

RELATIVE CONTRIBUTION OF KNOWLEDGE TECHNOLOGY TOWARDS KNOWLEDGE CAPTURE

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PURPOSE

THIS paper tries to investigate the relationship as well as impact of Knowledge Technology (hard factor) along with leadership, organizational culture (soft factors) and their relative contribution especially Knowledge Technology towards Knowledge Capture.

Design/Methodology/Approach: *A questionnaire consisting of four psychometric instruments has been provided to respondents i.e., to workers and managers spread across various functional groups, managerial levels from six selected organizations operating in different sectors of the Indian economy. A total of 204 fully-filled questionnaires have been received both personally and through emails and digital forms. Data, regarding different aspects of Knowledge Worker viz., their leaders' behaviors, organizational culture, Knowledge Technology and Knowledge Capture were collected using questionnaire as given in appendix. Data were statistically treated and analyzed using SPSS software package to obtain results for the stated purpose of the study.*

Findings: *Out of the four principal components of leaders' behaviors, mainly two categories of leadership behaviors viz., democratic practices and expectancy pressure of a leader significantly influence the Knowledge Capture. The Knowledge Technology and organizational culture also influence the Knowledge Capture. However, Knowledge Technology and Leadership play significant but secondary role in the Knowledge Capture, whereas Organizational Culture play primary role in the Knowledge Capture. Laziness of employees and expectancy pressure of a leader have significant negative contribution towards Knowledge Capture. The soft factors influence Knowledge Capture more than hard factor.*

Research Limitations/Implications: *The findings of this research study are relevant only to culture specific so its applicability beyond Indian subcontinents may not be exact. The study tries to investigate the Knowledge Capture in six organizations operating in different sectors to make it more generalized though; the survey method has its own lacuna. Apart from its limitations, being an empirical research on Knowledge Capture in India, the academicians as well as the practitioners may find it relevant and useful where there is dearth of literature on Knowledge Capture.*

Practical Implications: *Knowledge Workers prefer more democratic leadership practices in the dimension of Knowledge Capture with specific Knowledge Technology as per their requirements. Leaders should avoid expecting too much from the employees rather a leader should sit together with the employees and jointly set the targets. Incorporation of Knowledge Technology (user idiosyncrasy, contextuality of Knowledge and intimate connectivity between knowledge and user) is more important for Knowledge Capture. The organizations need to incorporate some incentive schemes for this specific Knowledge Management dimension to avoid laziness of Knowledge Workers.*

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Originality/Value: *This research study tried to incorporate the most demanding aspect of Knowledge Management involving an integrated, multi-disciplinary and systematic investigation on Knowledge Capture with relatively unique method. Its findings are quite relevant as there is hardly any study on Knowledge Management in India, in general, and Knowledge Capture, in particular, involving hard and soft factors together.*

Key Words: *Knowledge Management, Knowledge Capture, Leadership, Organizational Culture, Knowledge Technology, India.*

Introduction

The world is undergoing an unrelenting economic crisis for past several years. This is forcing the organizations around the world to shut down or lay off the human resource. The laying off of employees is a double-edged sword. Though it reduces the fixed cost of wages and salary in the cost of production, it also makes the knowledge of such employees unavailable in the future. The Knowledge Management may not be a panacea for all the ills that hampers the businesses as well as knowledge itself but it may reduce the extreme cost of such losses by using effective Knowledge Capture techniques. The businesses are benefitted by the effective use of Knowledge Management in the area of competitive advantage, minimization of costs, improved quality, responsiveness, improved services to the customers, or organizational effectiveness (Hlupic et al., 2002). There are various Indian research studies on Knowledge (Tomblin & Maheshwari, 2004), Leadership (Singh and Kumar, 2013), Organizational Culture (Kumar, 2012), Technology (Kumar, 2012), Knowledge management (Singh, 2001; Grover & Banerjee, 2005; Sharma, 2005; Sharma, 2008; Singh and Sharma, 2008a; Singh and Sharma, 2008b; Singh and Sharma, 2008c; Singh and Sharma, 2008d; Kumar, 2014) per se and the factors affecting Knowledge Management, for example, technology (Kumar, 2012), Organizational Culture (Sharma, 2005; Singh and Sharma, 2011a; Singh and Sharma, 2011b; Kumar, 2014), leadership (Kumar, 2013), Knowledge Manager (Dutt, 2006), and how Knowledge Management results into higher employees satisfaction (Singh and Sharma, 2011b).

The Knowledge Management Process (KMP) as well as Knowledge Management System (KMS) are well popularized and practically used beyond academic circles into the industrial sectors. However, some of the dimensions of KMP is underemphasized or left for the KMS to fill in the gap. One of those dimensions is Knowledge Capture, which is an integral part of KMP. The technological view of Knowledge Capture comes out to be at the forefront in the surveyed literature (Singh and Sharma, 2008a). The technology aka KMS is considered to draw actual benefits that can be derived from the Knowledge Management. The purpose of this study is to investigate and establish the factors or determinants and their relationship, impact and relative contribution for effective Knowledge Capture in Indian Organizations. This study identifies and discusses the factors that influence Knowledge Capture on the basis of current practices as well as relevant literature and empirical research. However, there is dearth of empirical research in the area of Knowledge Management in India (Singh, 2008) and literature on Knowledge Capture and its determinants is very rare. So, wherever the literature on Knowledge Capture is found to be unavailable, the literature on Knowledge Management will be substituted for them as Knowledge Management does essentially incorporate Knowledge Capture.

