SHARING AND CONNECTING KNOWLEDGE IN INDIAN EDUCATIONAL INSTITUTIONS THROUGH KNOWLEDGE MANAGEMENT

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ABSTRACT

For India to emerge as Knowledge Super Power of the world in the shortest possible time it is imperative to convert our demographic advantage into knowledge powerhouse by nurturing and transforming our working population into knowledge or knowledge enabled working population. The paper presents a conceptual framework in the context of Knowledge Management (KM) in Education in India. If the framework is adopted in schools, colleges and higher educational institutions, it yields more benefits to increase the quality of knowledge sharing. There has been indeed a paradigm shift in the field of education in India. The new breed of students need to be efficient to tackle problems from cross-functional, cross-cultural and ethical perspectives and equipped with skills to benchmark for global leadership positions, as they all are living in a highly competitive world. There has been a crying need to usher in a quality movement and to benchmark the same with world standards. This paper presents an academic framework for the adoption of KM principles in educational institutions. The paper also explores the objective of the National Knowledge Network and National Mission on Education to bring together all the stakeholders in Science, Technology, Higher Education, Research & Development and Governance. The present paper emphasizes on ICT as a dire need as it acts as a multiplier for capacity building efforts of educational institutions without compromising the quality. In the final section interpretation and implications of NKN and NME as tools of Knowledge Management are discussed and conclusive statements are made.

Key Words: *Knowledge, Management, Network and Education.*

INTRODUCTION:

The idea that we live in an 'information age', that the new economy can be called 'knowledge based', and that learning for workplace flexibility should now occur over the course of a lifetime, has emerged as a powerful discourse informing policy and programmes in the education sector. Essentially the argument is that with the advent of new digital technologies the rate of knowledge creation and dissemination has increased significantly (Chen and Dahlman, 2005).

Knowledge economy discourses are also linked to pressures to competitiveness agendas and the expansion of post-primary education. These ideas are taken up in the World Bank's policy-oriented reports on education where they argue that knowledge based economies need to develop:

- a supportive economic and institutional regime which provides incentives for the efficient use of existing and new knowledge and the flourishing of entrepreneurship;
- an educated and skilled population to create, share and use knowledge;
- a dynamic information infrastructure to facilitate the effective communication, dissemination and processing of information; and
- an efficient innovation system of firms, research centres, universities, consultants, and other organizations to tap into the growing stock of global knowledge, assimilate and adapt it to local needs, and create new technology (World Bank 2003: 2).

Locating the idea of knowledge-based societies-

Current knowledge economy arguments borrow heavily from work developed by Daniel Bell(1973) in the 1970s around the transformation of industrial to post-industrial societies, and more recently by Manuel Castells (1996) and his network society thesis.

A core argument of this body of work is that knowledge is a new factor of production. This is contrasted with classical arguments which posit that land (natural resources), labour (human effort) and capital goods (machinery) were the three main factors of production. 'Knowledge' and information in these approaches approach is treated separately from labour. As the sub-title of Bell's The Coming of the Post-Industrial Age: A Venture in Social Forecasting, indicates, this work was rather speculative. Perhaps as a consequence, Bell's thesis was greeted with considerable skepticism amongst the academic community (see Webster, 2002). Nonetheless, it received a great deal of attention amongst policymakers and the popular press. There were several core propositions to Bell's argument:

All societies evolve, moving from pre-industrial to industrial to post industrial; in this evolutionary cycle, work moves from being muscle-based to mind-based; post industrial societies are more dependent upon 'theoretical' knowledge – or the knowledge of professionals, such as scientists, engineers, teachers, health workers; and post industrial societies generate greater degrees of wealth than industrial societies.

In 1996, Manuel Castells published his book The Network Society where he argued this was a more substantive and analytical representation of what was being called a post-industrial or information society. A network society is one where the key structures and activities of a society are organized around electronically processed information networks (Castells, 1999: 2) and

technological innovations rapidly accelerate the pace of change. A network, Castells argues (1996; 1999), is the new organizational form. It is a set of interconnected nodes enabling the flexible and rapid flow of goods, services, ideas and people throughout the network.

