

A review

Assessing the role of Communities of Practice as a tool for managing knowledge in Indian higher education

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Abstract- Knowledge and information transfer have become important ingredients for an organization's competitive advantage. Knowledge management has emerged as an overarching strategy to enhance organizational performance and promote innovation. This strategy is implemented in most organizations through the creation of Communities of Practice (CoP). These are networks of individuals with a common, shared purpose grouped together to facilitate knowledge building, idea creation and information exchange. Actively engaged CoPs can greatly help in collectively constructing new knowledge and transferring it to new members. Using the readily available online tools today, new knowledge networks can be created quickly and knowledge can be disseminated effectively beyond the community boundary. Educational institutions in India have grown in quantity, however they grossly lack in the quality. Quality plays an important role in higher education in today's globalized economy and in the need to build a knowledge society. With India poised to becoming a global superpower the quality of higher education in general and technical education in particular needs to be greatly improved. The purpose of this paper is to discuss knowledge management (KM) as a solution to enhance the organizational knowledge. More specifically, CoPs can assist in developing the faculty and improving the teaching and research practices in higher education in India.

Keywords- Knowledge Management; Communities of Practice; Higher Education; Faculty Development

1. INTRODUCTION

In today's complex and uncertain business environment, an organization's competitiveness lies in its ability to leverage the available knowledge of its workforce to its strategic advantage. Thus a growing number of organizations, especially in consulting and knowledge-intensive industries (including academia) are constantly looking at ways to use the resource knowledge more effectively and efficiently (Davenport & Prusak, 2000; Probst et al., 1999). Nonaka (2007) states that in uncertain economies, businesses constantly face the challenges of shifting markets, ever changing technology, growing competition and changing needs of the consumer. Their only source of competitive advantage is knowledge.

It is important for an organization to integrate its existing knowledge (available in the expertise of employees), and generate new knowledge or new ways of working to succeed in their businesses (Nonaka & Takeuchi, 1995; Teigland, 2003). In this context, many organizations are exploring with CoPs as a tool to capture the knowledge

and expertise of its workforce. CoP, a relatively new concept has generated great interest and attention from practitioners and academicians alike (e.g., Pan & Scarbrough, 1998; Thompson, 2005; Wenger et al., 2002). Knowledge groups like CoPs are growing and have been considered as essential tools to promote and enhance learning, share and integrate knowledge in organizations (Brown & Duguid, 1991; Lesser & Storck, 2001).

In context of many demands from both internal and external stakeholders for accountability and improvement in education, added with multiple demands on the time of teachers, faculty, and staff, educational institutions today are seeking to understand how they can more effectively collect, disseminate, and share information. As organizations dedicated to education, moreover, they best understand that knowledge is their key asset—and many educational institutions are looking at better ways to transform that knowledge into effective decision-making and action.

Quality plays an important role in technical education in today's globalized economy and the need to build a knowledge society. With India poised to becoming a

global superpower the quality of higher education in general and technical education in particular needs to be greatly improved.

Current research tries to explore the possibility of using Communities of Practice as a tool to manage knowledge in higher technical education. Are the organizational factors, responsible for successful CoP implementations in the business world the same as those required in the academic world? Can a framework be designed for successful CoP implementations in higher education?

The purpose of this paper is to discuss knowledge management (KM) as a solution to improve the organizational knowledge and more specifically communities of practices (COP) to develop the faculty and improve the teaching and research practices in technical education.

The paper discusses the need to improve the quality of Indian higher education and recommends the means by which this can be improved. It then provides a brief introduction to the field of Knowledge Management and the role of CoPs. The literature of CoPs is subsequently reviewed which includes its evolution and the benefits accrued by implementing CoPs in organizations. The review ends with a set of critical success factors which are essential to the effective sustenance and growth of CoPs within organizations. The paper then attempts to explore the possibility of using CoP as a solution for organizational knowledge management in Indian higher education institutions and proposes a model for effective implementation of CoP in academic institutions.