Hlupic et al. (2002) argued for integrated, systematic and interdisciplinary approach to research in Knowledge Management, particularly in investigating technical ('hard'), organizational ('soft'), as well as philosophical ('abstract') aspects of the concept. The abstract aspect deals with appropriate methods for investigating KM phenomenon. They also argued that it is the integration of 'hard', 'soft' and 'abstract' parts of the knowledge base that are critical to business success. The most challenging aspect is the integration, which this paper is proposing to do.

Theoretical Framework

Knowledge Management is seen as a means to prevent 'reinvention of the wheel' for every new project (Kamara et al., 2003). Debowski (2006) defines Knowledge Management as the process of identifying,

capturing, organizing, and disseminating the intellectual assets that are critical to the organization's long-term performance. Knowledge Management includes a combination of software products and business practices that help organizations capture, analyze, and distill information (Craig, 2000). Knowledge Capture is an essential stage or dimension of KMP. Merali & Davies (2001) suggested that the Knowledge Capture is often discussed in terms of capturing explicit and tacit knowledge. This stage deals with acquiring existing knowledge, skills, theories, and experience needed to create the selected core competencies and knowledge domains. In order to be useful, knowledge, expertise, and experience must be formalized by making it explicit and capturing it electronically or on paper. In order to acquire expertise, valid knowledge sources must be identified (Liebowitz and Beckman, 1998). Kumar (2012) argued that newer knowledge or knowledge creation is based on the older knowledge and if older knowledge is not properly captured then newer knowledge would be difficult to create. Castells (1996) argues that, what characterizes the current technological revolution is not the centrality of knowledge and information but the application of such knowledge and information to knowledge generation and information processing/ communication devices, in a cumulative feedback loop between innovation and the use of innovation. Kamara et al., (2003) argued that the importance of Knowledge Capture is to facilitate innovation, increased agility, better teamwork and supply chain integration, and improved project performance.

The popularity of Knowledge Management was mainly associated with the rise in capability of contemporary information system which further classified as Knowledge Management Systems or hard issues (Hlupic et al., 2002). However, Knowledge Management is not about technology; it is about mapping processes and exploiting the knowledge database. It is applying technology to people's minds (Deveau, 2000). Previous work on Knowledge Management focused on the delivery of technological solutions (Carrillo et al. 2000), probably because of the growth in knowledge based expert systems in the eighties and early nineties. However, it is now recognized that good Knowledge Management does not result from the implementation of information systems alone (Stewart, 1997). Therefore, approaches that are based purely on information technology (IT) are bound to be less successful: organizational and people issues, which are not readily solved by IT systems, would need to be resolved (Tiwana, 2000). On the other hand, approaches that focus exclusively on organizational and cultural issues would not reap the benefits derived from the use of IT, especially in the context of distributed teams that are the norm in construction (Anumba et al. 2000). Thus, Kamara et al., (2003) and Hlupic et al. (2002) argued for a combined approach that will deliver a more complete solution that incorporates 'soft' issues with 'hard' technological issues. Kamara et al., (2003) also suggested that the development of an appropriate methodology for the live capture of project knowledge involves the use of both 'soft' (i.e., organizational, cultural and people issues) and 'hard' (information and communication technologies- ICTs) concepts and tools. The use of both 'soft' and 'hard' strategies ensures a more 'rounded' approach to Knowledge Capture and reuse is achieved and the combined approach is the most sensible approach to be adopted. Some of the hard and soft determinants, as follows, have been taken into the consideration for this study. However, the literature on Knowledge Capture is quite scarce and the literature linking 'soft' and 'hard' determinants to Knowledge Capture is rare and even non-existent in Indian context. Hlupic et al. (2002) argue that for effective management of knowledge, attention to the 'softer' parts of the corporate knowledge base, as found in the human and cultural aspects of business, is also required. Some of the soft factors taken for this study are:

Organizational Culture (Soft Factor)

Nonaka and Takeuchi (1995) argue that organizational culture can be seen as consisting of beliefs and knowledge shared by members of the organization. Studies of organizational culture have shed light on the organization as an epistemological system. In addition, they have underscored the importance of such human factors as values, meanings, commitments, symbols, and beliefs, and paved the way for more elaborate research on the tacit aspect of knowledge. Furthermore, they have recognized that the organization, as a shared meaning system, can learn, change itself, and evolve over time through social interaction among its members, within itself and the environment. Culture is important to organizational knowledge creation. A good part of our knowledge has been

learned as culture from the older generations (Nonaka and Takeuchi 1995). Older or different cultures are basically the knowledge repository for respective civilization(s). As Schein (1992) suggests that group's culture is that a group's accumulated learning. When a particular civilization starts taking root, the culture is formed involving an accumulated learning of its citizens. DeLong (1997) argues that organizational culture is relevant to a firm which creates, shares, and uses knowledge. He also suggests that the culture shapes the processes by which new organizational knowledge – with its accompanying uncertainties – is captured, legitimated, and distributed. On this basis,

HA1- There is a relationship between Organizational Cultural and Knowledge Capture and organizational culture impacts Knowledge Capture.

Even studies in India suggest the importance of organizational culture in Knowledge Management (Kumar, 2014). Singh and Sharma (2011a, 2011b) argue that the organizational culture includes the shared values, beliefs, norms, expectations, and assumptions that bind people and systems. The organizational culture is particularly important in KM because it gives the people a stable and harmonious basis and helps them to adapt and integrate other variables with the environment. Singh & Sharma (2011a, 2011b) found that in telecom industries, organizational culture has a strong influence on KM. It's not only the overall KM that is influenced by overall Organizational Culture, rather specific stages of Knowledge Management process is influenced by specific elements of organizational culture (Kumar, 2012). Singh & Sharma (2011a) suggested that interaction, dialogue, and frequent contacts must be promoted through cultural issues to create new ideas, share them, transmit tacit Knowledge, and facilitate solutions to novel or existing problems. Singh & Sharma (2011a) suggested that companies which need to implement KM successfully should focus on developing learning culture, building networks that foster conversation, relationships, mutuality, and trust among employees.