While Castells pays considerable attention to technology, he also insists that 'minds' are the most important asset: "the human mind has always been, but more than ever now, the source of wealth, power and control over everything… ideas and talents are ultimately the source of productivity and competitiveness" (Castells, 2000: 3-4). Minds programme technologies rather than the other way round, and minds can make or lose money (Castells, 2000: 3-4). Information societies, as a result, value 'humans', 'minds' or 'brains' as a key resource. These ideas are taken up in the World Bank reports when they argue, for instance that:

A knowledge society relies primarily on the use of ideas rather than physical abilities and on the application of technology rather than the transformation of raw materials or the exploitation of cheap labor. It is an society in which knowledge is created, acquired, transmitted and used more effectively by individuals, enterprises, organizations and communities to promote economic and social development. (World Bank, 2003: 1).

According to the World Bank (see Chen and Dahlman, 2005), the combined power of information technologies, networks and minds should enable countries to leapfrog stages of economic growth by being able to modernize their production systems and increase competitiveness faster than in the past. If countries are excluded from developing new technological systems, "…their retardation becomes cumulative" (Castells, 1999: 3).

Knowledge Management in Knowledge Based Society-

Knowledge management (KM) comprises a range of strategies and practices used in an society to identify, create, represent, distribute, and enable adoption of insights and experiences. Such insights and experiences comprise knowledge, either embodied in individuals or embedded in organizations as processes or practices.

Knowledge can be defined as (Awad and Ghaziri, 2004) the understanding that is obtained through the process of experience or appropriate study. The Knowledge management principles if applied to management education will enhance the quality of academic learning process. The term "Knowledge Management" (KM) is used to describe everything from the application of new technology to harnessing of the intellectual capital of an organization (Sallis and Jones, 2002). (Rowley, 2000) describes the term KM as follows:

"Knowledge management is concerned with the exploitation and development of the knowledge assets of an organization with a view to furthering the organization's objectives. The knowledge

to be managed includes both explicit, documented knowledge, and tacit, subjective knowledge. Management entails all of those processes associated with the identification, sharing, and creation of knowledge. This requires systems for the creation and maintenance of knowledge repositories, and to cultivate and facilitate the sharing of knowledge and organizational learning. Organizations that succeed in knowledge management are likely to view knowledge as an asset and to develop organizational norms and values, which support the creation and sharing of knowledge"(Rowley, 2000). Since its establishment, the KM discipline has been gradually moving towards academic maturity. First, there is a trend towards higher cooperation among academics; particularly, there has been a drop in single-authored publications. Second, the role of practitioners has changed. Their contribution to academic research has been dramatically declining from 30% of overall contributions up to 2002, to only 10% by 2009 (Serenko et al. 2010).

Recent Steps taken by Indian Government towards Knowledge Society and Knowledge Management

Globally, frontier research and innovation are shifting towards multidisciplinary and collaborative paradigm and require substantial communication and computational power. With the objective of connecting and converting knowledge in mind, National Knowledge Network (NKN) and National Mission on Education (NME) projects are being started by government.

National Knowledge Network (NKN)-

The Government's decision to set up National Knowledge Network was announced in the Budget Speech, 2008-09. An initial amount of Rs. 100 crore for 2008-09 was allocated to the Department for establishing the National Knowledge Network. A High Level Committee (HLC) was set up under the Chairmanship of Principal Scientific Adviser to the Government of India to coordinate and monitor the establishment of the National Knowledge Network.

On 25th March 2010 the Government approved the establishment of the National Knowledge Network (NKN) at an outlay of Rs.5990 crore, to be implemented by National Informatics Centre (NIC) over a period of 10 years.

