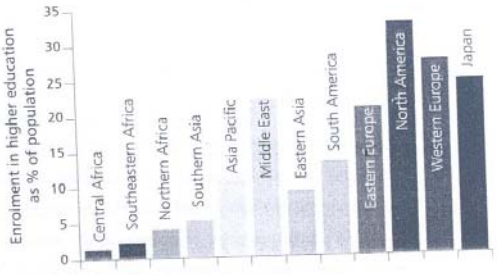
Proceedings of the

International Conference on Higher Education (ICHE-07)

12th - 14th July 2007

Global Enrolment in Higher Education



Global Higher Education Spending

As per UNDP Human Development Report

Organized by

Centre for Continuing Education
Indian Institute of Science,
Bangalore - 560 012

Effecting KM Interventions for Sustaining Quality in Institutions of Higher Education

A Kumar*, S Verma*, S Varma* and A Kumar**

* Indian Institute of Information Technology, Allahabad, U.P., India

**MONIRBA, Allahabad University, U.P., India

Abstract

Increased stakeholder concern about return on investment in a resource constrained environment fraught by the challenges of Globalization, Information Explosion and Accountability, has reinforced the concern for quality in Institutions of Higher Education (IHE). While considering the quality parameters propounded and accepted by acclaimed bodies, the present study explores the characteristic areas that most frequently impact Quality in IHE. Knowledge Management (KM) interventions have been evaluated for such characteristic constituent areas of an IHE viz. Curriculum Development, Institutional Research and Development, Institutional Planning, etc. and their role and extent for effecting quality has been established. A questionnaire elucidating the relevant areas and processes therein was sent to persons sensitive to higher education. Based upon statistical analysis of the responses received, KM interventions in each area have been prioritized. Further, such KM interventions which spread across multiple constituent areas of IHE have also been identified as would affect quality in general. The study claims that the identified KM interventions shall not only give a complete facelift to the way in which IHEs are today run and managed, but also assist them in sustaining quality as demanded by society and other stakeholders.

Key Words: Institutions of Higher Education, Knowledge Management, Quality

Introduction

Institutions of Higher Educational (IHEs) are faced with the challenge of preparing themselves to fulfill their goals adequately in a changing world. In the new millennium, a plethora of factors are ushering changes that are affecting institutions of higher education [1]. The way these institutions respond to these challenges and adapt themselves to the changed scenario shall determine whether they will remain competitive and relevant in future.

The higher education system, especially the technical education system has been designed to respond largely to the requirements posed by the Industry. However, with the advent of modern day technology, the conditions

that defined and structured higher education institutions are changing and the expectations from education are being redefined. The major factors influencing the quality in IHEs are constraints in funding, increase in the cost of education, diverse student base, the augmented student population and the increased expectations of the stakeholders [2] [3]. The society, today, demands that higher education institutions, like all the other organizations, to respond to the fast varying needs of its stakeholders in particular and society in general.

With Information Technology today permeating in all functions and sections of the economy, IHEs are also being required to become amenable to it, to become more responsive and competitive to the changes driven by the emerging global knowledge economy and rapidly evolving technologies. In particular, to cater to a marketplace characterized by continual retooling of the workforce, IHE has to evolve new paradigms like distance learning that allow education beyond the confinements of the structured classroom. It must be able to respond to the social needs of a diverse student base with diverse needs. It has to increase its spectrum of programmes and offer courses, informal and interdisciplinary, which were never in the fold of traditional technical education [1].

Today, the government support of higher education is limited by a weak economy and other social priorities [2] [4]. This has put a constraint on the funding of IHEs. A shift to private funding or internal resource generation is set to redefine the relationship among the cost, price and value of education and ultimately on quality. The stakeholders in the form of society, students, parents and industry and government as patron want the IHEs to respond to this changed scenario positively without eroding the quality of education [3] [5].