2. HIGHER EDUCATION SCENARIO IN INDIA

Agarwal (2009) reports that Indian economy in the recent years has grown rapidly in the services sector and the country has taken a rather unconventional path to growth by skipping the manufacturing sector, since this demanded huge capital in infrastructure and equipment which the country was unable to invest in. The growth in services sector resulted in a huge demand for skilled manpower, i.e. graduates with basic skills which took the unprepared higher education sector by surprise. Due to this widening gap in demand and supply, this technical and higher education sector received a lot of flak. Also, the graduates that were produced by these higher education institutions were poorly skilled and incapable of meeting the industry demand leading to rising graduate unemployment and underemployment. With the changing nature of work and growing global integration of labour markets made the demand and supply equation even more complex.

India's aims at becoming a global hub of supply of skilled manpower. Higher Education is considered to be a significant contributor in developing the human resources and helping in improving the quality of life of the people. The field of technical and higher education has seen phenomenal growth, in the last two decades. Higher

education at all levels in the country is witnessing a consistent growth pattern marked by the setting up of new Institutions and the improvement of the existing ones in tune with the quality assurance norms set by the accreditation agencies.

Technical and higher education has its own set of challenges to overcome to meet the growing need of quantity as well as quality. From managing availability of adequate number of colleges and universities including technical and vocational institutes, ensuring quality of education, promoting research and working out curricula which are aligned with the job market. The entire education sector is expectedly buzzing with activity. To impart high quality education it is imperative to maximize the effectiveness of the institution.

Indicators of Quality in Technical Education as suggested by (Joshi et al., 2011) include:

- **Indicators of student quality:**
 - Number of students completing degree
 - Time taken to complete the course
 - Proportion undertaking practical Training
 - Proportion participating in research and development
 - Employment profiles and salaries on Graduation
 - Number of students recruited by reputed companies
 - Number of students seeking post-graduate studies
 - Satisfaction levels of students and Employees
 - Perceived reputation of graduates and alumni, nationally and internationally
 - Number becoming entrepreneurs
 - Passing percentage of the students with higher class
- **Indicators of faculty quality**
 - Number of applications for faculty position, at different levels
 - Academic quality, in terms of publications, honors, awards, patents, sponsored projects and consultancy.
 - Retention success; turn-over
 - Teaching quality, innovative initiatives
 - Publication records
 - Sponsored research, consultancy and continuing education activities
 - Professional society and public service involvement
 - Ability to mobilize resources for department and institution
 - Internal and external (national and international) honors and awards
 - Quantum of practical experience
 - Effectiveness of student counseling
 - Faculty career satisfaction levels
- **Indicators of institutional quality:**
 - The utilization of strategic planning Processes
 - Interaction with the environment, industry, profession, community.

- Mobilization of resources for institutional Development
- Diversity of external financial support
- Demand from outside agencies for R & D and continuing education
- Adjunct appointments with Industry
- Inter-disciplinary activities
- Self-assessment and accreditation Processes
- Alumni involvement
- Perceived reputation, nationally and Internationally
- Use by national agencies as think tanks and for technology development
- Leadership in education and research

Sahu et al.(2008), from their literature survey have grouped the key factors affecting the effectiveness of technical education under 7 heads as:

- Administration
- Infrastructure
- Teaching Effectiveness
- Students
- Interaction with Industry and Society
- Extra-Curricular Activities
- Research and Development

This paper attempts to explore knowledge management (KM) as a solution to improve the organizational knowledge and more specifically communities of practices (COP) to improve the teaching effectiveness by developing the faculty and research practices in higher education.

3. KNOWLEDGE MANAGEMENT – ROLE OF COP IN MANAGING KNOWLEDGE

To generate the competitive advantage from knowledge, it is necessary to be able to apply the collective knowledge to achieve specific organizational goals. It is the ability of the organization to ensure that people have right knowledge in the right place at the right time. Knowledge generates revenue, creates new assets and drives stock market value, and unlike physical resources, knowledge grows when it is shared. Organizations have come to discover the value of knowledge and they realize that their intellectual capital and knowledge resources need to be strategically managed. Although on a day-to-day basis, organizations unconsciously produce and act upon knowledge, there is very little institutional effort to formally recognize this. This is probably due to the fact that most knowledge resides in the heads of the people, and due to its tacit nature it is difficult to harness and thus is not seen as a revenue-earning product or commodity.

