AN ONTOLOGICAL TOPOGRAPHY OF CONCEPTUALIZATIONS OF KNOWLEDGE IN KNOWLEDGE MANAGEMENT: AN EXERCISE IN MAP MAKING

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ABSTRACT

This paper sets its problematic by asking a questions about the nature of knowledge in the knowledge management body of literature. The paper's method is a critical review and conceptual analysis, or semiotic inquiry for discourse analysis, of the literature of knowledge management. The paper assumes that the world of knowledge management consists of three ontological perspectives. In this paper, these ontological perspectives are the psychological, the social, and the cultural. Theses perspectives shape the use of the term "knowledge' and "explicit knowledge" and an understanding of the conception of knowledge, in particular explicit knowledge, and the knowns, or knowledge objects.

Keywords: knowledge management, explicit knowledge, cognitive schemas, mental models, practices, sociology of knowledge, meaning-systems, and webs of meanings.

INTRODUCTION

Readers and students of knowledge management literature, when they encounter the god-terms of knowledge, information and data in, for example, Davenport [18], Liebowitz [39], Nonaka [48], Brown [11], Polanyi [56], or others, assume that these terms denote conceptually the same existential thing or affair in organizational situations. This is a fallacious presumption. A closer reading will find that the literature of knowledge management assumes and presents three possible paradigmatic frames or perspectives: the cognitive or psychological, the social or sociological, and the cultural [65]. Consequentially, these perspectives are theoretical conceptualizations of what the knowns are, and how the knowns are known or realized and used in organizational life [62, p. 215]. The objects and processes of knowing are shaped by three interpretive paradigms. Ontologically, the known Whats exist as reals in three paradigmatic spaces. Ontologically, there is a meta-space wherein the three paradigms order things. Observed and described affairs are realized as known objects within the ordered paradigmatic spaces. Knowledge is knowing the knowns. But, knowledge of the knowns is relative to the ontological perspective holding sway over experience. It is useful to know that the senses of (supposed) common terms in the knowledge management literature are sourced in differing ontological spaces.

Three ontological perspectives

The psychological or cognitivist frame posits the existence of cognitive schemas, or mental models, as a source of the knowns. Cognitive-emotive schemas shape the knowns. The knowns are a result of mental models, thinking-feeling concepts, or structures of mind. Mental models are codifications or representations of what is known and real. Individuals' personal schemes order their worldviews, affecting decisions-to-b-made and work-to-be-done. The psychological paradigmatic perspective construes knowledge (either tacit or explicit) as a product of conceptually-constructed ontological space [52, 53, 61, 35, 32].

The social or socialist frame claims that the knowns are the results of social practices. What individuals know and do are practices. The knowns as practiced activities are shaped by situations, roles and statuses of individuals. The knowns or practices are a result of social schemas or social structures. An organization is a set of associative relations and practices that orders its universe of discourse. The social paradigmatic perspective construes knowledge as a product of a socially constructed ontological space [7, 22, 50, 11, 43].

The cultural frame argues that the knowns exist as objects of meaning within webs of meaning, or meaning-systems. The knowns are shaped by meaning-systems. The knowns are a result of webs of meanings. An organization consists of sets of meanings which encapsulate decisions and actions. An organization is a source of common sense

of activities and events. People live-in matrices of sense. The cultural paradigmatic perspective construes knowledge as a product constructed within systems of meanings as ontological space [55, 56, 76, 58, 38, 77, 72].

The vocabulary, or symbol-system [23], of knowledge management's universe of discourse (e.g., knowledge, tacit knowledge, explicit knowledge, information, and data) denote and connote knowns, or objects of knowing, differently. This is because the vocabularies as taxonomies representing conceptions of things are paradigmatically framed by thinking-feeling schemas, or social or associative structures, or a matrix of meanings.

