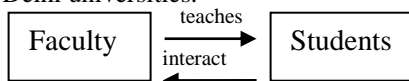

It is two-way process.

Shared Knowledge is stored in form of repositories.

(c) Analyzing Knowledge: - We have developed e- learning teaching portal but after analyzing knowledge obtained through application, we have noticed some of its bottlenecks. They are as follows:

- No face to face interaction between faculty and students.
- Lack of confidence among students to present their knowledge in front of teachers.
- Students become independent of teachers because they can access assignments, lectures, and study material from online portal thus reducing teacher-student relationship.
- It may be possible that online portal is developed only in English language which makes difficult to understand by all students.
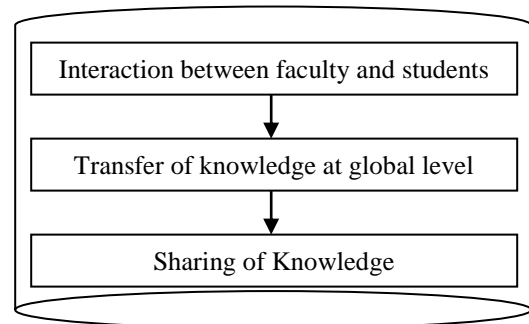
Fig 5: Backbone of Educational Institutions

3.1 Focus areas to enhance professional education development

- Determine degree of involvement of teachers, information professionals in KM activities within institutions.
- Lists various roles performed by professionals.
- Encourage students to learn from the skills and activities of professional teachers.
- Factors inhibiting the participation of professionals in KM activities.

3.2 Improving KM in Professional Education

(a) Improvement within institutions

- There should be some features like decision making, rewards, prizes based on student's assignment and presentation to their teachers.
- It will increase enthusiasm and interest of students regarding their studies.
- Poster competitions, writing research papers and organizing research funded projects by institution may help to improve higher education and increases thinking ability of students.

- There must be high quality, interactive application modules over Internet for students in institutions.
- Virtual learning tools (editors, converters) should be used in universities to provide educational content, online information etc.

(b) Improvement by Government

- Every institution must be approved by governing agencies like AICTE, UGC.
- Government must eliminate the gaps among different levels of colleges in India like some colleges are owned by trust and some are running without any affiliation from govt. departments. Various professional courses must be introduces in colleges.
- All institutions should be equally funded by govt. thus providing all essential KM facilities to students.
- Govt. should select students from various institutions based on their academic performance and technical activities.
- Students must be given opportunities to show their talent in government aided research projects like DST, MHRD etc.
- Govt. must introduce fee waiving system for reserved categories students/ financially weak who wants to study in their lives.

IV. CONCEPT OF E-GOVERNANCE

Applying effective and electronic methods of ICT for strengthening the performance of educational institutions is termed as E-Governance [4]. Performance of educational institutions covers aspects like management, administration, responsiveness towards students and curriculum activities.

Due to ample amount of colleges/universities in recent years, e-governance has lost its scope. So, it is duty of government to keep record of colleges and prescribe certain measures to improve student's academic performance. Indian education system must be eco-governing.

4.1 Why there is need of e-governance?

For last decades, education is growing like a business tree. Root Node of tree is Director of respective institution and its child nodes are Professors who are guiding students in non contiguous manner. They are only concerned about their salaries instead of learning capabilities of students.
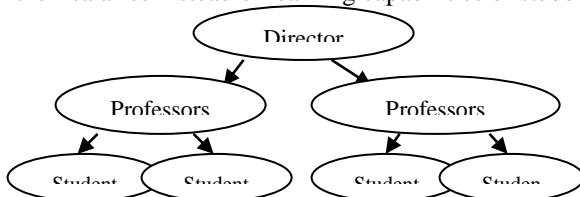
Fig 6: Education Tree

After this one question arises: **Is Computerization and E-Governance are same?**

The answer is NO. Computerization means use of computers only. It replaces existing methods/norms by introducing facility of online methods. It does not take into account about needs of students and institutions.

E- Governance modifies as well as creates new system by using services of ICT according to student's and college requirements. It reduces manual management as well as increases operational efficiency.