Webber (1993) states that the location of the new economy is not in the technology, be it the microchip or the global telecommunications network. It is in the human mind. Knowledge is created through research, and then

needs to be transferred to the recipients for fact based decision making in order to tackle societal relevant _real world problems'. Most of all the knowledge is not created by a single individual but by an iterative process of experimentation and dialogue often involving several individuals (Nonaka & Nishiguchi, 2001). Knowledge is created through social interactions. There are many different techniques and practices that can be applied for the capturing and sharing of organizational knowledge.

A community of Practice (CoP) provides a way to capture and disseminate customized contextual knowledge based on the needs of the organization. CoPs are considered to be a type of learning community. In a CoP, professionals come together to create and build new knowledge and share their knowledge, ideas and practices on a common topic. Companies and public institutions are exploring CoPs for capitalizing knowledge and for improving the experience and knowledge of their employees.

The following section identifies CoPs as a means of applying tacit and explicit knowledge.

4. COMMUNITIES OF PRACTICE (COP)

Organizations have been exploring the role of CoP in the process of situated learning and knowledge generation. Some notable pioneers who have researched extensively in this area include the names of Seely Brown, Wenger, and Duguid.

The CoP approach has emerged from the academic research work of Lave and Wenger (Lave & Wenger, 1991) into situated learning and the accounts of actual working practices (insurance claims processing, photocopy machine repair etc..) narrated in the works of (Wenger, 1998; Orr, 1996). Thereafter, it has been in the academic literature on management and is currently being applied as one of the knowledge management tools in many organisational settings. Lave and Wenger, while studying apprenticeship as a learning model, pushed forward the notion of situated learning--that learning is fundamentally a social process and not solely in the learner's head. They argued that learning as situated activity has at its core a process which they call legitimate peripheral participation.

When describing CoP, Davenport & Prusak (2000) state that sometimes co-workers who have complementary knowledge will form a group, and these self-organized groups are generally initiated by employees because they share common work practices, interests, or aims. It is important to understand these characteristics of CoPs including its various types and the stages of the life cycle they move through. Before we understand CoP in greater detail and appreciate its various forms, it is essential to revisit the evolution of the concept.

5. EVOLUTION OF COP

One of the earliest works on CoP has been done by Lave and Wenger (Lave & Wenger, 1991) where they explored the concept of situated learning in workplace.

They suggested that learning should not be viewed simply as the transmission of codifiable knowledge from one individual to another, but as a social process where knowledge is co-constructed within a particular social and physical environment. CoPs are characterized by the interactions novices have with experts, and the process by which newcomers create their professional identity. Using various examples of midwives, meat cutters, and tailors the authors explained how these professionals learned and applied their skills in workplace setting. In such settings, learning typically occurs during informal meetings where members interact with each other and share their experience, and new comers gain knowledge by having an open dialogue with experts. Such interactions helped in identifying the gaps and collectively finding solutions. Practitioners were able to improve their practice and generate new ways to deal with recurring problems.

Lave and Wenger's viewpoint is similar to the apprenticeship model of learning in the workplace. In a CoP, members from the same working group or practice can work alongside more experienced members and improve their skills by being involved in increasingly complicated tasks. The transition from a newcomer to an expert is illustrated through the concept of 'legitimate peripheral participation,' in which newcomers join a community and start taking part in its practices, beginning with the most basic and gradually mastering the most complex. Those members who have now mastered the skills become experts and now in turn assume the responsibility of mentoring other newcomers. Thus, CoPs can be said to be a system where people can learn and perfect their skills rather than find new ways to complete a task.

Brown & Duguid (1991) supported the view of 'learning on the job', but they used a slightly different approach. Contrary to conventionally accepted view where learning is separate from working and generally precedes working and innovation is a process which changes both learning and working. Their research efforts attempted to show working, learning and innovation as complementary and interrelated.

Using the CoP concept, they describe how workers engage in informal groups both at work and off the job, where they share information and collectively develop new solutions for their work-related problems. This was a shift from Lave and Wenger's focus on existing skills, to the creation of new knowledge.

Brown and Duguid stressed the importance of the social environment in advancing practitioners' skills and knowledge in organizations. They developed a vision of multiple CoPs acting in a loosely coordinated fashion. They suggested that organizations encourage workers to interact across communities within and outside their own organization, releasing the innovative potential of these continuously learning groups.