In the Indian scenario, IHE are plagued by internal threats that need urgent attention. Different constituents of an IHE work in isolation and have low dynamics; teaching and learning processes and curricula are out of synchronization with the demands of the society and market; knowledge creation processes like research have become out of context; there is little or no response to societal needs and a general apathy towards quality exists.

The real issue faced by an IHE is, therefore, to sustain quality and achieve excellence in a resource constrained environment and adapt to the diverse needs and expectations of all the stakeholders [5] [6]. Thus, the development of a quality IHE comprises building and sustaining a higher education system that achieves an optimum balance between market forces and public policy. The system should be able to impart education that inculcates creativity and lifelong learning skills necessary to manage a changing and uncertain future. It must stimulate the knowledge creation and dissemination through research and innovation and stress this as a primary goal role of higher education.

This multi-objective multi-constrained problem cannot be solved by a part or a segment of an IHE working in isolation. The diverse goals are a function of every constituent of an Institution and require all the constituents to work synergistically. The goals manifest themselves only when one, the knowledge created by an Institution permeates in the society and two, when its products, i.e. the students, prove themselves in the market. Building and sustaining an IIHE cannot be based on such a temporally delayed feedback. In fact, the

principal components of an IHE that determine and define quality need to be identified. The underlying processes that constitute these segments should be managed to create and sustain an environment that facilitates quality. The institutionalization of these processes can drive innovation, facilitate teaching learning process, maximize operational efficiency and improve the support service. This entails that personal knowledge and best practices that are implicit and isolated in different components of an educational organization must be transformed into institutional knowledge and practices and widely shared to synergize the constituents and the organization. In other words, what is required is knowledge management based interventions in these areas [5].

The rest of the paper is organized as follows. Section 2 discusses quality; section 3 briefly dwells on knowledge management and maps the quality indicators to the areas of an IHE; section 4 deals with KM interventions in different areas and processes therein. Finally section 5 concludes the work.

IHE and Quality

The IHEs from ancient times have been the centers of mass education and have worked on the premise that though the education is a lifelong learning process, the one imparted through the on-campus oriented structured teaching and learning process is generally sufficient for the life time of the person. This fundamental premise, that an IHE equips enough to make student competent to face the challenges of predictable as well as unpredictable future, requires Quality.

Owing to increase in the number of aspirants for pursuing Higher Education and the declining availability of resources to match the demand, the HE system in India is experiencing the thrust on higher efficiency and improved responsiveness to the needs of students together with greater accountability to the society at large. A few decades back, the concern for quality was an internal affair of the universities, but with the avalanche of information becoming readily available now, there has been a growing consciousness over the 'Return on Investment' made on HE [7]. The concerns for quality are being expressed by all the Stakeholders, including Students, Parents, University Managements, prospective employers, funding agencies, governments, etc. alike [8]

No doubt therefore, that the formal concept of Quality had to be borrowed in Education from Industry. The British Standard BS 5750 and its international equivalent ISO 9000 have inter alia gained such attention in HE that in the modern times, they have become powerful marketing tools with the potential of placing all institutions acquiring this product quality symbol in a monopoly position in the business of Higher Education.

Two other terms which have come along with the concept of Quality are 'Quality Assessment' and 'Quality Assurance'. Both of them are complementary and supplementary to each other. While in Quality Assessment, both internal as well as external mechanisms are used to evaluate the overall performance of an HE Institution, Quality Assurance is looked upon as a continuous process of adopting various mechanisms/ procedures to improve academic standards and enhance institutional effectiveness [9]. With the concern for Quality still

growing 'Accreditation' of IHEs also came joined the academic parlance. Accreditation is defined as "a process whereby an agency or organization recognizes a college or a University on predetermined qualifications or standards" [10]. The Encyclopedia of educational evaluation [11] further defined accreditation as a process by which a program or institution is recognized as being in conformity with some agreed upon standards.