National Knowledge Network (NKN) project is aimed at establishing a strong and robust internal Indian network which will be capable of providing secure and reliable connectivity. Using NKN, all vibrant institutions with vision and passion will be able to transcend space and time limitations in accessing information and knowledge and derive the associated benefits for themselves and for the society. Establishing NKN is a significant step towards ushering in a knowledge revolution in the country with connectivity to 1500+ institutions. NKN is intended to

connect all the knowledge and research institutions in the country using high bandwidth / low latency network. In India,

NKN with its multi-gigabit capability aims to connect all universities, research institutions, libraries, laboratories, healthcare and agricultural institutions across the country to address such paradigm shift. The leading mission oriented agencies in the fields of nuclear, space and defence research are also part of NKN. By facilitating the flow of information and knowledge, the network addresses the critical issue of access and creates a new paradigm of collaboration to enrich the research efforts in the country. The network design is based on a proactive approach that takes into account the future requirements and new possibilities that this infrastructure may unfold, both in terms of usage and perceived benefits. This will bring about a knowledge revolution that will be instrumental in transforming society and promoting inclusive growth.

The NKN shall be a critical information infrastructure for India to evolve as a knowledge society. NKN is a significant step which will enable scientists, researchers and students from across the country to work together for advancing human development in critical and emerging issues.

Objectives of NKN-

- Establishing a high-speed backbone connectivity which will enable knowledge and information sharing.
- Enabling collaborative research, development and Innovation.
- Facilitating advanced distance education in specialized fields such as engineering, science, medicine etc.
- Facilitating an ultra high speed backbone for e-Governance.
- Facilitating integration of different networks in the field of research, education, health, commerce and governance.

Applications-

- Countrywide Virtual Classroom
- Collaborative Research
- Virtual Library
- Sharing of Computing Resources
- e-Governance

Expected Outcomes-

The output of the National Knowledge Network project will be a high capacity countrywide Infrastructure at education & research Institute level, to support education and research applications, and other application as envisaged by these institutions which require very high

bandwidth. A high speed data communication network would be established, which would interconnect Institutions of higher learning.

National Knowledge Network will facilitate creation, acquisition and sharing of Knowledge resources among the large participating Institutions; collaborative research; country wide classrooms (CWCR) etc. and help the country to evolve as Knowledge Society.

National Mission on Education through ICT-

Fortunately, the ICT as a tool in education is available to us at this juncture and we wish to fully utilize it to enhance the current enrollment rate in Higher Education from 10% at present to 15 % by the end of the 11th Plan period. A budget allocation of Rs. 502 crores has been made in 2008-09 for the National Mission on Education through ICT. It is a momentous opportunity for all the teachers and experts in the country to pool their collective wisdom for the benefit of every Indian learner and, thereby, reducing the digital divide. Under this Mission, a proper balance between content generation, research in critical areas relating to imparting of education and connectivity for integrating our knowledge with the advancements in other countries is to be attempted. For this, what is needed is a critical mass of experts in every field working in a networked manner with dedication. Although disjointed efforts have been going on in this area by various institutions / organizations and isolated success stories are also available, a holistic approach is the need of the hour. This Mission seeks to support such initiatives and build upon the synergies between various efforts by adopting a holistic approach. It is obvious that emphasis on ICT is a crying need as it acts as a multiplier for capacity building efforts of educational institutions without compromising the quality. The Mission is also necessary to sustain a high growth rate of our economy through the capacity building and knowledge empowerment of the people and for promoting new, upcoming multi-disciplinary fields of knowledge.