An exercise in mapping

A map [37, pp. 58, 758] is a topographical or topical rendering of the discourse space [22, p. 23], in this case, of knowledge management, in which a person lives. This discourse space is an infoscape [63] or a system of meaning-systems. We live among and with things we know, which we use in our everyday living here (in our discipline, our department, or organization). These known things, the knowns, are named and used in situations we live in. For example, decision making is an organizational and personal activity. Knowledge is considered an essential aspect of a decision making situation. Mapping paradigms of knowledge is also mapping the frames of decisions-to-be-made [4, p. 49]. The knowns can be talked about as cognitive schemas or mental models [52], social practices and their stories [11, 12], or informing objects [64]. Thus, the knowns, being aware of and reflective of them, can be dependent upon cognitive structures and process. Cognitive theory posits the knowns as the results of acts of cognition or thinking, following the information processing model of mind. Or, the knowns can be dependent upon social structures and processes; thinking is social construction. Sociological theory posits the knowns as products of associative behavior or interactions. Or, the knowns can be dependent on meaning structures and processes; thinking is symbolic manipulation. Cultural theory posits the knowns as products of semantic behavior or transactions. This paper is an exercise in rendering a mapping of three ontological regions in place in the discourse of knowledge management.

Essay's problematic

The paper's problematic (and knowledge management's) and question is that when you argue that the knowns are warranted assertions or justified beliefs, or explicit in some manner, you are stating this proposition relative to a (tacit) interpretive frame or perspective of understanding. What does this mean if your basic frame of understanding knowledge is grounded in the cognitivist frame, i. e., that what you know is a consequence of your mental models of things in the world, or grounded in the socialist perspective or in the cultural perspective? That is, if you are a cognitive constructionist, or a social constructionist, or a cultural constructionist, your use of the term "knowledge", and its synonyms, is going to function differently, or be construed in a different manner, because the source of common sense is different. That is, grounding something known on the existence of mental models is different than grounding something known on a practice of a community of practice; both of which are different than grounding something known in a meaning-system [23]. The paper begins with a discussion of meta-ontological perspective and then describes and analyzes the phenomenon of knowledge as presented in the knowledge management literature in terms of the psychological or cognitivist perspective, the social perspective, and the cultural perspective. The paper uses a semiotic method of inquiry [23] for discourse analysis of the knowledge management literature.

META-ONTOLOGICAL PERSPECTIVE

Although there are three dominant ontological perspectives [65]: the cognitivist, the socialist, and the cultural, a meta-perspective is a view of what each of these must logically and necessarily deal with. Each perspective has to deal with, or explain, the interaction of the individual and the collective in situations, the nature of experience, and the use of language, as well as knowledge as a product of each perspective's privileged position about knowing and the known. These perspective in their own way are the sourcing frames which explain all; each is a "totalizing" frame. The literature of knowledge management presumes that we live-in organizational landscapes consisting of situations wherein we practice our "crafts", and make decisions dependent upon what we know. Thus, we live-in "knowledge landscapes" [75, p. 3-6]. It is the argument of this paper that, in the knowledge management literature,

there are three paradigmatic perspectives of thinking (describing and analyzing) about knowing, or knowledge. The knowledge management worldview (perspective) or ontology, once past the ubiquitous *recitatio* of the trinity of the terms: data, information, and knowledge, spreads into a vast delta consisting of three frames or perspectives which channel further use and meanings of these terms especially "knowledge".

Within the KM perspective, the word "knowledge" is symbolized [23] or conceptualized, at the organizational level, as "organizational know-how"[21, p. 186], "knowledge artifact" [39, p. 24;, 43, p. 1011], "knowledge objects" [75, p. 19; 2, p. 1016], "potential for action" [41, p. 4], or ""procedural knowledge" [40, p. 335]. At an abstract level, knowledge is symbolized as "justified true belief" [48, p. 58]. It is sometimes referred to as "warranted true belief" [26, p. 279]. It is a Western perspective and conceit that knowledge is justified true belief, with an emphasis on "true," about worldly affairs. It is a Japanese, Zen Buddhist, attitude that knowledge is belief that may be justified but the matter of "truth" is ambiguous [30]. Sometimes, knowledge is conceptualized as "justified belief" [48, p. 59; 1, p. 109; 67, pp. 64-65], or as Dewey [23] would have it as "warranted assertion" (p. 16).

While these are ways in which "knowledge" is symbolized, it is understood to be (defined as) fundamentally "information" [3, p. 336; 13, p. 3; 24, p. 85]. That is, we live-in a matrix off accepted or taken-for-granted informing affairs or objects experienced inclusive of vocabularies used o designate these affairs and objects. And, information as the knowns is characterized as "organized, synthesized, or summarized" affairs [5; 8, p. 10], and presents itself as "systematizing and structuring" context [35, p. 1110]. Knowledge is information which supports and affords actions and decision-making in organizational situation [69, p. 39; 5, p. 13; 27, p. 10]. Information is "about meaning" [48, p. 58] and a source of knowing in social situations [7]. Information is knowledge made explicit in texts and documents, pictures, figures and tables,, and ultimately in contextual behavior [13, p. 3; 20, p. 36; 69, p. 164; 51, p. 635].