To effect, one or more of these practices, the search for Quality Indicators/ Parameters has gained momentum. Worldover agencies, governmental as well as non-governmental, have identified detailed qualitative and quantitative parameters as well as review procedures. In Europe, initial attempts were made by UK to externally review the quality of HE on the basis of performance of quantitative and qualitative indicators, by a peer group review i.e. Committee of Vice Chancellors and College Principals, later it become to be undertaken by Higher Education Funding Council and then by Higher Education Quality Council and finally, under the Framework of Quality Assurance Agency for Higher Education Australia, Finland and Federal Republic of Germany and other countries started to adopt the concept of External Quality Review (EQR) as well as self study. A voluntary organization named International Association of Quality in higher education was also set up to discuss the issues of assessment in HE. In order to certify institutions engaged in export of higher education, the Global Alliance on Transnational Education started certifying institutions engaged in higher education – popularly known as Internationalization Quality Review Process (IQRP). Monash University, Australia, University of Helsinki, Finland and few other Universities of Kenya and Poland also went in for IQRP [12]. In India, National Assessment and Accreditation Council (NAAC) was established by UGC and National Board of Accreditation (NBA) by AICTE, as a follow up of National Education Policy 1986 and Program of Action 1987.

NBA has emphasized on program based evaluation and assessment of Engineering Colleges and Technical Programs. It relies upon Human Resources, Students, Mission and Goals, Research and Development, Industry Institute Interaction, Teaching learning process, supplementary process, as its key indicators [13]. NAAC has adopted the approach of evaluating the Institutions. It has broadly defined its parameters as Curricular Aspects, Teaching-Learning and Evaluation, Research Consultancy and Extension, Infrastructure and Learning Resources student support and Progression, Organization and Management [14].

In India, ranking of IHEs based on surveys from institutions and HR professionals of top recruiters has also gained momentum. One such exercise undertaken by IDC India and Dataquest [15] considered student Placements, Infrastructure, Academic Environment/ Intellectual Capital, Industry Interface as the Quality Parameters for evaluating Technical Institutions in India.

In USA, parameters used to evaluate effectiveness in educational institutions include, Organization and Governance, Faculty, Student Services, Library and learning resources, physical facilities, Financial facilities, Ethical practices etc., South Korea considers Promotion of Efficiency in Teaching-Learning activities, Activation of research Activities, Supervision- Welfare activities and social services activities, Rationalization of administrative and financial management, Modernization of education conditions as important quality

indicators. [11]. Malcolm Baldridge Quality Assessment model relies upon leadership, Strategic Planning, Customer and Market Focus, Measurement, Analysis and Knowledge Management Human Resources, Process Management and Business Results [16].

In U.K., Committee of Vice Chancellors and Principals (CVCP) and the University Grants Commission (UGC) advocated and developed the 'performance indicators' to study largely the efficiency of universities and linked it to their funding. In Netherlands, there has been a great deal of debate on plans for introduction of performance indicators but little been admired. Australia has already set up a joint working committee of Directors and Principals to develop a set of performance indicators which shall be acceptable largely to all agencies involved. Govt. of Finland has proposed methods of evaluating the output of educational processes both in quantitative and qualitative terms. In Federal Republic of Germany and Sweden only self-evaluation is preferred [11].

Whenever and wherever, the system of Quality analysis been adopted, it has relied largely upon the outputs / level of achievements in the certain major Constituent Segments of HE. These segments were discussed in general in [17] and their relevance with regard to quality was established in the context of Indian IHEs in [5]. The constituents of the IHE are as follows. Institutional Planning and Development, Institutional Research and Development, Institutional Administration, Institutional Finance and Accounts Departments, Institutional Students Affairs, Institutional Academic Achievements viz. student placements and Curricular Development.

Knowledge Management in IHEs

To improve the outcomes and produce visible responsiveness in each of the aforesaid constituent areas against the backdrop of scarce financial resources, KM is proposed as a techno-management tool to assist.