Objectives of the Mission-

- Effective utilization of intellectual resources, minimizing wastage of time in scouting for opportunities or desired items of knowledge appropriate to the requirement,
- Any-time availability of desired knowledge at appropriate levels of comprehension to all for self paced learning,
- Platform for sharing of ideas and techniques and pooling of knowledge resources
- Systematically building a huge database of the capabilities of every individual human resource over a period of time.
- The development of knowledge modules having the right content to take care of the aspirations and to address to the personalized needs of the learners;

- Research in the field of pedagogy for development of efficient learning modules for disparate groups of learners;
- Standardization and quality assurance of contents to make them world class;
- Building connectivity and knowledge network among and within institutions of higher learning in the country with a view of achieving critical mass of researchers in any given field;
- Availability of e-knowledge contents, free of cost to Indians;
- Spreading digital literacy for teacher empowerment
- Experimentation and field trial in the area of performance optimization of low cost access/devices for use of ICT in education;
- Providing support for the creation of virtual technological universities;

Expansion of Higher Education in India-

The success stories of 'green revolution', 'space technology', 'nuclear energy' and 'information technology superiority India has achieved' - we owe these all to the higher education system as it evolved during 60 years of India's independence. It cannot be denied that it is Indian higher education system that to a significant extent has contributed to India rising to become the World's second fastest growing economy, the World's third largest economy, fastest growing mobile phone market, owner of the largest bandwidth capacity and contributing second largest portion of scientists and engineers in the world.

Expansion with Equity-

India has experienced appreciable growth in the number of institutions of higher education during last six decades and particularly since 1990. This growth has already been because of expansion of number of State Universities and institutions deemed to be Universities. The period since 1990 has also seen the emergence of private Universities. The expansion of central universities has rather been slow and skewed in terms of regional distribution. It also mentioned that a significant majority of Universities, particularly managed by the state governments ate affiliating in nature. Given the current number of universities in the country the burden of affiliating colleges per University is unmanageably high and incongruous, in some cases the number of colleges affiliated to a University runs as high as many hundreds. Thus despite appreciable growth in number of universities there is scope rather need for further expansion in the number of universities and also colleges.

Inclusiveness and Equality-

The participants in the Diversity, Inclusiveness, and Inequality track represented a great deal of diversity themselves and included faculty and students from a rich variety of research institutions, private liberal arts colleges, and community colleges. While participants engaged issues and strategies in each of the three substantive area—diversity, inclusiveness, and inequality in education (DIIE)—the bulk of our conversations focused on diversity and inequality.

Quality and Excellence-

Ensuring quality education demands structural and institutional reforms in addition to committing enhanced financial resources. Imparting quality education would entail better infrastructure; greater use of ICT; teaching and learning in smaller groups; granting autonomy to the faculty, department and individual teachers. But more than that, imparting quality education requires 'faculty development' or what many call 'faculty recharge programmes' so that the faculty does not go stale, it retains its vibrancy and dynamism in doing research, in learning, and innovating and in devising new methods of teaching. In the modern technological world quality education has become a necessity. Governments all over the world are appointing committees and commissions to bring in excellence in education. Curricular are being revised and improved to include more and more relevant knowledge in the curricula of schools and colleges.

Funding of Higher Education:

The importance and need of setting up these new institutions of higher and professional education can hardly be ignored, but investing in existing facilities and institutions should be no less a priority. Fee hike suggested by many can hardly bring the required resources. We by no means are suggesting that fee need not be rationalized. In addition it is suggested that there is need for building a robust and strong private – public partnership for funding and improving the quality of higher education. We have no hesitation in endorsing the suggestion as we see the practical and mutual advantages to private houses, industries on one hand and the higher education institutions and recipients of higher education on the other. For example, the Universities and research institutions can do the research and innovations which may provide competitive edge to Indian industry and industry may provide on the site based experience to students.

Academic and Administrative Reform: Unlike expansion, equity/inclusiveness and quality/excellence, where efforts are in making, the policies concerning reforms in the arena of academics, administration and governance are already well formulated and publicity announced.

While these recommendations about credit system, semester system, more of international assessment and less written examination component, teachers evaluation by students, inter-institutional mobility etc have been generally accepted, quite a few of them have not been implemented and operationalised as yet. Some of these have been tried and failed while some others have been implemented on selective basis. As a result there is a lot of institutional variations in admission, examination, faculty and governance related practices.

