

A Study on Congruence between Classical Nyaya Sutras and Modern Theories of Knowledge

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Abstract

Knowledge is an asset that can make or break organizations. Its importance has been duly asserted in the Western management thought as well as in the Indian classical philosophical thought. The present study takes a hermeneutical approach by reviewing the Western literature related to knowledge and then trying to find congruence with the Indian philosophy of Nyaya Sutras. Nyaya is a branch of Indian philosophical thought; these thoughts were written in the form of verses called the sutras. We draw from the modern knowledge management literature and compare and contrast it with selected verses of Nyaya Sutras. We find a high level of similarity between the two and discuss offerings from Nyaya Sutras that can be adopted by the modern knowledge management domain. The key aspects of our work have been consolidated in a conceptual model for knowledge management which will provide useful insights to modern management practices.

Keywords

Nyaya Sutras, knowledge, knowledge management, Indian management thought, Nyaya philosophy

Introduction

Knowledge is a meaningful asset for organizational growth. In today's global marketplace, the increasing competitiveness and complexity, novel ways of customer satisfaction and value proposition, maintenance of employee–employer relationship (human resource management, HRM practices) as well as inter-organizational as well as intra-organizational relationships require a high level of talent and expertise. In the marketplace with similar offerings, this talent and expertise which stem from the knowledge embodied into individuals and within an organization become an important asset of an organization. The modern knowledge management (KM) practices enable an organization to identify, acquire, store, manage and optimize the value of knowledge for better decision-making and adopting new business practices with changing business requirements.

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The effectiveness and efficiency of decision making rests on how the knowledge required for making those decision is acquired, analyzed, utilized and shared.. In this context, the comparative study of Indian logic and knowledge philosophy will help knowledge engineers to understand the deeper implications of knowledge concepts and is used more effectively for decision-making and strategically planning of an organization. There is a lot of scope for accommodating classical Indian philosophies in modern management practices and thoughts. Sharma (2004) gives pointers in the directions of management thoughts that are shaped by classical Indian thoughts. Sharma (2005) presents extension of ideas of integrating ancient Indian thoughts to modern management theories and practices. He presents three models of transcendental management (AUM, HOPE and VEDA models) which reflect the relevance of ancient Indian thoughts in modern times. Ancient Indian education system have been proposed to 'help in facilitating the production of a creative, ethical and a learning mind' (Bhatta, 2009, p. 49). Sound philosophical background is associated with ancient Indian psychological constructs (Satija, 2013), e.g. in empirical investigations the interplay of classical Indian psychological constructs of *asakti* (attachment) and *anasakti* (detachment) with western psychological construct of burnout and emotional labour have been studied (Pandey & Singh, 2015) and how managerial decision making can be guided by constructs borrowed from the philosophy of Sankhya (one of the six orthodox systems (*darshana*) of Indian philosophy) (Pandey, Gupta & Naqvi, 2016). We take a hermeneutical interpretive route to study selected verses of Nyaya Sutras and try to see its relevance in modern business settings.

Nyaya—What Is It All About?

We wish to bring into light that 'Nyaya' in our study does not mean 'justice' as translated from Hindi; it is the nomenclature of a stream of thought of Indian philosophy. Further, Nyaya philosophy has been written in the form of aphorism, that is, 'sutra'; therefore, the philosophy is also referred as Nyaya Sutra. Ganeri (1996) shows that the existence of strong rational, logical and empiricist trends in Indian thoughts was well known to both nineteenth-century European logicians (as well as to orientalist) and historians of logic.

Since the core of Indian religion has all along been reflective, Indian philosophy also grew along with it. Nyaya (Sanskrit: 'rule' or 'method') is one of the six orthodox systems (*darshana*) of Indian philosophy based on independent reasoning, such as, Vaisesika, Sankhya and Yoga philosophies. *Encyclopedia Britannica* states that Nyaya is important for its analysis of logic and epistemology. Nyaya Sutras forms the basis of the Nyaya school of philosophical speculation which was written by Gautama. Gautama's 'Nyaya *darshana*' or philosophy of Nyaya, written in the form of aphorism (*sutra*), is a comprehensive philosophical system which, similar to any such system, includes theories of being (ontology), knowledge (epistemology), inference (logic) and morals (ethics; Banarjee, 2003).

The present study tries to find congruence between the classic philosophy of Nyaya Sutras and the modern knowledge management literature. We have selected a few sutras from the vast array of sutras that match with KM domains. A similar selection was done by Nicholson (2010) by selecting relevant sutras for understanding debates in Nyaya.