Leadership (Soft Factor)

Leadership provides dynamism in an organization. The present and future of the organization lies in the hands of able leaders. The human civilization is full of contributions of great leaders. Leadership is one of the world's oldest preoccupations. The study of leadership rivals in age, the emergence of civilization, which shaped its leaders as much as it was shaped by them. Purposeful stories have been told through the generations about leaders' competencies, ambitions, and shortcomings; leaders' rights and privileges; and the leaders' duties and obligations (Bass, 1990).

Cleveland (1985) and Kumar (2013) emphasize the role of leadership in managing knowledge. Kluge et al. (2001) suggests important role for the CEO in Knowledge Management and Beckman (1999) put the responsibility of Knowledge Management Process on top echelons. Debowski (2006) pointed out Knowledge Leadership involving generic attributes (viz., strategic visionary, motivator, communicator, change agent, coach, mentor and model) as well as specific Knowledge Leadership roles/ tasks.

The literature and empirical research on relationship between leadership and Knowledge Management is quite small (Davenport et al., 1998; Hansen et al., 1999; Singh, 2008) but most of them see the important role that leadership has to play for effective and efficient Knowledge Management. However, most of the leadership literature tries to define leadership through its tasks/generic attributes/ functions/ goals viz., motivation, visionary etc. rather than his or her actual behavior/ actions/practices. A considerable portion of leadership research focuses on transformational, transactional and laissez-faire leadership styles (Antonakis, Avolio, & Sivasubramaniam, 2003). The study of leadership concepts in developing countries results in inconsistent findings that often contradict expected outcomes from developed country contexts (Pillai, Scandura, & Williams, 1999; Shahin & Wright, 2004). That's why, the most basic aspect of leadership i.e., leaders' behaviors must be taken into account. Bedeian and Glueck (1983) defined leadership as a term used to describe as *category of behaviors*. According to this view, leadership is a dynamic

process in which an individual behaves in a certain manner thereby influencing others to follow. Thus, leadership is the art of influencing individual or group activities towards achievement of enterprise goals.

HA2-There is a relationship between Leadership Practices or actions and Knowledge Capture and Leadership Practices or behaviors impact Knowledge Capture.

The leaders' behaviors are analyzed using Principal Component Analysis to find *categories of behaviors* that the employees of the organization perceive about leadership behaviors (Singh and Kumar, 2013). This is the way empirical research takes into consideration both the real world and theoretical world. Kumar (2012) and Singh & Kumar (2013) concluded that in the country like India any leadership is a *category of behaviors*. The four dimensions (viz., support, team-building, goal emphasis and help with work) of Leadership are perceived differently by employees in India into four new dimensions of practices or actions or category of behaviors (viz., Expressive Environment Facilitator, Non-Bossy, Democratic and Expectancy Pressure by the leader) identified as four categories of leadership behaviors using the Principal Component Analysis technique on 26 items of leadership as collected from the questionnaire. Each item of leadership concerns with a particular leadership practice. The Principal Component Analysis points out how these items are perceived and grouped by an individual employee. As Vera and Crossan (2004) argued about this kind of ingenuity and suggested that most of the work is prescriptive in nature and says little about leadership styles or specific practices through which leaders contribute. Singh & Kumar (2013) argued that a leadership style is a combination of specific practices through which leaders contribute and not all actions/ practices of a leader that are generally considered as positive or with good intentions from the leaders' point of view or from the academic perspective are equally perceived from same perspective by employees. A leader is not only what a leader does but also how those actions are perceived. Some of the following categories of behaviors may have a positive impact while others may have a negative impact. These principal components are as follows:

- 1. Expressive Environment Facilitator:** This principal component of a leader encompasses several leaders' practices which could be collectively called as expressive environment facilitating practices of a leader. Here, a leader is a friendly, open to new ideas, a good listener, allows others to express feelings and ideas, paraphraser, role model, and does not dominate and pressurize his followers.
- 2. Non-Bossy Leader:** The Principal component "Leadership1_2" has items whose common theme is "Non-Bossy Leadership" actions or behaviors where a leader avoids being dogmatic, pontificating, being impatient, dominating, treating his or her subordinates in a condescending manners.
- 3. Democratic Leader:** This principal component of Leadership has a common theme of "Democratic Leader", where a leader avoids imposing a decision, is patient, accepts more blame, uses "we" more often, is open to criticism, encourages disagreements, willing to take risks, generous in giving credit and recognition and avoids favoritism.
- 4. Expectancy of a Leader:** This principal component has a common theme of "Expectancy of a Leader", where a leader expects best from everyone, believes in self or own group importance, encourages people to be innovative and creative, displays confidence and trust in subordinates and shares information frankly.

Singh and Kumar (2013) argue that the inter-correlation coefficients among these four leadership principal components are very high. The major difference between the four systems of leadership (Likert, 1961) and these four leadership behavior types is that these Principal Components are exact continuous actions and that may bring about change in the system of the leadership. The four systems (Likert, 1961) are vertical divisions of the leadership into systems and these four principal components are horizontal division of leadership involving his actions, or behaviors or practices. So there may be democratic actions even in the exploitative autocratic leadership system. Or to what

extent the democratic behaviors or actions are performed in the organization? Similarly, in democratic system, a leader may avoid bossy actions more than in the exploitative leadership system. These four principal components are organizational variables that are perceived by the employees of the organization and that varies from organization to organization and leader to leader (Singh and Kumar, 2013). Which of these *categories of behaviors* or Principal components (Singh and Kumar, 2013) of a leader impacts the Knowledge Capture and what is their relative contribution will be tested ahead.

