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KNOWLEDGE WORK AND OPEN LEARNING

Prof (Dr.) Nripendra Narayan Sarma

KRISHNA KANTA HANDIQUI STATE OPEN UNIVERSITY

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Preface

The publication of a series of Working Papers at Krishna Kanta Handiqui State Open University is a reflection of the University's sincere efforts towards the promotion of a productive research environment among the faculty members and officers of this university. Through these Working Papers, KKHSOU seeks to broaden the horizon of liberal thoughts and ideas of the faculty members and officers to take up serious academic and intellectual discussions across diverse disciplines of contemporary relevance.

Ideally, Working Papers are papers that are in progress, or under submission, or being published elsewhere. However, one may present a Working Paper to selected readers for comments. The writer may have some hypotheses and research questions, may apply some methods, which would further give an idea about what to expect when the work gets finished. Besides, a Working Paper may provoke further discussions among the targeted readers and the writer may change his/her ideas based on comments or review.

With the philosophy of promoting free flow of ideas and thoughts, the University has done away with the process of Peer Review of the Working Papers. However, each of the papers was subjected to an internal review by the editorial board, and the Committee on Publication of Working Papers took every possible measure to make these papers error-free. These papers reflect many of the theoretical methods, intellectual traditions, cultural aspects as well as current socio-political and economic discourses within and across different disciplines.

We hope that this paper entitled "Knowledge Work and Open Learning" will help the general readers and aspiring researchers belonging to this region and beyond.

Dr. Rahul. S. Mazumdar, Chairperson
Dr. Smritishikha Choudhury, Convenor (cum Editor)

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KNOWLEDGE WORK AND OPEN LEARNING

Prof. (Dr.) Nripendra Narayan Sarma

"Knowledge is Power"- Sir Francis Bacon in the 16th Century

**'A manager is responsible for the application and performance of knowledge'-
Peter F Drucker in 1999**

"Knowledge is like light, weightless and intangible; it can easily travel the world, enlightening the lives of people everywhere. Yet billions of people still live in the darkness of poverty unnecessarily," - The World Bank's World Development Report 1998 – 1999

'I store my knowledge in my friends' - Stephenson (2004)

Introduction.

A very important contribution of management in the 20th century was the fifty-fold increase in the productivity of manual worker in manufacturing sector (Drucker 1999). Management has been able to make similar contribution in the 21st century so far, by increasing the productivity of knowledge work. The shift has been from production equipment to knowledge work.

Throughout history, the workers had been increasing productivity in two ways - working harder and working longer. The productivity of the manual worker started rising steadily at the rate of three percent per annum compound after FW Taylor conducted Task Analysis that evolved as 'Scientific Management' in early twentieth century (Haken 2015). Taylor applied knowledge to work, not skill. Knowledge makes simple, repetitive motions more productive and organized. After twenty years of Taylor's contribution, the approach came to be known as 'Industrial Engineering' in the US and Japan, and as 'Rationalization' in Germany (Drucker 1999). Taylor's study concentrated on manual work in

manufacturing. However, it has enormous scope in terms of manual operations in service setting (Schachter 2010). In the developed countries and emerging economies, there is large-scale proliferation and sophistication in the service sector. The number of knowledge workers is increasing rapidly. Productivity in the domain of knowledge work is quite crucial for the future. Internet-driven open learning (both for organization and individual) can be instrumental for knowledge development, retention and share.

Types of Knowledge

Knowledge is a major tool and the raw material of knowledge workers. Knowledge can be defined in many ways- for example, it is information plus intuition and experience; or justified true belief (Mladkova 2010). There could be two types of knowledge- namely, explicit knowledge and tacit knowledge. The first type is for words and numbers. The second type of knowledge is tacit knowledge that includes subjective insights, skills and competencies (Hawamdeh and Rafai 2008). There could be four different subtypes of knowledge in an attempt to facilitate knowledge retention and transfer:

- i. *Know What* : Facts (explicit knowledge)
- ii. *Know Why* : Scientific knowledge about principles (explicit knowledge)
- iii. *Know How* : Skills or capacity to do something (tacit knowledge)
- iv. *Know Who* : Who knows what and who knows how to do that (tacit knowledge)

In a knowledge organization, it is all about enabling people to obtain relevant content and information from the concerned persons easily when they need it, so that they can be more effective doing their unique jobs. This could be explicit knowledge or tacit knowledge. Data, information and knowledge are the lifeblood of any organization. Programmes, projects and processes cannot interact and work collectively to achieve a common purpose unless they exchange content among themselves. Content management should be everywhere supporting the work of the organization (Simrad 2008).