KM has been defined by experts in many ways. The definitions relevant to the present context however include: In [17], KM is viewed as a process of transforming information and intellectual assets into the ones of enduring value. It is viewed as an entity's systematic and deliberate effort to expand, cultivate and apply available knowledge in ways that add value to the entity [18], in the sense of positive results in accomplishing its objectives or fulfilling its purpose. KM is also looked upon as a broad concept that addresses the full range of processes by which an organization deploys knowledge. This involves the acquisition, retention, storage, distribution and use of knowledge in an organization [19]. According to [20], KM is the explicit and systematic management of vital knowledge and its associated processes of creating, gathering, organizing, diffusion, use and exploitation. It requires turning personal knowledge into corporate knowledge that can be widely shared throughout an organization and appropriately applied. KM in an educational institution can therefore be thought of as a framework or an approach that enables people within the institution to develop a set of practices to collect information and share what they know leading to actions that improve services and outcomes [21].

KM Interventions

Organizational transformation is spurred by the need to manage change and strategic planning aimed at improvement. The KM interventions facilitate organizational transformation largely by sharing and transfer of knowledge to ascertain effective utilization through iteration between tacit and explicit knowledge, facilitated by Information Technology. The transformation of any IHE to satisfy the stakeholders and excel in the changed environment includes defreezing of the rigid processes, altering them to suit the new requirements and then refreezing the processes.

The quality performance of an IHE has well established and accepted quality indicators that are used to measure its quality. The quality is measured by assessing the functional performance of the constituents of the IHE as elucidated in section 2.

This black box approach gives a feedback on what is happening and not on how it is happening and may not be a true indicator of performance and quality. Quality assurance can be attained if the black box functional knowledge is coupled with the white box constructional knowledge to achieve quality.

The standalone performances of different constituents of the IHE are determined by indicators and measures [5] which are both subjective as well as objective in nature. The processes and KM interventions that imbibe these for different segments are given below as prioritised by the majority of the respondents (on scale of 1-10) in the survey:

1. KM interventions in Institutional Planning and Development: By maintaining a repository of -
   A. Data related to accountability and outcomes by monitoring and assessment mechanisms, performance indicators, etc
   B. Reports on benchmark studies, competitor data, links to researchers and research groups etc
   C. Reports and presentations made by various officials of the Institute, review committees, etc.
   D. Reviews made by external agencies viz. funding agencies, accreditation agencies, media, etc. about the Institute and its activities.

2. KM tools to improve Institutional Research and Development Process: By maintaining Data about-
   A. Related researchers and research groups
   B. Project proposal routing policies and procedures
   C. Budget under various schemes
   D. Commercial opportunities for research results
   E. Project funding agencies

F. In house research results

G. Technical and Financial Report Templates

H. Project Award Notifications

I. Audit reports on Internal Resources and Services of the Institution

J. Potential vendors/research and Scientific equipment suppliers

3. KM tools for Curriculum Development Process: By way of maintaining -

A. Database of curriculum revision efforts that includes data about research delivered, best practices, lessons learned, etc.

B. Clusters of information in various disciplinary areas including updated data bank on subject resource materials, recent publications, applicable research etc.

C. Modularized content repository to facilitate interdisciplinary curriculum design and development.

D. Information related to teaching and learning with technology.

E. Repository of pedagogy and assessment techniques.

F. Analyzed data on student evaluations updated each semester for lessons learnt and emerging best practices

G. Maintaining a portal for new faculty with guides for developing curriculum, working with senior faculty, establishing effective teaching styles ,advising do's and don'ts, supervising research scholars, etc.

4. KM in Administration Section: By maintaining -

A. Database on HR policies and practices for trainings and promotions.

B. Repository of rules and regulations for on campus housing etc. facilities

C. Repository of minutes of all meetings of all statutory bodies of the institution

D. Database on trainings / workshops / seminars and symposiums attended and to be attended by all constituents of the Institution.