Knowledge Technology (Hard Factor)

Newell et al., (2002) suggest that the advancement of new ICTs has a major contribution to the development of knowledge work, which operates partly by making it easier to transfer codified forms of knowledge between different groups. The relationship between Knowledge Management and technology is bi-directional. As technology helps in Knowledge Management process e.g., ICT forms the uniform thread behind all Knowledge Management dimensions. Same way Knowledge Management is instrumental in development of new technologies or technological revolutions. Newer technologies or technological revolutions come on the heap of older technology (Kumar, 2012).

However, Merlyn and Valikangas (1998) pointed out famous productivity paradox-despite widespread investments in information technologies, very little of it can be shown to positively impact the productivity statistics and argued that the way out of traditional investments in the information processing technologies, offering diminishing returns, to investment in Knowledge Technology, offering increasing returns. Newell et al., (2002) suggested that there are several technological developments that helped the Knowledge Management to a very great extent. The technologies such as Web, HTML, search Engine, specialized search engines; video-conferencing, Notes, expert systems, case-based reasoning, neural networks, and artificial intelligence are quite helpful in Knowledge Management and sometimes called “Knowledge Technology”. The development of web 2.0 for the use of general public for common or specialized purposes helped the Knowledge Management more in the organization. Davenport and Prusak (1998) argued that Knowledge Technology is more likely to be employed in an interactive and iterative manner by their users. Merlyn and Valikangas (1998) defined and emphasized Knowledge Technology (KT) rather than traditional IT for Knowledge Management and discussed some of the aspects of KT in terms of user idiosyncrasy, contextuality of Knowledge and intimate connectivity between knowledge and user.

Guns and Valikangas (1997) argued for knowledge that is inherently personal and more intimate by creating knowledge profile of different knowledge users i.e., subjectivity of knowledge. Merlyn and Valikangas (1998) argued that a shift towards Knowledge Technology, in order to be effective, must be built with a core on meeting the users’ needs in knowledge work.

Merlyn and Valikangas (1998) argue that KT needs to address following issues related to the characteristics of knowledge itself for Knowledge Management viz. change in knowledge itself during the process of transfer, internalized nature of knowledge thus being embedded in context, living nature of knowledge so knowledge needs to be continuously created and recreated to be relevant, impact of corporate incentive system on the knowledge sharing and its management, and idiosyncratic nature of users’ needs and requirements of knowledge and thus their personal approach towards knowledge itself. Guns and Valikangas (1997) argue that knowledge needs to be packaged to make it reusable i.e., content packaging and context.

Thus, the Knowledge Technology tries to fulfill the needs and requirements of idiosyncratic users for contextual and fluid nature knowledge itself. Merali (1997) highlighted the issues of fit between IT-based systems for Knowledge Management and the socially situated leveraging of knowledge assets by organizations.

HA3- There is a relationship between Knowledge Technology and Knowledge Capture and Knowledge Technology impacts the Knowledge Capture.

Davenport and Prusak (1998) argue that one of the best-known approaches to using technology in Knowledge Management is the Knowledge repository of structured, explicit knowledge—usually in document form. The specific role of technology has been pointed out by Davenport and Prusak (1998) and argued that new technologies play an important role in knowledge codification (*which leads to Knowledge Capture*) and make the prospects for these activities increasingly promising. The role and relative contribution of Knowledge Technology would be tested ahead through several econometrics techniques.

Just because the buzz-word ‘Knowledge Management’ came into light during the ICT revolution, it was regarded that technology was indispensable for Knowledge Management. However, Knowledge Management is not only the domain of technology or IT firms rather it is being practiced by almost all firms with different level of intensity under different name and even without much help from technology. Knowledge can be captured and managed without much help of the technology even and is being done since ancient times. For example, the most traditional and most basic is ‘story-telling and suggesting moral of the story’ to the kids by their grand-parents at home since the time immemorial, “*Shruti*” and “*Smriti*” viz., “*Manusmriti*” – (these are traditional texts that have passed on through generations just by hearing and memorizing from *Gurus* to *Shishya*). Technology has become the enabler in the whole gamut of Knowledge Management (Kumar, 2012). Even though there is no indispensability of technology for Knowledge Management, but it is quite helpful and there are several research studies that figured out the ease and efficacy of use technology in Knowledge Capture. Merali & Davies (2001) describe the features and functionality of Jasper II, and goes on to show how it can be leveraged to support the Knowledge Capture. However, most of the studies discuss particular software and hardware combination viz., Merali & Davies (2001), which is helpful in Knowledge Capture. But considering model free and software-independent Knowledge Technology would be much helpful for generalization to other organizations and Knowledge Capture in particular

The most advanced technologies, including enterprise or web2.0, can help a Knowledge Worker with management of knowledge but this research study tries to figure out what type and function of technology a Knowledge Worker wants for effective Knowledge Capture. For example, Eureka Forbes uses a combination of cell-phones (not even a smart phone but a feature cell phone that uses SMS) as an effective technology for Knowledge Management system in India¹. So, which function of a technology that a Knowledge Worker wants can determine the technological utility for effective Knowledge Capture. So any combination of hardware-software that performs those functions as required by a Knowledge Worker is an effective Knowledge Management tool. So we are going backwards, asking Knowledge Worker what type of functions they want out of their technology than suggesting any technology or KMS for Knowledge Capture.

Research Questions

Specifically, three questions were examined:

1. Is there a relationship between soft (different leadership behaviors, organizational cultural, other background and demographic variables) as well as hard (Knowledge Technology) factors and Knowledge Capture?
2. What is the impact of soft and hard factors on Knowledge Capture?
3. What is the relative contribution of soft and hard factors towards Knowledge Capture?