Knowledge Management

The main aim of Knowledge Management (KM) is to connect people to quality knowledge as well as people to people for achieving peak performance (Chatti, Jarke and Wilke, 2007). Knowledge management implies a systematic discipline and a set of approaches to enable information and knowledge to grow, flow and create value in an organization. Knowledge management involves people, information, workflows, best practices, alliances and Communities of Practice. Knowledge management strives for a systematic process of identifying, capturing, organizing, and sharing explicit and tacit knowledge assets that add value within an organization. These assets may include databases, documents, policies, procedures etc. Knowledge management embraces business, engineering, education, communication, information technology and treats knowledge as an entity dynamically embedded in networks, processes, repositories, and people. Tacit knowledge is unknown and unavailable to most people. Knowledge is power but only if it is readily accessible, organized, analyzed and displayed to solve the need of the users (Srikantaiah 2008). Need for lifelong learning, need to reduce loss of intellectual asset from employee turnover, faster pace of innovation, steady absorption of Internet and demand to operate at global level are some of the key drivers of knowledge management (Rao 2008). Avoiding the need to reinvent the wheel is also important.

Knowledge Work and Open Learning

We form judgements regarding the quality of knowledge work in terms of understanding the tasks. Understanding the tasks performed by a plumber and the ones performed by a teacher is quite important. Productivity of knowledge work has to obtain quality, not minimum, but optimum, if not maximum. For a teacher, the measurement yardstick is not the number of students in the class, but how many of them can learn something. Quantity of work becomes pertinent at the next stage. Similar would be the case with nurses engaged in patient care towards patient satisfaction. The government schools may define the task 'helping the underprivileged', while the private schools may define 'enabling

those who want to learn'. Quality in knowledge work and knowledge work productivity is largely a matter of defining the tasks. Some of the major factors that determine knowledge worker productivity are as follows.

- i. Understanding the task and questioning about the task to be performed.
- ii. Autonomy for the knowledge workers to manage themselves for improving productivity.
- iii. Continuing innovation in the work with the involvement of knowledge workers.
- iv. Productivity focus on both quantity and quality.
- v. Asset orientation mindset for knowledge work, rather than a 'cost' orientation.

A very large number of knowledge workers do both knowledge work and manual work. They may be called 'technologists'. Surgery is a manual work with emphasis on speed, accuracy, and uniformity, which calls for theoretical knowledge, judgement and diagnosis. Technologists are emerging as a group of knowledge workers. The learning of surgery (a manual and knowledge work) in today's context is driven by the Internet and the opportunities offered by virtual learning. This can happen at individual and organizational level (across hospitals). The knowledge worker is now recognized as a major part of the workforce. The knowledge workers use their experience, education and mental capacity to deal with the problems and opportunities arising from complexity, uncertainty and rapid change (Chatti, Jarke and Wilke, 2007).

In the context of open learning, it can be stated that our ability to understand what can be captured and what cannot be captured in electronic records is a key to knowledge retention and transfer. The best way to retain knowledge within the organization is to transfer it from one person to another through interaction and socialization. Knowledge transfer typically transcends geographical distance and time. E-learning facilitates this process.

Content Management and Knowledge Work

Content is knowledge if accessible, organized, managed, and analyzed to meet the users' needs. Over the last few years, content management has emerged explosively with an interdisciplinary approach dealing with all aspects of content management that includes creation, organization, sharing and application. Many times, right content is not available at the right time and at the right place. Time and place constraints are not serious in case of online mode of knowledge sharing. However, that requires adequate efforts on content development. Content management implies the art of locating, selecting, acquitting, processing, managing, and disseminating content. There are numerous major issues connected with content management (Srikantaiah 2008).

- i. Online adaptability* (Print material needs conversion into electronic format for easier access and learner convenience)
- ii. Legal Framework* (Sorting out Copyright issues)
- iii. Organizational Culture* (Inducing the required change in the organization for content management and training internal staff).
- iv. Need Analysis* (Finding out the real needs of users)
- v. Cost* (Working out design, installation, implementation and, maintenance cost)

The technological tools like the Internet; cell phones etc. have altered our working pattern and social lifestyle. There is an explosion nature of online information. Organizations are in a state of transition. The culture of the organization is changing from hoarding to sharing knowledge. Organization wise knowledge sharing culture is in the process of evolution. Content management has strategic application of technology, processes and people to create competitive advantages in terms of content contribution, content consumption and content management.