Importance of Knowledge as a Strategic Asset

Bell (1973) describes this generation as 'information age', where information or knowledge replaces matter and energy as the primary resource of society, and information acts as 'strategic weapons'

(Parsons, 1983). Knowledge is thus taking the form of a factor of production in knowledge-intensive industries.

Characteristics of information as opposed to goods as suggested by Porat (1976) are: one, is difficult to divide or appropriate; two, is inherently in abundance (though it is often perishable); and three, may not display declining returns to use; however, more frequent the rises in value, the further it is used. These inherent characteristics of the information 'commodity' are having a deep influence on an extensive range of strategic and structural variables of curiosity to both practitioners and scholars (Glazer, 1991).

Poston and Speier (2005) recognize knowledge as a principal source of value creation. Organization's ability to create a high-quality, differentiated offering depends on the availability of accurate and timely knowledge (Nonaka, Toyama & Nagata, 2000). Knowledge thus acts as an intangible asset engraved in the human force of organizations (Bontis, Dragonetti, Jacobsen & Roos, 1999). The competitive advantage of organizations lies in their ability to manage knowledge effectively. The management of this asset that does not reflect directly in financial statements is done by the aid of knowledge management, which is concerned with all processes related to knowledge creation, storage, sharing and application (Alavi & Leidner, 2001).

Knowledge management can be looked through lenses of psychology, intellectual property, ethics and library science (Holsapple & Joshi, 2001). We are interested in lenses of philosophy and organizational learning.

From a resource-based perspective, a study of organizations is done to see how prediction of performance in dynamic and competitive environment is done based on their resources (Collis & Montgomery, 1995). This prediction is possible through the aid of properly managed knowledge which should be valuable, rare, inimitable and non-substitutable (Barney, 1991).

Bishop, Boughlaghem, Glass and Matsumoto (2008) argue that an increase in innovation, enhanced coordination of efforts and activities and better responsiveness to change are the results of superior KM activities. Learning organizations are collections of networks in which interrelationships among individuals, that is, social networks, generate learning and knowledge. This knowledge base constitutes a firm's 'memory' (Cascio, 2005) and organizational capital which 'is that knowledge that has been captured/institutionalized within the structure, processes, and culture of an organization' (Petrasch, 1996, p. 366).

Study of Knowledge

In the previous section, we established the vital place of knowledge in organizations, and we now take a step back and see what is the study of this knowledge. Epistemology, or the theory of knowledge (TOK) (Hillerbrand, 1988), is a philosophical principle that has been studied throughout time memorial by the legends of the past, including Durkheim, Descartes, Aristotle, Bernard and Plato. Epistemology is a modern science to study the TOK and to analyze the reasoning we use to differentiate between truthiness and fallacy of any knowledge. In early stages, modern epistemology is rooted out from the theory of metaphysics—a philosophical branch of modern science aimed to determine the real nature of things. Moving through a long journey of Greek philosophical studies, epistemology is one of the four major disciplines of philosophy which are metaphysics, ethics, logic and epistemology. Schiappa (1991) stated that the term is derived from Greek words 'episteme' (knowledge) and 'logos' (study of).

Expansion of the parameters of knowledge should be done by constant scrutiny based on novel and innovative evolving norms as knowledge in itself is neither concrete nor stagnant (Vejar, 2008).

We propose that the founding epistemological–philosophical foundation stone of Vedic philosophy could be of use to modern knowledge management domain in order to add a fresh perspective.

The oldest accepted theory in the Western philosophy to define knowledge is tripartite theory that has a long history and can be rooted back to Plato's philosophy. Various philosophers and logic science researchers anticipated Plato's theory as the first evidence to state 'that knowledge is justified true belief', which had an influential history over the future of epistemology; however, this was contradicted by various other scholars. The tripartite theory provides the standard definition of knowledge as follows: *S* knows that *P* if and only if (*P* being proposition):

- Proposition *P* is true
- *S* believes that *P* is true
- *S* is justified in believing that *P* is true

The traditional TOK was accepted for a long time as a standard definition of knowledge. However, a study in 1960s by a philosopher Edmund Gettier contradicted the traditional TOK; Gettier's work presented two counter examples of the traditional knowledge theory. Gettier produced two cases, wherein intuitively the subject gains a justified true belief but fails thereby to know, demonstrating that the justified true belief does not suffice for knowledge (Turri, 2012). Harman (1973) responds that a false assumption must be essential to invalidate the latter as knowledge. Interestingly, the ancient Eastern philosophy on knowledge and logic science (Nyaya Sutra) also emphasized on the importance of fallacies of reason, argument, apprehension and knowledge.