Wenger (1998) extended his concept of CoP by using situated learning as its building block. He tried to

improve the CoP concept by attempting to focus on the social structure where learning happens and the individual's identity is developed. His vignette on medical claims processing describe how clerks interact and share with each other in the process of doing routine office work. He defines a CoP as covering three interrelated dimensions: joint enterprise, mutual engagement, and a shared repertoire. Joint Enterprise is what the community is all about - the goal or the raison d'être as understood by its members and continually renegotiated. Mutual engagement is how the community functions—the interactions and relationships of mutual engagement that bind members together into a social entity. Shared repertoire is what capability it has produced i.e. the common resources (routines, sensibilities, artifacts, vocabulary, styles, etc.) that members of the community have developed over time. The three dimensions thus define the system of members' interactions within a CoP.

Wenger also discussed the fundamental processes of negotiation of meaning, participation and reification. Participation is the social experience of living in the world in terms of the membership and active involvement in the community activities. Moreover, he explicitly qualifies participation as broader than mutual engagement. Similarly, Wenger defines 'reification' as the process of giving form to our experience by producing objects that convert this experience into something tangible or explicit thereby creating points of focus around which the negotiation of meaning becomes organised. Reification is a component process in the development and use of a shared repertoire.

Wenger focussed mainly on identity, and brought out a discussion on the importance of trajectories through various stages of development and the different levels of participation in a community. He also brought out a key dilemma arising out of individual's membership of multiple communities. Such communities may be competing or may have no relation with one another. The nature of boundaries between communities is also explored. Wenger also proposed 14 indicators for detecting the presence of a CoP, Wenger also suggested the use of 14 indicators to identify the presence of community of practice. They were:

- a) sustained mutual relationships – harmonious or conflictual
- b) shared ways of engaging in doing things together
- c) the rapid flow of information and propogation of innovation
- d) absence of introductory preambles, as if conversations and interactions were merely the continuation of an ongoing process
- e) very quick setup of a problem to be discussed
- f) substantial overlap in participants' descriptions of who belongs
- g) knowing what others know, what they can do, and how they can contribute to an enterprise

- h) mutually defining identities
- i) the ability to assess the appropriateness of actions and products
- j) specific tools, representations, and other artefacts
- k) local lore, shared stories, inside jokes, knowing laughter
- l) jargon and shortcuts to communication as well as the ease of producing new ones
- m) certain styles recognised as displaying membership
- n) a shared discourse reflecting a certain perspective on the world.

Wenger et al. (2002) makes a decisive shift towards the already visible trends in management literature. Here Wenger's focus moved from learning of individuals' and development of identity' to using CoP as a knowledge management tool for managing the tacit knowledge of 'knowledge workers'. In contrast to his previous publications, where he described CoP as groups that would emerge spontaneously, this publication proposed that CoPs could be designed and cultivated by organizations for competitive advantage. Community of Practice here was re-defined as 'groups of people who share a concern, a set of problems, or a passion about a topic, and who deepen their knowledge and expertise in this area by interacting on an ongoing basis'. This definition does not limit CoP to groups within a company. CoP now was seen as a tool to foster innovation and creative problem solving rather than focussing on the daily job performance. The organization may not impose specific do and don'ts within a CoP, but with the new definition, it now has the power to influence the agenda and the composition of members.

Wenger et al. argues that learning is central to human identity. In this book, Wenger's renewed focus is on learning as social participation, the individual as an active participant in the practices of social communities, and in the construction of his/her identity through these communities. In this context, the three characteristics of CoP were redefined to 'domain,' 'community,' and 'practice'. The 'domain' defines the knowledge area or topic which helps create the common ground, encourage member participation, set the boundaries to negotiate learning and meaning. The 'community' creates the social construct which fosters interactions, facilitates learning through those interactions and build relationships with others. The 'practice' is a repository of shared resources that include documents, ideas, experiences, information, and ways of addressing problems that are collectively created within the community. The authors suggest that in a mature CoP, the integrative power of the three components can help organizations to efficiently create and disseminate knowledge.