Though technology has a major role, knowledge management solutions rely heavily on the softer human behaviour and cultural aspects. User knowledge is based on experience and expertise. Because each person's life experience is unique, knowledge experiences also may be unique. The true value of

knowledge is achieved and realized when knowledge is shared among people. In the knowledge age, sharing of knowledge brings power. Much of the knowledge is tacit and not readily reducible to any meaningful text (Short 2008), Knowledge sharing is not done easily or effectively within organizations. A Delphi study and some other studies identified multiple sources of barriers at individual, team, organizational and technological level.

Individual level : No time to share; don't know whom to call; little faith that knowledge will work; low level of trust between individuals

Organizational level : Poor alignment of knowledge management initiatives with corporate goals, lack of shared values, lack of incentives (Chait, 2008).

Video and Audio Technologies for Knowledge Management

Video and audio technologies have unique properties that allow individuals as well as organizations to capture and record events and moments. Technology mediated F2F (Face to Face) knowledge sharing can take place in video conferencing, e-mail, voice mail, virtual team rooms. Coincidence of location is not required, but coincidence of time may be required (synchronous, e.g. video-conferencing) or may not be required (asynchronous e.g. e-mail). A technological infrastructure is required to facilitate the mode of knowledge sharing. Innovative applications are there to enable audio-visual interaction in the form of collaborative virtual workspace, simulation and video-conferencing (e.g. Polycom as a service provider of videoconferencing solutions). Video-conferencing in ODL enables visual contact and collaborating classroom experience. It can improve knowledge retention and appeal by including diverse media such as audio clips, graphics, animations etc.

Where video is primarily tacit, technology supports the personal interaction required for its sharing and creation. For example, software companies like factiva.com provide semi-automated taxonomies and content management solutions. The system allows the users to create vocabulary files, design metadata elements, and configure rules to govern taxonomy behaviors,

customize display formats, perform data import and export functions. Video and audio visual material are considered the most effective medium for capturing tacit knowledge in the absence of real world interaction and networking.

Online learning has taken several names over the past two decades, the most common being e-learning, web enhanced learning, ICT learning, blended learning, hybrid learning and adaptive learning. Online education refers to any educational programme delivered to learners via the Internet using various technological, multimedia and social media objects and tools. There are over 4.4 million learners enrolled in 27 open universities in the Commonwealth, who have a choice of over 2,497 programmes covering 18,342 courses in almost all disciplines, ranging from humanities to engineering. India has 41% of all learners in Commonwealth Open Universities (COL 2017). The advent of OER and MOOCs have not been able to embrace these learners for the administrative, infrastructural, academic, pedagogical issues. However, in the learning organizations (for example the World Bank), knowledge sharing has been taking place in an organized manner.

The Learning Organization

The formal establishment of knowledge management at the World Bank regarding its development projects and practices with staff and clients can be cited as an example of sharing explicit and tacit knowledge. The Global Distance Learning Network (GDLN) helped connecting development clients from various regions and World Bank staff to engage in knowledge exchanges (Srikantiah and Rueger, 2008).

The Open Learning Campus of the World Bank is envisaged to accelerate the solutions of development related problems by transforming 'global knowledge into actionable solutions' (<https://olc.worldbank.org/>). The Campus offers educational resources and MOOCs to maximize access for its stakeholders to specific learning opportunities. The World Bank has institutionalized Communities of Practice, and thematic groups by creating a series of networks. For example, the World Bank supported and facilitated the establishment of a Community of

Practice in the MENA (the Middle East and North Africa) region in the area of employment and social safety nets. This community will provide a space where practitioners from MENA can share their operational experience, knowledge, and best practices on how best to improve delivery of social policy (The World Bank 2015). The World Bank intranet is a large and complex decentralized system that provides knowledge resources and services. The World Bank's public site is one of the world's largest website reaching over thousands of unique visitors in a week. E-mail newsletters are an important and growing component of the outreach efforts of the World Bank.

The Bank uses various direct and indirect programmes to capture tacit knowledge. The techniques for direct downloading of tacit knowledge include oral history mentoring, coaching, strategic staffing and debriefing that reflect on experiences and identify lessons learned (Srikantaiah 2008).

Learning organization is one that is skilled at creating, acquiring and transferring knowledge and at modifying its behavior to reflect new knowledge and insights (Chau 2018). A culture focused on organizational learning is the essential foundation of the learning organization. Contemporary capabilities of IT provide opportunities for identification, capture and access of organization's information assets. A digital library must be useful, aesthetically pleasing, credible, authoritative, timely, accessible and easily searched. A digital library serves learning organization by providing cohesive set of information products.