Research Methods

This would be the multi-disciplinary, systematic and integrated study of soft and hard factors and their relationship with Knowledge Capture. The primary objective of this study is to understand and find out the relationship, impact and relative contribution of ‘hard’ and ‘soft’ factors towards

¹ <http://knowledge.wharton.upenn.edu/article/moving-beyond-direct-selling-eureka-forbes-embraces-digital-customer-service>

Knowledge Capture. Since, the technology is not the only variable that influences and significantly predicts the Knowledge Capture to a large extent, several other variables including organizational culture, leadership and background and demographic variables are also taken into the consideration for this research. These variables provide a kind of amicable environment and sometime play very active role for Knowledge Capture in the Indian organizations.

Sample

The sample includes 204 employees working in 6 organizations in India. These organizations belong to mainly three sectors viz., power sector, infrastructure sector other than power sector and IT sector, with the largest proportion of respondents work in power sector (Power- 49%, IT sector – 34.8%, Infrastructure sector other than power -16.2%). The sample comprises 83.8% males and 16.2 % females. The underrepresentation of women in the study is indicative of existing gender bias in workforce participation among women in India.

Data Collection

The primary data have been randomly collected using self-administered questionnaire from the 204 respondents belonging to various functional areas working at the different managerial levels. The survey process itself ensured the confidentiality of information provided by the respondents and requests them to respond thoughtfully and frankly as their frank answers are the best answers. Data were obtained from a wide range of organizations, varying in size and function, in order to minimize the influence of background and confounding variables and increase the empirical validity of the findings (Nguyen & Mohamed, 2011). As Ryan & Tipu (2013) argued that developed countries offer easy accessibility to secondary data and reference materials for the identification of research populations and development of sampling frames which are non-existent in developing countries. Consequently, appropriate techniques and instruments, as follows, were used in this research study.

Instruments

The questionnaire (as given in Appendix-1) introduces the researcher and informs the respondents about the questionnaire which is related to leadership, organizational culture, Knowledge Technology and Knowledge Capture. The study measures leadership with a leadership questionnaire (Likert & Likert, 1976) involving 26 items relating to day to day activities of a leader. For measuring Organizational Culture, the questionnaire suggested by Pareek (1997) was used. It includes 40 questions and all of which relates to organizational ethos of OCTAPACE. Mead (1949) referred to culture as the ethos of the organization. The Knowledge Technology aspect of the organization is measured by 5 generic questions, model-free and software-independent, related to technology. These questions are applicable even to the most basic of the organization, which may not belong to IT sector. The Knowledge Capture is measured by The Knowledge Management Assessment Tool (KMAT) given by Maier and Moseley (2003). This is a diagnostic survey that helps to determine the effectiveness of the Knowledge Collection and Capture dimension of Knowledge Management Process. It is administered to Knowledge Workers to assess the presence of such practices in their work.

The raw scores of all the items of every instruments viz., leadership practices, OCTAPACE, KMAT, and background and demographic variables of each respondent have been collected and tabulated. These raw scores of each and every question are further processed and transformed into variables including Principal Components and Knowledge Capture Dimension using standard key of the respective instruments.

Organizational Culture

Pareek (1997) pointed out that several studies have used different terminology for same thing and also argued that same terms have been used with different meanings. He claimed that various terms, used in the context of organizational culture, are values, ethics, beliefs, ethos, climate, environment, and culture. He argued that the culture-related concepts can also be seen as multi-level concepts. The core (first level) is the values, which give a distinct identity to a group. This is

the ethos of the group. *The Random House Dictionary* defines ethos as “the fundamental character or spirit of a culture ... dominant assumptions of people or period”. Ethos can be defined as the underlying spirit or character of an entity or group and is made up of its beliefs, customs, or practices. At the base of ethos are core values. The eight important values relevant to institution building are *openness, confrontation, trust, authenticity, proaction, autonomy, collaboration, and experimentation*. The acronym came out to be OCTAPACE (Pareek, 1997).

The major advantage of using Principal Component analysis is to get one composite variable that represents all the underlying items in it. It helps in understanding the overall impact of all those particular items at the same time on the dependent variable in the regression analysis. The eight dimensions of OCTAPACE were compacted into a single variable of “Organizational Culture” using the Principal Component Analysis. The tool of Principal Component Analysis was applied on the raw score of Organizational Cultural Ethos to find out the single variable of Organizational culture (Kumar, 2012).

Technology

Merlyn and Valikangas (1998) suggested that Knowledge Technology needs to evolve towards empathetic designs that help the user add value in a corporate context. Guns and Valikangas (1997) suggest that technology should help the user to be effective in an idiosyncratic way, characteristic of the particular user’s way of working with knowledge. So, it is the users’ need and requirements that determine the effective use of any technology and particularly Knowledge Technology. The questionnaire having five items on technology (as given in appendix-I) incorporates user idiosyncrasy, contextuality of knowledge and intimate connectivity between and the user. However, it emphasizes on the user perspective, needs and requirements more. The tool of Principal component analysis was applied on the raw score of 5 technology items to incorporate all the three main aspects of Knowledge Technology for the Knowledge Capture into a principal component (Kumar, 2012).

Knowledge Collection and Capture

Once knowledge has been identified and created, it can be collected and captured either on paper or in an electronic format. Organizational intranet portals, knowledge bases, and network servers are the most effective methods. Job analysis, work documentation, organizational audits, and case studies are examples of collection instruments used by organizations (Maier and Moseley, 2003). Because an overwhelming amount of knowledge often exists in an organization, it should be prioritized; and only that knowledge which is critical to the organization’s competitive edge and Knowledge Management goals should be collected and captured. It is also essential that the means by which knowledge moves throughout the organization, or the “information flow,” be collected and captured. This will aid in the improvement of ineffective processes that hinder the Knowledge Management initiative (Maier and Moseley, 2003).