ONTOLOGICAL PERSPECTIVES AS INTERPRETIVE FRAMES OF KNOWLEDGE

A psychological interpretation

Knowing is a result of thinking-feeling models used to do and say things, or to make decisions in everyday situations. Knowing is a personal activity, a consequence of dealing with interactions with others [25, p. 268]. Knowing that some logic holds, that some object is in play, or that some procedure ought to be applied situationally, is an individual, isolated process. Knowledge of affairs in the world is "…'between the ears' of individual" [25, p. 267; 45, p. 106]. Mental models are resulting representations of things within experience and expressible in propositions about the world [36, p. 18244]. These cognitive schemas as ideas are "internal representations" expressible in sets of vocabulary reflective of webs of ideas about things [15, p. 602]. Knowledge is a conceptualization or articulated sense of things from a personal frame of reference [8, p. 10]. Knowledge is sourced in the individual's approach or perspective [44, p. 146]. Knowledge is a set of personal psychological constructs which are true and believable based on one's interpretive frame of "discourse" [73, pp. 43, 89-90].

Although knowledge is a result of complex cognitive constructs, and is a complicated affair, its integration in everyday decision-making is a personal idiosyncratic application to a situation. Knowledge is a consequence of personal interaction with an environment, of applying "thought models" [33, pp. 1-2], mental models [53], cognitive schemas [32, p. 569], or "scripts" [18, p. 11].

Personal knowing is propositional statements of fact as a result of meanings represented in a "network" of ideas which are "unique to each individual" [40, pp. 333, 335]. Personal knowledge is represented by "the way information is arranged and ordered in the human mind" [1, p. 109; 40, p. 335; 29, p. 1032]. In a materialist version, Fu [28] argues that this "knowledge representation" (p. 48) is symbolized in the form of neural nets [31, p. 76]. Another approach here is to consider the models or symbols of personal knowing as mental frames of reference [61, pp. 133, 137; 60, p. 21].

The classic definition of knowledge, following the cognitivist perspective, as found in the knowledge management literature is: "Knowledge is a fluid mix of framed experience, values, contextual information, and expert insight that

provides a framework for evaluating and incorporating new experiences and information. It originates and is applied in the minds of knowers. In organizations, it often becomes embedded not only in documents or repositories but also in organizational routines, processes, practices, and norms" [18, p. 5, 69, p. 4].

A social interpretation

The source of knowledge and the knowns is social interaction and dependent upon social situations [41, p. 4]. Knowledge results from associative activities as constructs of how a group's members do things [62, p. 224]. Knowledge is generated from situational activities and associative channels of individuals working together [33, p. 2]. Knowing organizationally is "sense making" [19] and the creation of knowledge [48; 14, p. 3]. Decisions and processes of making decisions are aspects of knowledge construction and dependent upon social situations [42, p. 24]. Decision-making procedures or practices are organization routines embodying knowledge. Knowledge is organized to the performance of work [78, p. 134]. Decision-making is an organizational practice

How individuals know to do things, and what they know, are consequences of "social practices" [7, p. 14]. The practices are social habits of behavior in typical social situations. Such situations are the grounds for individual performance. Practices are "social regularities" [22, p. 31] within organizational, participatory, situations [2, p. 39] which constitute the models of individual performances. Practices are the work routines and procedures which "fix" organizational meanings [11, p. 97] constitutive of social fields as aspects of "communities of practice" [10, pp. 163-164; 11, pp. 141-161]. Social fields or situations are interpretative frames or social matrices where knowledge is "socially located and constructed" [11, pp. 161-163; 74, p. 320; 73, pp. 89-90]. Nonaka & Konno [49; 50, pp. 40-41] call these social matrices "Ba" and view them as basic to knowledge creation. Organizational knowledge, for Nonaka and Konno, is an emergent transcendent affair [49, 50]. Such social frames or habits imply silent social rules [71, p. 14; 35, p. 1100]. Tsoukas [71] writes: "…the human agent's understanding resides … in the practices in which he participates. The locus of the agent's knowing how to follow a rule is not in his head but in practice…" (p. 16).