While e learning may not be that effective for learning deep knowledge about complex subjects, it is well structured for many knowledge worker needs. In order to be a knowledge-centered organization, one has to be a learning organization. The US Navy for its geographically dispersed rotating workforce developed a virtual toolkit to operationalize e learning. In 2002, the department of Navy was named as "Most Admired Knowledge Enterprise" alongside Microsoft and IBM (Srikantaiah 2008).

Sharing of knowledge requires a repository of knowledge that is inherent in employees and stakeholders. Then, it requires facilitation of the sharing of the

same. Capturing the inherent knowledge from scratch is a mega task and without motivating the ageing workforce it will be almost impossible to capture the content. The millennials have less serious issues for sharing. Several large conglomerates in India had struggled for years to capture all those knowledge that the retiring employees were carrying and not letting the company benefit from the same. It is normally held that the public sector oil companies engaged in exploration and refining could not capture the knowledge in a documented manner. The knowledge went along with the retirement of the concerned employees. At the same time, it is also held that knowledge becomes redundant with the pace of technology. In Railways, the transition from steam to diesel and then to electric engines made knowledge of experienced workers redundant. Rather, it is held that the knowledge workers experience confidence crisis with the obsolescence of technology. However, the relevance of practices like After Action Review (for example in disaster management and army operations) in knowledge retention and subsequent sharing is always high.

Future Implications

The Organization for Economic Cooperation and Development (OECD), 1998 has defined human capital as the knowledge, skills, competence and other attributes embodied in individual that are relevant to economic activity (Banik and Bhowmick, 2009). Knowledge worker productivity is the biggest of the 21st century management challenges. The countries and the industries that have emerged as the leaders in the last hundred years in the world are the countries and the industries that have led in raising the productivity of the manual workers- the US first; Japan and Germany the second. In the previous century, Peter F Drucker asserted that leadership in the world economy would move to the countries and to the industries that would concentrate on knowledge worker productivity (Drucker (1999)).

Connectivism has been introduced as a new learning theory in addition to behaviorism (focus on externally observable change), cognitivism (focus on computational models of the individual mind) and constructivism (learners create knowledge as they attempt to understand their experience). Connectivism

presents learning as a connection/network forming process. In the new age environment, it is a requirement to connect people to the distributed knowledge made in social environment (Herlo 2016). Connectivism principles acknowledge that learning is complex, multifaceted. Knowledge rests in networks. Knowledge may reside in non-human appliances and learning is enabled by technology. Capacity to know more is critical than what is known currently.

Past learning management and knowledge management initiatives have failed because they place too much emphasis on content without understanding the unique needs of learners and knowledge work. Recognizing that learning and knowledge are personal, learning management and knowledge management approaches require a move away from one-size-fits-all content centric model towards a user centric model that is learner centred and learner controlled.

Consequently, the traditional instructor's role description has too changed. The new role of instructor is to act as knowledge broker, knowledge co-creator, mentor, coordinator and facilitator of the learning experiences. The read-write web is new generation of user centric, open, dynamic web with peer production, sharing, collaboration, collective intelligence, distributed content, decentralized authority. Sound software has emerged as the main component of Web 2.0 movement (Chatti, Jarke and Wilke, 2007). Rapid changes are taking place in the open learning environment. For example, in India, there has been a dramatic crash in mobile phone data prices, sparked by Reliance Jio when it launched 4G plans in September 2016 for as little as Rs. 149 for 28 days. The low entry point helped growth in subscriber base from 100 million in 2016-17 to 307 million in 2018-19. Mobile data consumption leapt from 20 crore GB a month before Jio's launch to 370 crore GB per month after that, while data prices slid from Rs. 250 per GB to less than Rs. 15 per GB. Millions of users came online. The fall in data prices caused tectonic shifts. The consumers (learners) in small towns can be reached through videos (Aravind 2019). The major challenge is in the area of how best can we integrate open learning and knowledge work in this context of ecosystem.

Conclusion

Knowledge management and learning management are two sides of the same coin. The two systems are increasingly similar in terms of input, outcome, process, activities, components, tools, concepts, terminologies. A compatible infrastructure for online learning has also evolved. There has been an explosion of online information. The effects of emerging theory of connectivism needs to be percolated to the learners - individual and organizational. The major challenge is in generation and sharing of tacit knowledge.

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