Since, the primary objective is to find out the relative contribution of soft and hard factors, it is much wiser to incorporate all the variables concerning leadership, Organizational culture and Knowledge Technology as compact as possible. That is why principal component analysis was used to develop as few components to judge their contribution on the knowledge collection and capture. The Principal Component multiple regression analysis was used to find the impact and relative contributions of soft factors and hard factor on Knowledge Capture. Initially, Knowledge Collection and Capture was taken as dependent variables and four principal components of Leadership (Singh and Kumar, 2013; Kumar, 2012), one Principal Component of OCTAPACE ethos viz., “Organizational Culture”, One Principal Component of 5 technology items viz., “Knowledge Technology” and all background and demographic variables were incorporated for modeling of the data were taken as independent variables for the Knowledge Collection and Capture as dependent variable in the Principal Component Multiple Regression analysis for the modeling the data. Initially, all the 6 principal components as discussed above and all the background and demographic variables were put into the Principal Component Multiple Regression analysis enter method, forward method and backward method to figure out the significant variables

that impact the Knowledge Collection and Capture. The selected independent variables were again entered into the multiple regression equation involving Knowledge Collection and Capture as dependent variable to get the exact impact and as well as their relative contribution.

Results

	Expressive Environment Facilitator	Non - Bossy Leader	Democratic Leader	Expectancy Of a Leader	Knowledge Technology	Organizational Culture
KCC Pearson Correlation	0.494**	0.388**	0.509**	-0.415**	0.420**	0.596**
Sig. (2-tailed)	0.000	0.000	0.000	0.000	0.000	0.000
N	204	204	204	204	204	204

Hypotheses Testing

The correlation coefficient between Knowledge Capture and Principal Component of Organizational Culture is highly significant ($p < 0.001$), positive and quite high at 0.596. It suggests that the 35.5% of the total variance of Knowledge Collection and Capture is explained by “Principal Component of Organizational Culture”. It can be deduced that there is a strong relationship between organizational culture and the dimension of Knowledge Collection and Capture. And the organizational culture impacts the Knowledge Capture as shown by very high Standardized Beta Coefficient of an independent variable “Organizational Culture” Principal Component where Knowledge Capture is a dependent variable. So, we reject the first null hypothesis and accept the alternate hypothesis -HA1 that there is a relationship between Organizational Cultural and Knowledge Capture and organizational culture impacts Knowledge Capture.

The correlation coefficient between Knowledge Capture and four principal components of leadership behaviors is highly significant ($p < 0.001$) and moderately high in absolute sense ranging from 0.388 till 0.509. It suggests that the minimum variance of 15% till maximum variance of 25.9% of the total variance of Knowledge Collection and Capture is explained by the principal components of the leaders’ behaviors. Out of all four correlation coefficients, except involving principal component expectancy pressure of leaders’ behaviors, all are positive. We can deduce that there is a strong relationship between a leaders’ behavior and the dimension of Knowledge Collection and Capture. It shows that almost all behavior of a leader has quite a strong relationship and impact on the Knowledge Collection and Capture. Out of all four, two principal components has managed to come into the multiple regression equation as independent variables for Knowledge Collection and Capture as dependent variable. So, we reject the second null hypothesis and accept the alternate hypothesis HA2-There is a relationship between Leadership practices or actions and Knowledge Capture and Leadership practices or behaviors impact Knowledge Capture.

The correlation coefficient between Knowledge Capture and principal Component Knowledge Technology is highly significant ($p < 0.001$), positive and quite high at 0.420. It suggests that the 17.64% of the total variance of Knowledge Collection and Capture is explained by the principal component of Knowledge Technology. It can be deduced that there is a strong relationship between Knowledge Technology and the dimension of Knowledge Collection and Capture. The Principal Component of Knowledge Technology has high Standardized Beta Coefficient as an independent variable where Knowledge Capture is the dependent variable in the multiple regression equation. This suggests that the Knowledge Technology impacts the Knowledge Capture very significantly. So, we reject the third null hypothesis and accept the alternate hypothesis HA3 that there is a relationship between Knowledge Technology and Knowledge Capture and Knowledge Technology impacts the Knowledge Capture.

Model Summary^b

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate	Change Statistics				Durbin-Watson	
					R Square Change	F Change	df1	df2		F Change
1	0.687 ^a	0.472	0.458	3.334	0.472	35.347	5	198	0.000	1.973

Coefficients^a

Model	Unstandardized Coefficient	Standardized Coefficient	t	Sig.	95% Confidence Interval for B		Correlations		Collinearity Statistics	
					B	Std. Error	Lower Bound	Upper Bound	Zero-order	Partial
1 (Constant)	24.869	0.340	73.140	0.000	24.199	25.540				
Democratic Leader	0.776	0.310	2.506	0.013	0.165	1.387	0.509	0.175	0.129	1.753
Expectancy Leader	-0.623	0.286	-2.176	0.031	-1.188	-0.058	-0.415	-0.153	-0.112	1.499
Q8.No.ofyears complete years in current orgn	-0.065	0.025	-2.544	0.012	-0.115	-0.015	-0.238	-0.178	-0.131	1.039
Knowledge Technology	0.739	0.263	2.806	0.006	0.220	1.259	0.420	0.196	0.145	1.267
Organizational Culture	1.725	0.284	6.068	0.000	1.164	2.285	0.596	0.396	0.313	1.475

a. Dependent Variable: KCC.