E. a repository on FAQ's

F. Templates of all applications, forms and formats

G. Updated data about merit list of Entrance Examination and Results.

H. A repository on disciplinary conduct on campus.

5. KM in Finance and Accounts department: By way of maintaining-
   A. Up to date Budgeting and Accounting
   B. An updated database on income, taxation, dues, etc. status of each employee.
   C. Database on approved procedures and practices.
   D. Repository on Frequently Asked Questions (FAQ's)
   E. Templates of applications, forms and proposals.
   F. An updated database on fees and fines status of every constituent.

6. KM tools for Students: By way of providing-
   A. An updated database on entire institutions resources, policies and procedures related to admissions, examinations, financial aids, fees, student counseling facilities, etc.
   B. A portal for career placement services hosting information about probable employers, their contact details, packages offered, etc.
   C. A repository of student affairs, services for faculty and staff to ensure all constituents understand existing services and can provide proper counseling.
   D. A portal for alumni to keep track of their professional growth, etc.

The current study intended to explore KM initiatives that would add value to the HE institutions, without pressing upon their resources harshly. Having identified the core constituent areas of the HE institutions, a questionnaire was designed specially and sent generously to persons sensitive to higher education. These included academicians, academic administrators and persons from industry (employers). The 302 responses received were subjected to statistical analysis and the results summarized. While KM interventions in each of the six areas were prioritized, such KM interventions which spread across multiple constituent areas of HE institutions were also evolved.

The survey indicates that KM interventions are expected to be very effective in achieving the desired objectives for each of sub goals. This is as anticipated because most of these sub areas or parts generate, share or use knowledge and involve processes and people. The survey estimates that efficacy and extent of KM interventions in different processes and goals should improve and transform their composites i.e. the constituents.

The form of KM practice and the interventions in different processes within the areas of the IHE and its relationship with processes in other areas define and determine their impact. As shown, it was decided that the KM interventions shall be in the form of information repositories, databases, backboards and portals. It would cover all intra and inter constituent processes and data related to the composition, structure and activity of a constituent and their mutual influences. The survey established that the impact of KM interventions

on quality would be more significant if applied in the core processes and to the processes and data related to the performance feedback of a constituent. In the knowledge creation and dissemination constituents like research and development and curriculum development, the emphasis was more on inter-institutional influences. It is clear that if the KM interventions are to be implemented in a phased manner, KM interventions must be implemented in a kernel compressing the primary processes along with the feedback processes. KM interventions in core processes automate the processes and enhance the performance of an area by adding value to the processes and institutionalizing and standardizing them. The KM interventions in the feedback processes and data allow sharing and utilization of inter-constituent inter-organizational knowledge. This minimum set of KM interventions would create an environment and context which would not only optimize the capability of each of its components but would also synchronize and synergize all the constituents. Further, this would streamline and automate the constituents to a large extent and facilitate, wherever possible, quick action and response to changes; learning and adapting from interventions, internal to a constituent or from other components; and institutionalizing whatever is learnt, tacit or explicit.

Conclusion

Against the backdrop of challenges faced by IHE, the present work, after discussing the quality indicators accepted by national and international agencies, observes that if IHE were to score high on those indicators, they would have to improve upon the few core constituent areas viz. Institutional Planning and Development, Research and Development, Curriculum Development, Administration, Finance and Student Affairs. With a viewpoint to improve these areas, without having to undertake any major costs, KM was identified as a modern day techno management tool. Various KM interventions were then proposed and prioritized based on a survey. In most of the areas, KM interventions in feedback as well as core processes were found to have maximum impact and therefore make a strong case for being adopted in IHE. Since, IT is already permeating into IHE, the costs incurred in maintaining information repositories etc. shall only be incremental, with the organizational memory going up drastically and thereby making IHE appear more rational, transparent and responsive in meeting the quality expectations.

Acknowledgement

Authors are indebted to Dr. M D Tiwari, Director, Indian Institute of Information Technology, Allahabad for having permitted to undertake the work from the Institute.