Another important theme discussed in (Wenger et al., 2002) is the role of leader/champion and a facilitator. A leader/champion would be the sponsor of the CoP and would be responsible for promoting the activities of the

CoP to its external stakeholders. He would also be responsible for inviting new members and providing the required resources for the community activities. The facilitator role is to deal with the concept of light-handed management which is required to work with the knowledge workers in a CoP. The facilitators, in a successful community, they would be very busy connecting people and facilitating contacts. They would be responsible for the group's activities and achievements. This role, often played by a senior manager, would require understanding the vision/mission of the organization and CoP and being resourceful and well connected with members and potential members.

The book also compared characteristics of CoP with other similar structures like project teams and community of interest. The difference between a project team and a CoP is that the membership in a team is due to a formal working structure and mandatory whereas participation in a CoP it is self chosen and voluntary. Another difference is participation in a project team is to accomplish a specific task and will dissolve as soon as the project is completed, whereas participation in a CoP is continuous and ongoing. The authors also argued that a community of practice is thus different from a community of interest or a geographical community, neither of which implies a shared practice.

The different interpretations of CoP make it challenging for people to apply this concept or to take full advantage of the benefits that CoP groups may offer. It is also difficult to objectively measure and evaluate the effectiveness of these groups as there is no common ground on what is, or is not, a true community of practice.

6. BENEFITS FROM COMMUNITIES OF PRACTICE

The benefits realised from CoP can be significant and vary depending on organisation and community type.

Wenger & Snyder (2000) suggest several ways in which CoPs add value to organization. They help - drive strategy, start new lines of business, solve problems quickly and transfer best practices. They help companies to recruit and retain talent.

APQC note that in the modern, knowledge-based global organisation, communities create a channel for knowledge to cross boundaries created by workflow, functions, geography and time.

Gannon-Leary & Fontainha (2007) have listed following benefits of CoP:

- Enhanced learning environment
- Synergies created
- Capabilities extended to higher level
- Knowledge sharing & learning
- Gaining insights from each other
- Deepening of knowledge, innovation & expertise
- Cyclical, fluid knowledge development
- Feeling of connection

- Ongoing interactions
- Assimilation into socio-cultural practices
- Neo-apprenticeship style of learning
- Identity development and formation
- Practice-based usage

Allee (2000) provides benefits grouped across business, community and member perspective. She suggests that for the survival of the community, it is important to accrue the benefits for all three stakeholders.

Wenger *et al.* (2002) have discussed the value and benefit derived from CoP. According to them, the CoP is key to enabling the socialisation component. It is in these communities that individuals develop the capacity to create, refine, share, and eventually apply knowledge – knowledge that makes an individual a valuable organisational resource.

Saint-Onge & Wallace (2003) describing the benefits stress that - the communities provide a vessel for learning for their members and innovation for the practice. And if properly leveraged, they can be harvested – adding significant value to the organisation. In this vein, CoPs are being regarded as key components to growing the knowledge of the organisation and the sustainability of the organisation into the future.

This section covered an introduction to CoP and outlined the definitions which can be used in understanding them. This section also discussed the evolution of CoP and the academic literature associated with them. The section concluded with the benefits to be realised from CoP.

The critical success factors for CoP need to be explored in order to understand what the organisation must have in place to ensure their survival and growth.

7. CRITICAL SUCCESS FACTORS FOR COP

CoP can help leverage on the knowledge capital of the organization. To enable organizations to harness its full potential, it is important to identify the factors that lead to establishment and sustenance of successful CoPs.

Critical success factors identified by McDermott (McDermott, R., 2000) are the most cited in the literature work for CoP. According to him, the 10 critical success factors of CoP fall into four main categories – management, community, technical, and personal challenges.

Each of the categories with its associated list of success factors are as listed below.