Managing Knowledge: Scientific Art of Knowledge Management in Modern Literature

Classification of Knowledge

In epistemological analysis of knowledge, it can be divided as tacit and explicit knowledge (Collins, 2010; Nonaka, 1991). In organizational context, the knowledge involved in strategic planning, operationalization of the firm's overall activities and various types of documentations is the explicit knowledge within the organization, whereas the knowledge set of employees and managers regarding their skills, experience and understanding on the firm's practices and functional framework forms the implicit knowledge (Stadler & Frensch, 1998). Leonard and Sensiper (1998) believes knowledge held in people's bodies and heads, our unarticulated knowledge, is the very basis of creativity and is neither easily captured nor codified. Explicit knowledge is easy to acquire, manage, operate through various methods and sources; however, it is very difficult to acquire and map the tacit knowledge of an individual in the organization (Dienes & Perner, 1999). Smith (2001) views tacit knowledge as academic knowledge or 'know-what' that is described in formal language, print or electronic media, often based on established work processes, using a people-to-documents approach. Over the last few decades, the increasing competitiveness in global market has reinforced the modern enterprises to engage with various KM practices and framework. An organization's selection for a particular KM framework is primarily based on objectives of the firm's core business practices, competitiveness in market and total knowledge asset of the organization. The selection of an appropriate KM approach leads to an enhancement in performance, customer value and effective sustainability in competitive market.

The transitive relationship between the firm's performance and knowledge resources of the firm motivates managers and planners to identify, acquire and accumulate the entire knowledge gamut available within organization, including both tacit and explicit. To attend the maximum company value in a competitive environment, introducing innovative practices and products is a strategic approach of decision-makers. Innovation requires learning and knowledge. Importance of explicit knowledge in learning and innovation is often discussed in KM studies; however, the study of tacit knowledge and its importance need more attention of researchers to identify its potential contribution to the organization's performance.

In the modern philosophy, epistemological dimensions of tacit and explicit knowledge have been noted by several researchers, the major being Nonaka and Toyama (2003); as Polanyi's (1977) TOK argues for unspecified particulars of knowledge basis, it cannot be exhaustively justifiable which leads to the concept of tacit knowledge. Gurunathan (2005) discusses knowledge from the lenses of accretion, sharing and utilization of knowledge; individual's expectation from knowledge sharing also comes into play. An explicit knowledge can be coded, stored, articulated and shared for various purposes, whereas tacit knowledge is difficult to articulate. Hence, the importance of explicit knowledge over tacit knowledge always has attracted researchers for the explication of tacit knowledge. Nonaka and Takeuchi (1995) presented Socialization Externalization Combination Internalization (SECI) model in their work to define the conversions between tacit and explicit knowledge types. The four modes on the transformation of tacit knowledge into an expressible explicit knowledge were discussed.

Kikoski and Kikoski (2004) state that 'all knowledge either is tacit, or is rooted to tacit knowledge; that is, explicit knowledge depends on and is encompassed by tacit knowledge'. Thus, the real source of knowledge is the tacit knowledge. Polanyi's (1997) TOK supported the notion of cognitive nature of tacit knowledge. To explore the tacit knowledge, identifying right sources of knowledge is required. The modern TOK considers the four reliable sources of knowledge as perception, introspection, memory, reason and testimony. The Eastern philosophy of Nyaya Sutra also revealed the source of knowledge as perception, inference, comparison and word as the right source of knowledge.

The Nyaya View of Knowledge

Factors of Knowledge

Knowledge relation in the Western philosophy is analyzed based on the following three factors: the subject, the object and the process of knowledge. A similar view is expressed by Robbins (2001) in his chapter on perception as follows: the perceiver, the target and the situation. Factors in the perceiver are attitude, motives, interest etc. Similarly, factors in the target are novelty, motion, sound, size, proximity; lastly, factors in the situation are time, work and social setting. For the generation of correct knowledge, these must be in accord with each other.

The corresponding factors in Nyaya Sutras are Pramata the subject, Prameya the object and Prama as knowledge (see Figure 1). It also recognizes special cause of knowledge as Pramana, which the Western logic looks as a method of knowledge (Chatterjee, 2008, p. 45).