Discussion

Even though the correlation coefficient matrix suggests that there is strong relationship and impact of different categories of behaviors of a leader, the Principal Component Multiple Regression analysis points out the relative contribution of the soft and hard factors for the Knowledge Capture. The Principal Component Multiple Regression equation was calculated to investigate and find the significant principal components as predictors of Knowledge Collection and Capture. The combination of five variables viz., Leadership 2_1 : “Democratic Leader’s actions”, Leadership2_2 : “Expectancy pressure of Leader”, “Knowledge Technology”, “Q8.Number of years worked in the current organization”, and “Organizational Culture” predict Knowledge Collection and Capture which is statistically significant, $F(5, 198) = 35.347$, $p < 0.001$. All the five variables significantly predict Knowledge Collection and Capture. The adjusted $R^2 (0.458)$ indicates that 45.8% of the variance in the dependent variable i.e., Knowledge Collection and Capture can be explained by the model. This is a large effect.

Background Variables

Out of so many background variables, only one of the variables was able to get into several multiple regression equations. The question or the item is “Q8.Number of years worked in the current organization”. This is most interesting variable to get into any kind of multiple regression equation as a predictor of Knowledge Management dimensions especially Knowledge Collection and Capture. This variable predicts Knowledge Collection and Capture ($t = -2.271$, $p = 0.024$) very significantly. The most interesting aspect of this variable is the sign of the beta coefficients or t value. The negative sign suggests that a unit increase in this variable i.e., “Q8.Number of years worked in the current organization”, negatively influence the respective Knowledge Collection and Capture by the value of the beta coefficient, which is very significant. The main cause of this negativity could only be gauged from the very nature of the dependent variable, i.e., Knowledge Collection and Capture. The Knowledge Collection and Capture dimension of Knowledge Management includes the questions about the determining duties, job documentation, documents posting on intranet, recording of new knowledge, gathering of information and knowledge, and mind mapping to gather knowledge. All of the above activities require hard work on the part of the Knowledge Workers. In the beginning, when an employee joins the organization, he or she is more involved and motivated in the above activities than the later phase, as it has negative and moderate standardized beta. It also shows that as time goes by employee become lazier and stay away from Knowledge Collection and Capture. Murthy (2007) argued that there are two factors which make such KM system work better. Firstly, the motivation level upon joining a job is much greater. Secondly, on the job there is a peer group that makes the learning process much better and faster. When he or she already worked in the same organization for little longer, they become “lazy” and start to avoid the above activities. Thus, it results in the negative beta coefficient of this variable. In the beginning people are enthusiastic about almost all type of work but a little later they figure out what is important and what they should value more. Even Davenport and Prusak (1998) argued that people in general are lazy and cognitively miser. The chances are very high that people will not be going extra mile to capture the requisite newer knowledge. It also suggests a great lesson on the policy front that “Don’t think that Knowledge Collection and Capture is everyone’s job” but the organization should employ specific person for the Knowledge Collection and Capture.

Knowledge Technology

The questionnaire on Technology per se contains 5 questions or items. These five questions deal with mainly three aspects (user idiosyncrasies, contextual dependency of knowledge and connectivity between user and knowledge; Merlyn and Valikangas, 1998) related to Knowledge Technology. To get the idea of relative contribution of Knowledge Technology and its impact on Knowledge Collection and Capture, they have been factor analyzed through Principal Component Analysis method and only one principal component came out that encompasses all the technological items and labeled as “Knowledge Technology”. As Principal Component Multiple Regression Equations were calculated involving the principal component “Knowledge Technology”, the principal component “Knowledge Technology” predicts the Knowledge Collection and Capture. It contributes to Knowledge Collection and Capture ($t = 2.806$, $p = 0.006$)

very significantly. Singh & Sharma (2011b) also suggested that rollout of a KMS in an organization should be tailored to values and cultural preferences of employees in each of the industries, where KMSs will be used. Merlyn and Valikangas (1998) also argued that sophisticated Knowledge Technology needs to be built on an understanding of user idiosyncrasy in knowledge work. Some user characteristics can be built into the Knowledge Technology. The user attributes will enable Knowledge Technology to tailor responses to users, similar to the items involved in the technology questionnaire.

Organizational Cultural Ethos

This research study tries to locate the role of organizational culture in Knowledge Capture. The positive OCTAPACE influences Knowledge Capture more strongly, positively and significantly. The principal component “Organizational Culture” predicts the Knowledge Collection and Capture. It contributes to Knowledge Collection and Capture ($t=6.068$, $p<0.001$) very significantly. The efficiency of a group of Knowledge Workers to capture new knowledge is perfectly fine within the supporting organizational culture and technology in the hands of able leadership. Some of the studies in India suggest the importance of organizational culture in Knowledge Management which involves Knowledge Capture. Singh & Sharma (2011a) argued that for an organization to have a KM system (KMS), the organization culture is a key and primary factor. Even, Singh & Sharma (2011b) argued that the various tools and techniques that are available to convert tacit knowledge into explicit knowledge i.e., *Knowledge Capture*, may prove ineffective in the absence of appropriate culture, which facilitates an environment of openness, confrontation, trust, authenticity, pro-action, autonomy, collaboration, and experimentation i.e., OCTAPACE.

Leadership Behaviors

Of all the four principal components, only two principal components were able to perform its role in the Knowledge Collection and Capture. Some of the categories of behaviors impacts positively and some negatively and some of them don't even count for Knowledge Capture. Even though, there is inadequate research on the role of leadership in managing knowledge despite their importance to the organizations (Davenport et. al., 1998; Hansen et al., 1999), Singh (2008) specifically pointed out higher impact and strong relationship between leadership styles and Knowledge Collection and Capture. This study pointed out that there are two categories of behaviors that influence Knowledge Capture more strongly and significantly viz.,

1. Democratic Leadership Practices/Behaviors

Singh and Kumar (2013) argued that democratic system of leadership is quite different from the democratic behaviors of a leader. These democratic behaviors may be present in any style or systems of leadership even autocratic or authoritative. But these democratic behaviors do influence Knowledge Capture and impacts it very strongly. So under the democratic practices of a leader, the Knowledge Capture dimension of Knowledge Management becomes very effective.