Management Challenges:

- Important topics
- Well respected leader and facilitator
- Time and encouragement to participate
- Build on organisation's core values and strategy

Community Challenges:

- Key thought-leader involvement
- Build personal relationships

- Passionate core group
- Thinking and sharing opportunities and forums

Technical Challenge

- Stable and easy to use technology enablers

Personal Challenge

- Trust Saint-Onge & Wallace (2003) have provided a list of critical success factors or –must haves which will help develop a fertile ground for communities. Expanding on the work of McDermott (2000), their list is as follows:
- Shared sense of purpose and ownership
- Self-initiated view of learning and a readiness to learn from each other
- Overall climate of trust and involvement
- Partnering mindset and corresponding skills
- Strong technology platform
- Supportive context and leadership endorsement
- Realistic expectations on return on investment

8. USING COP AS A TOOL FOR FACULTY DEVELOPMENT IN HIGHER EDUCATION

Educational institutions face many important challenges in educating the knowledge workers of tomorrow. Firstly the rapidly changing technologies need retraining of the workforce. It has two aspects, the numbers of workers to be trained is too large for the universities and secondly the dispersed nature of domain knowledge, especially in the areas of fast changing technologies. The other issues are who would update this knowledge, how do we provide it to the workers. Secondly, the teaching has to address wide ranging people with different backgrounds and abilities (this is particularly true with working professionals), wide ranging needs and availabilities of time to study etc. Further, these learners being adults with considerable experience and knew what they would like to learn, teaching methods need to evolve to meet the needs of students and employers in a modern knowledge society. (Minch & Tabor, 2003). Even with increasing enrollments, the numbers of the workforce have been inadequate to meet worldwide industry demand (West and Bogumil, 2001), and our teaching methods have not evolved to meet the needs of students and employers in these rapidly changing technical fields (Laurillard, 2002). We face additional challenges in curriculum design with the changing student population.

In addition, educational providers are facing a number of key changes that are focusing attention on efficiency in relation to delivery methods. New opportunities are being offered by information technology which could facilitate major changes in the delivery of education, and provide greater flexibility for learning (Litteljohn & Watson, 2004). At the same time attention is being drawn to improving the quality of student experiences by quality assurance agencies, with more attention being

given to student centred learning (Rogers 2004).

The teaching –learning environment today is mostly teacher centric with students having less important role. (Bhattacharya, 2005). Over the past decade, many educators have grown dissatisfied with this individualistic approach to education and have come to recognize that new teachers need experience as participants in CoPs in which they are afforded the freedom to experiment with alternative approaches and strategies with the support of their peers (Grossman, 1991; Stein, Silver, & Smith, 1998; Wideen, Mayer-Smith, & Moon, 1998).

The idea is that through participating in a community, new teachers can learn through collaboration with others and by working alongside more experienced members. Much like in an apprenticeship, newcomers work with –old-timers, and then gradually begin to adopt the practices of the community. This social view of learning involves whole persons, and treats learning as a process of constructing practice, meaning, and identity all in relation to a community of practice (Lave & Wenger, 1991; Wenger, 1998).

Research on applications of community-of-practice theory exists in apprenticeship contexts of midwives, tailors, quartermasters, butchers, and alcoholics (Lave & Wenger, 1991); in business contexts of the value of communities in knowledge management (Wenger et. al., 2002), in education contexts of preservice teacher training

and professional development towards secondary teacher certification (Barab, Barnett, & Squire, 2002) There is very little research on the training of teachers in higher technical education context through the CoPs.

Literature on leadership development defines distinct stages for professional development of managers, like Apprenticeship, Mentorship, Sponsorship and Colleagueship. (Glendenning & Gordon, 1997). It is now the need of the hour to look at such developmental path models, study the factors that define them and build appropriate development paths for high quality teachers who could lead by example. Critically examining the above could lead to new dimensions in the models being used to improve the quality of teachers.

9. A PROPOSED FRAMEWORK TO IMPROVE TEACHING EFFECTIVENESS USING COP:

Based on the critical success factors identified as part of the literature review, a framework for faculty development in higher technical education is proposed.

A model of knowledge management using CoP is presented in Figure 1. which can aid in skill transfer, skill development and skill enhancement of faculty in higher education. The model illustrates the critical components and their interrelationships.