Types of Knowledge

Knowledge identification, acquisition and representation have a long history in the Indian philosophy; we have covered the domain of Nyaya Sutra darshan or the philosophy of Nyaya Sutras. It rests on two

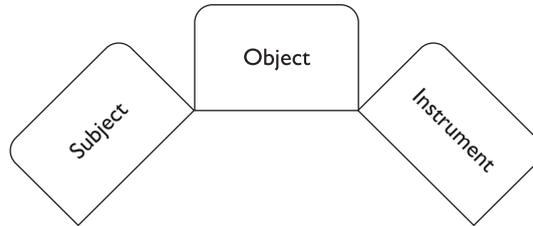


Figure 1. Factors Affecting Knowledge

Source: Authors' own.

major divisions of knowledge that are experiential knowledge (*Anubhava*) and memory-based (*Smriti*) knowledge. The experiential knowledge is original in character since it is based on the present experience, whereas the memory-based knowledge stands on the reproduction of past experience. Both these types are further tested on their validity. A similar view is expressed by Goldman (1967) where he states that knowledge can be acquired by a combination of perception and memory.

Book 1, Chapter 1, Sutra 3 of Nyaya Sutras explains that the valid experiential knowledge is divided into those based on perception (*Pratyaksha*), inference (*Anumana*), comparison (*Upamana*) and testimony (*Shabda*; Vidyabhusana & Basu, 1913, p. 2) (see Figure 2). The Nyaya view gains footing by some experimental studies on knowledge like Pillow's (1989) two studies that investigated preschool children's ability to infer another person's knowledge or ignorance based on that person's recent perceptual experience. The results of these experiments suggest that the understanding of perception as a source of knowledge is present by the age of 3 years. Similarly, Pillow, Hill, Boyce and Stein (2000) conducted three experiments that investigated children's understanding of inference as a source of knowledge which indicates that children's understanding of inference as a source of knowledge grows gradually between 4 and 9 years of age. Thomas Reid (1983) suggested that, by our very nature, we accept testimonial sources as reliable and tend to attribute credibility to them unless we encounter special contrary reasons. Lackey's (2008) 'Learning from Words' is a sustained examination of the nature of testimony and the knowledge we often acquire from it.

From an organizational standpoint, the Petrash's (1996) framework identifies knowledge of employees as human capital, and also augments four other types of knowledge resources: organizational processes, customer capital and culture of organization and structure of an organization.

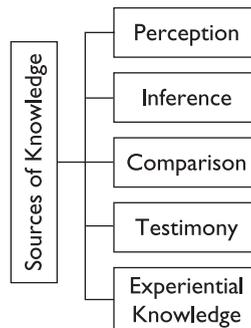


Figure 2. Sources of Knowledge

Source: Authors' own.

From these sutras, we see that for an individual that constitutes the unit of organization, knowledge can flow through these sources and credit the knowledge account of individuals who in aggregation adds to the human capital asset of the organization.

Generating New Knowledge

In the Western philosophy, Aristotle's view of knowledge pioneered the theory of syllogism, defined as a deductive theory to deduce the knowledge from the perceived one. The perception leads to memory, which creates experience leading to memory and subsequently defines premises of syllogism. Syllogism is logical structure to define reasoning to generate knowledge through perceived information, which consists of three categorical propositions, two premises and one conclusion. The proposition consists of three major terms as follows: the subject term, middle term and predicate term.

Book 1, Chapter 1, Sutra 32 brings forth that the school of Nyaya sutra also defined syllogism as five-member syllogism (*Pancavayava-vakya*). The Nyaya syllogism has five elements: (i) the proposition to be established, *pratijna*; (ii) the reason, *hetu*; (iii) the example, *udhaharan*; (iv) the application, *upanaya* and (v) the statement of the conclusion, *nigamana* (Vidyabhusana & Basu, 1913, p. 10).

Knowledge inference plays an important role in decision-making. Two distinct prepositions related to the same strategic plan may be used as premise arguments that can be used to deduce a conclusion, thus leading to a decision. The generation of new knowledge should follow some logical pattern which could be verified in future. These five members of knowledge creation will help in structuring the new knowledge and help in documenting it for reference.