Knowledge, thus, is a product of individuals living-in communities of practice [43, p. 1013; 9, p. 1022; 66, pp. 143-144]. Communities of practice are recognizable by a "shared understanding" or intuitive grasp of things, and by a shared vocabulary [10, p. 172; 11, pp. 126-127]. A community of practice is expressive of a system of shared meanings—common sense—shaped by a set of shared processes for doing things [11, pp. 129, 219-220]. A community of practice presents a shared perspective or ontology. Communities of practice are about the social construction of knowledge (or reality) [7].

A cultural interpretation

Organizational environments, consisting of webs of meaning, situations, and vocabularies are locations "of shared beliefs (and values)" [72, p. 618] and contextualize decision-making situations. An organization's culture is background for what it knows [38, pp. 307-309]. Knowledge is understanding the meanings of the details of activities and actions in situations [55, p. 91]. Culture, a system of meaning-systems, is the framework of personal knowledge [55, p. 375; 77, p. 118; 59, p. 41]. Culture, as a web of meanings, is the frame of reference for construing all organizational activities and events. Culture is an explanatory perspective for understanding activities and events [54, p. 847]. As a system of meaning-systems, culture is a common sense readable in experiential objects. Meaning-systems are ontological sets of meaningful patterns of understanding, or "meaning objects" [17, p. 41].

For Polanyi [55], all knowing, the knowns as meaning objects, is embedded in or encapsulated in language, a vocabulary, expressive of things known within a system of meaning-systems (p. 289). Language or a vocabulary provides "a fixed interpretative framework" by naming and identifying things and affairs [55, p. 75]. Individuals live-in their languages, vocabularies, which are descriptive and analytic ways of experiencing things within a meaning-system framework [55, p. 59]. Individuals live-in a conjunctive and constructive web of meanings, a "conviviality" [55, p. 51, 55]. Individuals are enmeshed in "formative milieu[s]" [55, p. 134] consisting of networks

of meaning. Details of activities and participatory events are realized as knowns conjoined as entireties (meanings) within a "cultural background" [56; 57, p. 175].

Culturally, we act through the details of a situation that are known or understood denotatively or connotatively by means of lived-in interpretive frames. These are semantic fields which encapsulate the particular and specific activities and events and which afford recognizable meanings [57, pp. 171, 187]. While we dwell among and with the details of our everyday lives, we live-in their entireties, their meanings. What we know is what the details mean; what they mean is always given by experienced patterns of coherence given in our vocabularies [58, pp. 133-134, 150, 161].

Knowledge is possible because the knowns are part of a meaningful perspective on the world. Webs of meaning, meaning-systems, encapsulate individual and associative activities as what is known and knowable [30, pp. 107, 110], providing an inarticulate (tacit) context [70, p. 105]. Semantic structures or meaning-systems shape the way the details of situations are taken, or understood. Meaning or information is a semantic shaping and forming of the specific activities and events [70, p. 107]. Meaning-systems (shared values and beliefs) shape situated actions and determine what individuals know and understand [46, p. 188; 34, p. 58]. Meaning-systems are analogous to theoretical constructs generative of an ontological perspective of the experienced world. What a person knows, even how a person knows, what is known or the known objects, is the culture or system of meaning-systems a person lives-in [55, pp. 374-375; 56; 58, p. 66]. Because we live-in a cultural matrix or matrices, things re-cognizable and understandable; vocabularies are nets of ideas, or meanings, for catching and categorizing the details of experience.

CONCLUSIONS

This essay is a mapping exercise of the paradigmatic frames of use and conceptualization of "knowledge" in the knowledge management literature. The three ontological perspectives: the psychological, the social, and the cultural, are sources and conditions for possible different senses of knowledge. As a conceptual and discursive symbol (or word with meaning) [23], knowledge includes the symbol-meanings [23] of tacit knowledge, explicit knowledge, information, and data. The argument is that there are at least three connotative senses of the notion of knowledge as used in the discourse meta-community (communities) of knowledge management. Maps of the knowledge management discourse, i.e., symbols and their configuring meaning systems, are represented in taxonomic structures. The psychological perspective sources knowledge in metal models or cognitive schemas. The social perspective places knowledge in the practices of a community of practice. The cultural perspective suggests knowledge to be construed as propositions sourced in systems of meanings. Mapping the function and the phenomenon of knowledge in organizations is dependent upon mapping the paradigmatic ontological perspectives at play in the discourse or narrative space of knowledge management in use in an organization.

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