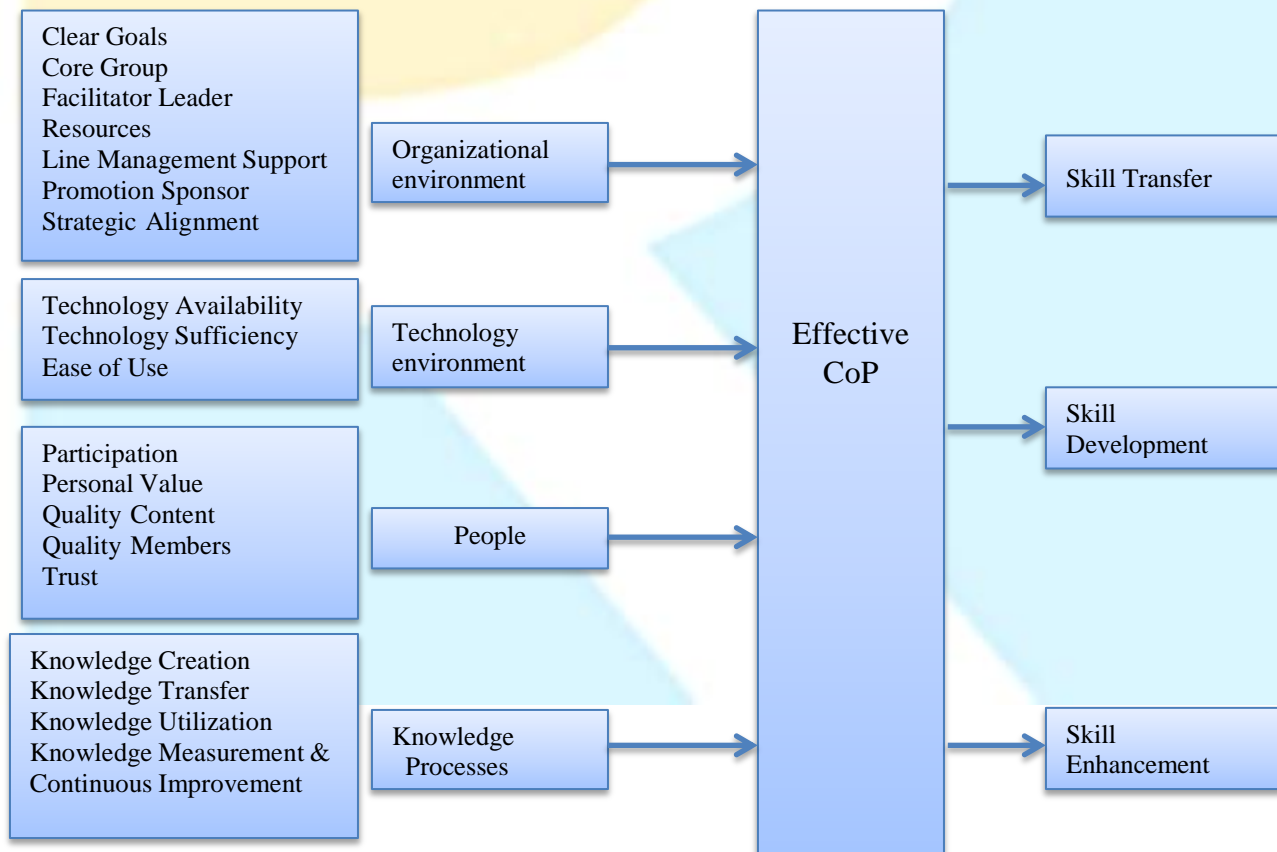


Figure1: An Integrated Knowledge Management Framework

The model proposes following types of organisational factors;

- Organisational environment (notably senior management and organizational culture) and
- technology environment (the information and communication resources and the capabilities), which can either facilitate or hinder the effective creation and utilization of knowledge.
- knowledge processes (eg. Creation of new knowledge, its dissemination and use) and foster the development of organisational knowledge.
- People (eg trust, participation, personal value, quality content, quality members etc.)

The aim of the study is to investigate several aspects of knowledge management in higher education institutions including; organisational environment, technological environment, knowledge processes, and people aspects.

9.1 Organizational Environment

A supportive and facilitating organizational environment helps in optimizing the knowledge process performance. Such an environment is usually demonstrated by the senior management team by recognizing the importance of managing knowledge and defining **clear goals and objectives** which are aligned to the organizational strategy. They also support in providing the necessary **resources** e.g. some start-up costs, training, facilitation, and leader and member time. The active involvement of the community **leader** and the vibrancy of the **core group** can help build and sustain the community. Department heads/**immediate superiors** see the community participation as important and provide the nurturing environment - time, and resources to enable and encourage community participation. A **sponsor** who has overall responsibility of the CoP can help to convince other senior managers of the potential or viability of the CoP.