2. Expectancy Pressure of a Leader

The expectations of a leader create a kind of pressure on employees and thus, it reduces the performance of Knowledge Worker towards Knowledge Capture. Knowledge work is significantly different than other kind of work. It has similar characteristics like creative works. Some of the research studies reasoned for it as negative compensatory behavior (Zebrowitz, Androletti, Collins, Lee, & Blumenthal, 1998), autonomy syndrome (Amabile et al., 2004), Murphy's Law and Peter Principle. The role of a leader, nature of Knowledge Capture work and characteristics of Knowledge Worker don't match up completely for example, autonomy and flexibility as required by employees for Knowledge Management and existence of a leader or boss or manager and organization itself, which has rules, roles and resource constraints. Amabile (1996) also provided a detailed account of negative effects of expectations on creative performance. Expectations are more like external constraint which as social force is detrimental to creativity. The creative persons reject expectations, external motivation and external constraints. This research concludes that high expectation leads to low performance, on the Knowledge Capture in the selected organizations.

Relative Contribution

The standardized coefficients of beta for four independent principal components (one representing culture, two principal components for leadership and one for technology) and laziness suggest that “Organizational Culture” influences the Knowledge Collection and Capture much more and far ahead than other variables viz., ‘leadership’, ‘Knowledge Technology’ and ‘laziness’. Positive cultural ethos like OCTAPACE i.e., Organizational Culture influences Knowledge Collection and Capture greater than anything else. Under its influence, the chances are very bright that each significant knowledge pieces would be captured and collected in the organization. Laziness, Technology and Leadership play significant but secondary role in Knowledge Collection and Capture. So, organizational culture has relatively higher contribution towards Knowledge Capture. Collectively soft factors contribute more than the hard factor to Knowledge Capture.

Findings and Conclusions

The soft and hard factors have very strong relationship and great impact on the Knowledge Capture. However, the contribution of soft factors (organizational culture and leadership) far outweighs the contribution hard factor (technology). Out of all of them, organizational culture has greatest of impact and contribution towards Knowledge Capture. It has most important and primary role to play in the process of Knowledge Capture. Some of the soft factor like “expectancy of a leader” creates a kind of pressure on a Knowledge Worker and hinders in his performance of Knowledge Capture. The suggestions given below help it convert it into the positive factor for Knowledge Capture. The hard factor viz., Knowledge Technology has secondary but very significant role to play in Knowledge Capture. But it has same role as salt in the food. So it is one of the basic necessities for Knowledge Capture in modern, complex and ever-changing world and, thus, cannot be avoided or dismissed at all. Whatever is the contribution of the technology in the Knowledge Capture but Knowledge Workers are looking for the Knowledge Technology which could help them in the Knowledge Capture rather than simple ICTs. The laziness on the part of Knowledge Worker should also be avoided for effective Knowledge Capture. Knowledge Technology works under the amiable culture of the organization under the able leadership and enthusiastic Knowledge Worker. The tools of Knowledge Technology work very effectively only under the proper environment.

Recommendations

On the basis of this study, following are the recommendations for organizations to incorporate in their policy.

1. Leaders should behave more democratically. It influences the Knowledge Capture in the positive way directly. Knowledge Workers prefer more democratic leadership practices in the dimension of Knowledge Capture with specific Knowledge Technology as per their requirements.
2. Leaders should avoid expecting too much from the employees rather a leader should sit together with the employees and jointly set the targets or goals as well as check points. It not only reduces the expectancy pressure of a leader but also promotes the democratic values in the organization. This is nothing but practicing of Management By Objective (MBO) in the organization. This influences the Knowledge Capture directly.
3. All the Organizational ethos of OCTAPACE, viz., openness, confrontation, trust, authenticity, Pro-action, autonomy, collaboration, and experimentation, are positive ethos. The top management needs to work on them and promote it throughout the organization.
4. Incorporation of Knowledge Technology (user idiosyncrasy, contextuality of Knowledge and intimate connectivity between knowledge and user) is more important for Knowledge Capture. Knowledge Worker requires Knowledge Technology to perform well in the Knowledge Capture dimension of the Knowledge Management.

5. In most of the cases, 'laziness' reduces the Knowledge Capture by an amount of contribution equivalent to any positive predictor. To cancel its negative impact on Knowledge Capture and turn it into a positive predictor, the organizations need to incorporate some incentive schemes for this specific Knowledge Management dimension. Other than that the organizations may also recruit and train specialist employees who get intrinsic motivation in doing these kinds of Knowledge Management activities. Knowledge Management is not everyone's job rather create a pool of knowledge managers who would be doing specialized job of Knowledge Management.

Limitation of the Study

This research study tried to incorporate the most demanding aspect of Knowledge Management involving an integrated, multi-disciplinary and systematic investigation on Knowledge Capture with relatively unique method. Its findings are quite relevant as there is hardly any study on Knowledge Management in India, in general, and Knowledge Capture in particular involving hard and soft factors together. However, findings are relevant only to culture specific, so its applicability beyond Indian subcontinents may not be exact. The study tries to investigate the Knowledge Capture in six organizations operating in different sectors to make it more generalized though; the survey method has its own lacuna. Apart from its limitations, being an empirical research on Knowledge Capture in India, the academicians as well as the practitioners may find it relevant and useful where there is dearth of literature on Knowledge Capture.

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