4.2 E-governance Model

Basic e- governance model is based on applying electronic methods on three groups' viz internal operations of Government (G2G), External methods between Government to Consumers (G2C) and Government to Business (G2B). Consumers mean students, professors and other information seekers in field of education.

Table 1: Internal vs. External Methods

INTERNAL METHODS	EXTERNAL METHODS
This mode of interaction reduces cost of sharing views among different governments. They can internally resolve matters.	This mode can be treated as creating awareness among various institutions regarding the management, admin, staff etc of respective colleges. It can be done in form of seminars, workshops (Faculty Development programme) organized by various colleges.

For better functioning and increasing involvement of government, there are some govt. based models like Gartner Model, Howard Model etc. which uses ICT methods to implement e-governance in higher education system.

The model has following phases:

(a) Information (Lowest Complexity):- It is based on external operations (G2C, G2B). G2B means government will consider various aspects for giving quality education to students like Course Details, Results, Facilities (Library, Gym, and Hostel), Research Facilities (Seminars, Publications, Thesis). It is termed as Information Management that emphasis on storing and delivering of information related to following aspects:
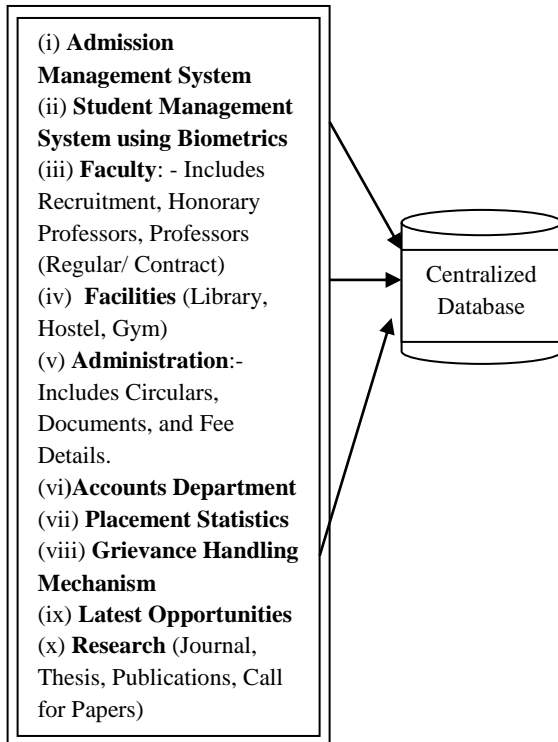
- Information about govt. central schemes for career advancement.
- Student Fellowships programme and scholarships.

Government agencies like AICTE, UGC must provide affiliation to various colleges and prepares Management Information Systems (MIS) of above given aspects.

(b) Interaction: - It interacts with regulating govt. bodies as well as provides two way communications between students and teachers. Affiliated institutes are made to send monthly reports, their demands, and approval to UGC, AICTE.

(c) Transaction: - The model introduces e-filling of application forms and depositing fees. There is no need to go bank to deposit fees. Students can upload their photo and signature while filling application forms.

(d) Transformation (Highest Complexity): - It includes development of online MIS for various colleges that is divided into following modules:

(i) **Admission Management System**
(ii) **Student Management System using Biometrics**
(iii) **Faculty**: - Includes Recruitment, Honorary Professors, Professors (Regular/ Contract)
(iv) **Facilities** (Library, Hostel, Gym)
(v) **Administration**:- Includes Circulars, Documents, and Fee Details.
(vi) **Accounts Department**
(vii) **Placement Statistics**
(viii) **Grievance Handling Mechanism**
(ix) **Latest Opportunities**
(x) **Research** (Journal, Thesis, Publications, Call for Papers)

→ Centralized Database

Fig 7: Sample of MIS in various Universities

Our aim is that data stored in MIS is centralized / integrated so that regulating bodies and students can access particular information at one place. This MIS must be updated weekly like Student's Placement Statistics, Fund allocation etc.