9.2 Technology Environment

Availability of a simple yet efficient technology infrastructure can be a great enabler to effective functioning of the CoP. Technology supporting the knowledge processes should not be a hindrance, they should **feel natural**. To be more precise, the technology should seem **transparent**. The technology must be **sufficient** to carry out the processes of the CoP. Social media technology tools are freely available today and they can greatly boost collaboration in the community.

9.3 People Factors

Trust of the CoP members on each other is a crucial factor.

Trust between community members can be enhanced by having frank and supportive discussions of real problems frequently. People may join a CoP due to some perceived interests and value, but the relationship is sustained only when they feel an emotional connect within the CoP. They may participate out of the passion they feel for the discipline or due to the **direct benefits** they may receive

from participating - such as problem solving, access to new ideas or technology, or quick access to information. Membership also gives them an opportunity to improve their skills; to learn new tools, techniques, and approaches. An organization may provide the technology and the process, but KM and CoPs thrive or wither based upon the **quality of content and people**. Members should know how, what, and when to share and reuse knowledge. Community members should be able to access and reuse knowledge from others or a shared space easily.

9.4 Knowledge Processes

Knowledge Management processes enable members of the CoP to make a more effective contribution. The challenge is in the time lag in setting up the processes. Capturing and sharing best practice takes time. Knowledge Managers can help address this challenge by helping knowledge users in using the available tools to **find and access** knowledge. Users could also help knowledge managers to identify sources of valuable expertise and suggesting ways by which those can be **contributed** to the knowledge base. It is also important to regularly track the health of the community. Formal feedback systems and After-Action Reviews (AARs) can be implemented either at the end of the meeting sessions and/or at significant events. This would help keep track of the community's performance, as well as, the usefulness of content shared.

10. MANAGERIAL IMPLICATIONS OF THIS RESEARCH

As India strives to compete in a globalised economy, the quality of higher education becomes increasingly important. India's large educated population base and its reservoir of at least moderately well-trained university graduates may not sustain the increasing competition from other countries, especially like China.

The 21st century has emerged as a knowledge powered economy and managing knowledge by sharing the experiences of employees has become an essential tool for competitive positioning for organizations. In both academic and practitioner literature, communities of practice are considered the most common approach to provide collaboration for knowledge workers. A well-crafted CoP coupled with structured knowledge processes can help enable the organizations to extract the tacit knowledge of their more experienced employees and help make it explicit. The effectiveness of the CoP can have a positive influence in the organizational outcomes like innovation, improvement, employee development, reduction in rework and customer satisfaction.

Therefore, a model that can identify the critical factors for successful CoP implementation can be valuable and critical to learning organizations. This research suggests a model to measure the effectiveness of CoP by considering

factors such as the organizational environment, technology environment, knowledge processes and people factors. It is believed that by measuring the CoP effectiveness, organizations will be able to better allocate the limited resources and fine-tune their policy relevant to the knowledge management initiatives.

11. CONCLUSIONS

The paper discussed knowledge management (KM) as a solution to improve the organizational knowledge and more specifically communities of practices (CoP) to develop the faculty and improve the teaching and research practices in higher education in India. With the growing number of higher education institutions, there is an urgent need to improve the quality of education imparted and further employability of the workforce in today's fast changing and competitive global environment. There is increased competition amongst the institutions and a constant pressure on them to be able to differentiate themselves from the rest. Institutions are constantly seeking new ways to enhance their performance of their educators by providing training and cross functional collaborative research opportunities. This study can help in developing best practices in teaching learning through building CoPs for effective knowledge sharing. The proposed framework for Knowledge sharing among community members can enable to develop new learning models by experimenting methods and techniques of virtual community of practice. This research can also help increase the number of good practices and success stories and introduce a process of analysis, benchmarking, selection and dissemination in the use of CoPs for the teaching community. This research can also help to provide an integrated framework for educational institutions to resolve the issues of generating highly qualified manpower to meet the industry demands.

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