The knowledge-based theory of the firm believes that the utmost important resource that aids and assists in giving strategic direction to the firm is knowledge. Inimitability, social complexity, different bases of knowledge and firm capability, that is, knowledge inherent in human resources, lend competitive advantage to a firm (Deeds & Decarolis, 1999; Winter & Szulanski, 2001).

Costs and Benefits of Knowledge

It is common in the Indian culture to assign animals as representatives of qualities. We, therefore, use these animals to present a cost-benefit analysis framework for managing knowledge. Managing knowledge poses costs to firm and also adds value and not all knowledge creates competitive advantage (Leonard, 1995). A trade-off between the two gives organization its distinctive nature. The desired benefits and expected costs of the KM system and the major concerns regarding the KM systems are problems of optimization (Alavi & Leidner, 1999). We propose a matrix to decide knowledge activities that should be retained and those that should be discontinued through this JP (initials of the first author) Matrix (see Figure 3 for JP Matrix of knowledge management). The two dimensions of comparison are the cost involved in KM of an activity and the value added by the knowledge activity.

The best among them are Camels (*Uştra* in Sanskrit) that need low organizational support, but yield high returns followed by Elephants (*Gaj* in Sanskrit) that yield high results, but consume high input. The strategy for them should be cost-effectiveness in their management. Cats are low value and low cost KM activities that can be enhanced with changing times. Rats (*Mushik* in Sanskrit) eat away organizational resources without contributing anything, these must be eliminated. A typical example would be a costly technology aided knowledge management system for a firm with few employees might be a rat. The same investment for large and complex organization may turn out to be an elephant. Principle

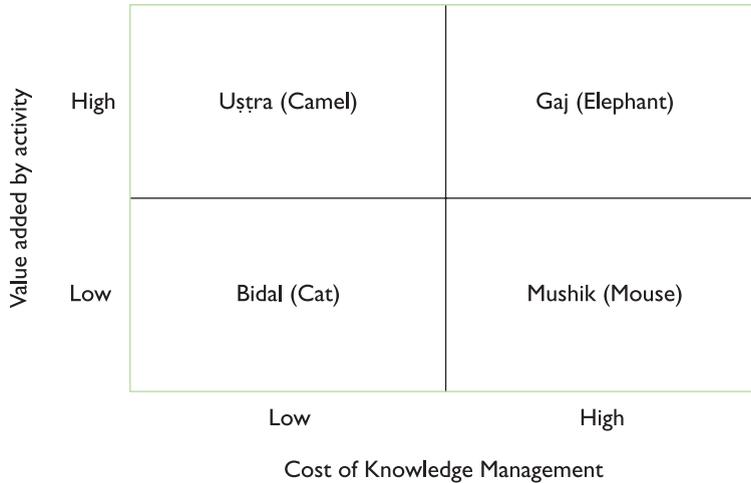


Figure 3. Matrix of Knowledge Management

Source: Authors' own.

of Quality circles is inexpensive to organization but adds lot of value which makes it a camel. If the Quality circles become a place of gossips with no value addition they move to the quadrant of cats (Bidal in Sanskrit).

This matrix has huge implications for organization. The HR policies and procedures, for instance, can benefit immensely if the identification of these activities and associated individuals is done. A screening tool to identify camels could be of great help in selection. Similarly, reward structures to transform cats to camels would help in the enhancement of human capital. Motivation and developmental activities will also be affected at the same time; there needs to be significant and effective motivation for camel to remain camels and elephants to move on to become camels. The implications for marketing could be in planning promotional activities; those that create maximum impact at least cost would be camels and those that require heavy investment to create heavy impact would be elephants. A structured intervention to phase out rats and move cats and elephants to the state of camels would enhance the organizational efficiency.

Conclusion

Penrose's (1959) theory of the growth of the firm, Nelson and Winter's (1985) evolutionary economics, and the gestalt notions of discontinuous perceptual change taken from Lewin (1935), still define the cutting edge of the learning- and knowledge-based approaches to the firm. Various Western epistemologist and philosopher defined knowledge theories. There is a close analogy between distinct knowledge theories given by the Western philosophers and the Eastern school of Nyaya Sutra. However, there is a requirement for more serious efforts to define and explore the field of knowledge and unearthing of classical existing views of knowledge that exists. The study takes one stream of Indian philosophy to check for congruence with the Western literature on knowledge. The proposed matrix can be a useful tool for managers for planning and executing knowledge-based activities for enhancing effectiveness

and efficiency of the organization. Many other streams of thoughts exist that may be discussed in future studies.

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