Transformation
Transaction
Interaction
Information
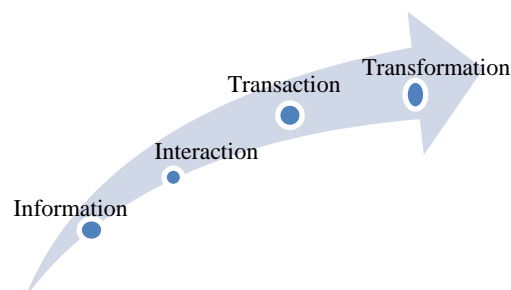
Fig 8: Phases of E-governance Model

4.3 Role of E-governance Model in Professional Education

- This model is developed by government in collaboration with participating industries and other funded organizations. So, this model is suitable to meet all the requirements of institutions according to present scenario of ICT.
- The model has centralized database that makes retrieval of educational aspects easier.
- Centralized database consisting of MIS of various colleges will keep the updated credentials related to student's management.
- Provides services covering all aspects of quality education like job opportunities, physical as well as mental fitness, personally development training to students. For giving latest job opportunities, institutions must have collaboration with companies.

V. CONCLUSION

The paper makes readers aware of Knowledge Management Principles in field of education. Various approaches and improvements are described in paper in order to cope with latest trends of technology and growing demands of students in universities. To avoid students going to different private coaching centers, there is crying need to use Knowledge Management Principles. There are various KM tools like video conferencing, chat servers, blogs, social networking sites that helps in improving extent of communication and learning among students. If knowledge is managed in efficient way, then it becomes easier for student and teachers to access facts, information and solutions. Knowledge is managed by using Knowledge Management Systems (KMS) that can be Document based, Ontology based or Artificial Intelligence based.

Apart from KM approaches, E-governance is one of crucial factor for enhancing quality of education in universities. To apply e-governance in education system, we must create technical and management skills that can replace the traditional skills and practices. The courses like 'E-Transformation and Management' must be introduced in various institutions to create awareness about e-governance. E-governance model has been shown in paper with its phases and their application to support institutional transformation.

Being citizen of India, let's take pledge to make India-KNOWLEDGE POWER NATION in upcoming years.

REFERENCES

[1]. Liao S.-h. (2003), "Knowledge management technologies and applications—literature review from 1995 to 2002", Expert *Systems with Applications* 25 (2003) 155–164.

[2]. Boynton, A. "Exploring Challenges in Knowledge Management" *How to Get Started. in Knowledge Management Symposium,*. IBM Consulting Group, Sydney, 1996

[3]. Kumar A. and Kumar A. ―IT based knowledge management for institutions of higher education: A need, University News, Vol. 43, No. 30, pp.4-5, 2005.

[4]. Satyanarayana J., ―E-Government: the science of the possible, PHI, New Delhi, P-6, 2004.

[5]. Gronlund, A. and Horan, T., ―Introducing e-Gov: History, Definitions, and Issues‖, Communications of the AIS, Vol. 15(39), pp. 713-729, 2005

[6]. Neilson, R., "Knowledge Management and the Role of the CKO"*,* NDU, 2001.

[7]. Subrata Kumar Dey et al., ―Conceptual framework for Introducing e-Governance in University Administration‖, ICEGOV2008, Cairo Egypt., December 1-4, 2008.

[8]. Earl, M. (2001) 'Knowledge management strategies', *Journal of Management Information Systems*, Vol. 18, pp.215–233

[9]. Wiig, K., "Knowledge Management: An Emerging Discipline Rooted in Long History", in *Knowledge Horizons: The Present and the promise of Knowledge Management*, C. Despres and D. Chauvel, Editors, Butterworth-Heinemann, 2000

[10]. Milam, John H., Jr., 2001, "Knowledge Management for Higher Education", ERIC Digest ED464520

[11]. Nakkiran, N.S., Sewry, D.A., 2002, "A Theoretical Framework for Knowledge Management Implementation", Proceedings of SAICSIT, pp. 235-245

[12]. Yeh, C.M.Y., 2005, "The Implementation of Knowledge Management System i.9, pp. 35-41.

[13]. Rajeev S., e-governance in higher education‖, published at http://egov- coe.ncc.gov.ph/index.php? option= com_content& task=view&id=55&Itemid=1

[14]. Battey, J., "Governing with e-speed" ,InfoWorld 2001.

[15]. Sargenti Patrice, Lightfoot William and Kehal Mounir. (2006) 'Diffusion of Knowledge in and through Higher Education Organizations', *Issues in Information Systems*, Vol.3, No.2, pp.3-8.