'Talk to a Teacher' to provide a substitute for coaching for the economically poor students: SAKSHAT: One Stop Education Portal

The facility of 'Talk to a Teacher' online for interacting with him/her, has been active on SAKSHAT: One Stop Education Portal w.e.f. 26th January, 2007. This feature ensures that students are able to clarify their doubts and are not left at the mercy of the e-content alone. It is possible for a teacher in a studio to multi-cast the doubt clearing session if many students have similar doubts. Alternatively, asynchronous mode could be used for individual queries. This feature compensates for absence of teacher in a distance learning environment. Regular availability of an expert teacher helps students clarify their doubts as and when they arise.

Connectivity and Bandwidth Issues-

The back bone of e-learning/education is connectivity because all learning material in the form of text, audio and video can be made available to all, at cheapest and most effective fashion, through good bandwidth and its connectivity. An integrated model for connectivity based on satellite, terrestrial [OFC / Copper], wireless would need to be developed for connecting every educational institution to begin with and then to every Indian, subsequently. The bandwidth provisioning would have to be considered as an educational infrastructure and bandwidth for educational purposes would have to be made free from the user's point of view.

Innovative Skills of Knowledge Management in Current Education Scenario-

Using knowledge management techniques and technologies in higher education is as vital as it is in the corporate sector. If done effectively these can lead to better decision making capabilities, reduced "product" development cycle time (for example, curriculum development and research), improved academic and administrative services and reduced costs? The challenge is to convert the information and make it widely and easily available to any faculty member, staff person, or other constituent. An institution wide approach to knowledge management can lead to

exponential improvements in sharing knowledge—both explicit and tacit—and the subsequent surge benefits.

Is higher education ready to embrace knowledge management? A key ingredient in an institution's readiness to embrace knowledge management is its culture—the beliefs, values, norms, and behaviors that are unique to an organization. Informally, it is the unwritten rules or "how things really get done." Higher education is moving from the old culture that considers- "What's in it for me?" to a new culture that says- "What's in it for our people?" And it is developing a culture that is ready to embrace knowledge management.

DISCUSSION AND CONCLUSIONS:

The topic of this paper as per our belief is undoubtedly an interesting and important topic, as KM would enhance teaching and learning process. Though it is clearly interesting and important, more work is needed. No doubt, many initiatives have been taken by India but we need to study the problems of KM initiatives based on actual case studies and experiences. We need to explore KM tools and techniques further and evaluate the results. The Educational institutes in India are looking forward to update their learning content with discussion forums, online debatable forums for students and faculty with robust information systems infrastructure. These also wish to include healthy blogs and wikis with interactive whiteboard connectivity for lectures. Features like cross functional decision making, rewards and increased responsiveness to student needs and interdisciplinary research initiatives are planned. Within a KM structure, one can search for trends and patterns of data and share with others.

For developing strategic internal alliances the educational institutions have to more effectively use their resources and infrastructure to reap more benefit from their investments in both people and technology. This KM approach will enable them to quickly respond to its goals and objectives and in some cases preempt staff and faculty demands and needs. To build and develop a robust and thriving knowledge environment in education sector, the institutions need to look beyond technology and develop the overall culture of accessing, sharing and managing knowledge. In this paper, a conceptual framework of how knowledge resources will be connected and shared by different entities in education sector by emerging NKN and NME projects launched by HRD Ministry of India, is discussed and presented. The paper also demonstrated the successful implementation of new knowledge management system in Education. Finally I would like to conclude that the real success of KM in making a learning society lies in helping the students grow into worthy human beings with courage to face the problems with an inner strength. Every institutional initiative requires time, money, energy and resources so that it may mature and suit to the needs of knowledge society. Let us hope that in

the coming years KM would prove a good step in the right direction of all Indian educational institutions.

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