References

1. Numprasertchai, S & Igel, B (2005), "Managing Knowledge through Collaboration: Multiple case Studies of Managing Research in University Laboratories in Thailand," *Technovation*, vol. 25, no.10, pp.1173-1182.

2. Tiwari, M.D., (2001), "Education & e-Governance: Technological Innovations in Education in India", *Macmillan India Ltd.*

3. Moira, D. & Bennett, D., (2003) "Factors Influencing the Success of University to Business Technology Transfer - A UK & USA Comparative Study," *The 12"International Conference on Management of Technology IAMOT 2003. From Information*

to Knowledge to Competencies: Key Success Factors for Innovation and Sustainable Development, Nancy, France, pp. 13-15.

4. Jeffrey, S (2003), "The Disappearing State in Public Higher Education", Chronicle of Higher Education, February 28, 2003, A22-A24. Washington.

5. Kumar, A. & Kumar, A., (2006), "IT based KM in Indian Higher Education System-Addressing Quality Concerns and Setting the Priorities Right", *Journal of Knowledge Management Practice*, vol.7, no.3 (http://www.tlainc.com/articl118.htm)

6. Eldridge, D.A. & Wilson, E.M. (2003), "Nurturing knowledge: the UK Higher Education Links scheme", *Public Administration & Development*, vol. 23, no. 2.

7. Kumar, A. & Kumar, A. (2005), "IT Based Knowledge Management for Institutions of Higher Education: A Need", *University News, vol.43, No.30, pp.4-9.*

8. Antony, S. (2005), "Measuring Institutional Quality in Higher Education: Rankings, Ratings and Reports by Academics and Media", *University News*, vol.43, no.22, 30, pp.1-6.

9. Powar, K.B. & Panda, S.K. (1995), "Accreditation as a Means of Quality Assurance in Higher Education", *In Higher Education in India-In Search of Quality, Ed. K.B. Powar and S.K. Panda, Association of Indian Universities*, pp.329-338.

10. Seldom, W.K. (1960), "Accreditation: A Struggle Over Standards in Higher Education", *New York, Harper.*

11. Sharma, M. (1994), "Accreditation of Institutions of Higher Education", *Report of the Seminar on Assessment of Quality in Higher Education-Parameters and Indicators, National Institute of Educational Planning and Administration, New Delhi*, pp.50-72.

12. Sharma, G.D. (1994), "Assessment of Quality in Higher Education: Parameters and Indicators", *Report of the Seminar on Assessment of Quality in Higher Education-Parameters and Indicators, National Institute of Educational Planning and Administration, New Delhi*, pp.19-29.

13. www.aicte.ernet.in/BoardofAccreditation.htm

14. http://naacindia.org

15. India's Top T-Schools, *Dataquest-IDC Survey, Dataquest*, vol. XXIV, no.12, pp.17-26. (2006)

16. www.nist- ov/public affairs/factshet/baldfaqs.htm

17. Kidwell, J.J., Karen M., Vander L. & Johnson, S.L. (2000), "Applying Corporate Knowledge Management Practices In Higher Education", *Educause Quarterly*, no.4, pp.28-33.

18. Holsapple, C.W. & Joshi, K.. (2004), "A Formal Knowledge Management Ontology: Conduct, Activities, Resources and Influences", *Journal of American Society for Information Science and Technology*, vol.55, no. 7, pp. 593-612.

19. Burstein, F. and Linger, H. (2003), "Supporting post-fordist work practices: A Knowledge Management framework for dynamic intelligent decision support", *Journal of IT&P Special Issue on KM*, vol.16, no. 3, pp. 289-305.

20. Skyrme, D. (2003), "Knowledge Management-Making sense of an oxymoron", http://skyrme.com/insights/22km.htm.

21. Petrides, L. A. & Nodine, T.R. (2003), "Knowledge Management in Education: Defining the Landscape", *ISKME Monograph.*