

Pluralism in Knowledge Management: a Review

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Abstract: The purpose of this article is to review the role of simultaneous application of multiple perspectives, or pluralism, in knowledge management, and to describe theoretical frameworks that support pluralism. Pluralism is defined as support for all three of the systems perspectives - hard, soft, and critical - that are implicit in the popular Davenport and Prusak (1998) definition of knowledge. These perspectives are associated with research paradigms (positivist, interpretivist, pluralist) and knowledge perspectives (application, normalization, creation). A case study of coordinating work in a hospital is reviewed to illustrate the role played by pluralistic approaches in knowledge management. A literature search is conducted to find frameworks that support pluralism. The findings are as follow. In the hospital case study the introduction of a patient record system (hard system) was the occasion for changes to both coordination (soft systems) and power relations (critical systems). Facts, norms and feelings are intertwined. While the electronic tool by itself is neutral in the face of power relations, its use in organisations is not. In this case at least, a holistic and pluralistic approach to knowledge management is required. In the search for frameworks to support pluralism, more than 50 frameworks from the general knowledge management literature are identified. Of the eight selected for further study, three are found to be pluralistic. These three - critical systems, scientific discourses, and Habermasian inquiry – share common characteristics. All three recognise that conflict is the precondition to knowledge creation, and that power relations, value commitments, and ethics are central to knowledge management. It is concluded that the knowledge management literature as a whole favours a single systems perspective (hard systems); a single research paradigm (positivism, focusing on objective facts); and a single knowledge management domain (knowledge application). This singular (non-pluralistic) approach produces theories about knowledge that has already emerged. Yet the Davenport and Prusak (1998) definition of knowledge and the hospital case study include two other perspectives – soft systems and critical systems – that focus on the organizational and individual aspects of emergence, respectively. In practice, knowledge management must address the need to simultaneously solve technical problems, resolve interpersonal issues, and dissolve personal conflict. The contribution of the paper is the comparison of knowledge management frameworks on the basis of underlying system perspectives, and the identification, description, and application of some pluralistic frameworks. Each systems perspective constitutes a different discourse on the purposes served by knowledge management, and pluralisms are required to integrate them. Pluralisms constitute both a framework for inquiry in knowledge management and a design theory for collaborative technologies. The review is not exhaustive. It is beyond the scope of this paper to examine the link between the purposes served by knowledge management and the methodology required for development. The paper contributes to the literature that seeks to understand the complexity of knowledge management practice via 'awareness of the potential and the implications of the different discourses in the study of knowledge and knowledge management.'

Keywords: critical systems, foundational theory, Habermasian inquiry, knowledge management, multiple perspectives, power relations, pluralism, scientific discourses, theoretical frameworks

1. Introduction

"Our objective with this analysis is to raise IS (information systems) researchers' awareness of the potential and the implications of the different discourses in the study of knowledge and knowledge management." Schultze and Leidner (2002, p. 213).

Knowledge management is a broad and relatively new field central to understanding the modern service-based, knowledge-intensive economy. Researchers come to knowledge management from different disciplinary backgrounds, to work on a broad range of topics, guided by a variety of images (Morgan, 2006), analogies, and research approaches. A mode of organizing knowledge, ideas, or experience (discourse) is required to reduce the fragmentation and contradictions in knowledge management theory, and in knowledge management practice. In the remainder of this introductory section three perspectives on knowledge management are introduced, the need for their simultaneous application in theory and in practice briefly investigated, and research objectives stated.

1.1 Three perspectives

Operations research provides three system perspectives (hard, soft, and critical) that may be useful in organising concepts associated with three perspectives on knowledge management (application, normalization, and creation). The *hard* systems perspective treats knowledge as explicit, a representational object. The assumption is that knowledge is standardized and applicable across

social contexts. The hard system perspective typically employs a positivist research paradigm to study the efficient collection, storage and dissemination of objective data (*knowledge application*). The *soft* systems perspective treats knowledge as tacit, generated and consumed in social action. The assumption is that knowledge is innovation in a social context. The soft system perspective typically employs an interpretivist research paradigm to study participatory organizational practices and their relationships to mutual expectations or norms (*knowledge normalisation*). The critical system perspective treats knowledge as a personal creation that is aspirational and contested. The assumption is that knowledge is directly connected to power, and power to knowledge. The critical systems perspective typically employs a pluralist research paradigm to study the coercive use of power (*knowledge creation*). (Guo and Sheffield, 2008)

1.2 Pluralistic perspectives in theory

A popular working definition of the field is provided by Davenport and Prusak (1998):

“Knowledge is a fluid mix of framed experience, values, contextual information, and expert insights 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.” (ibid, p. 5)

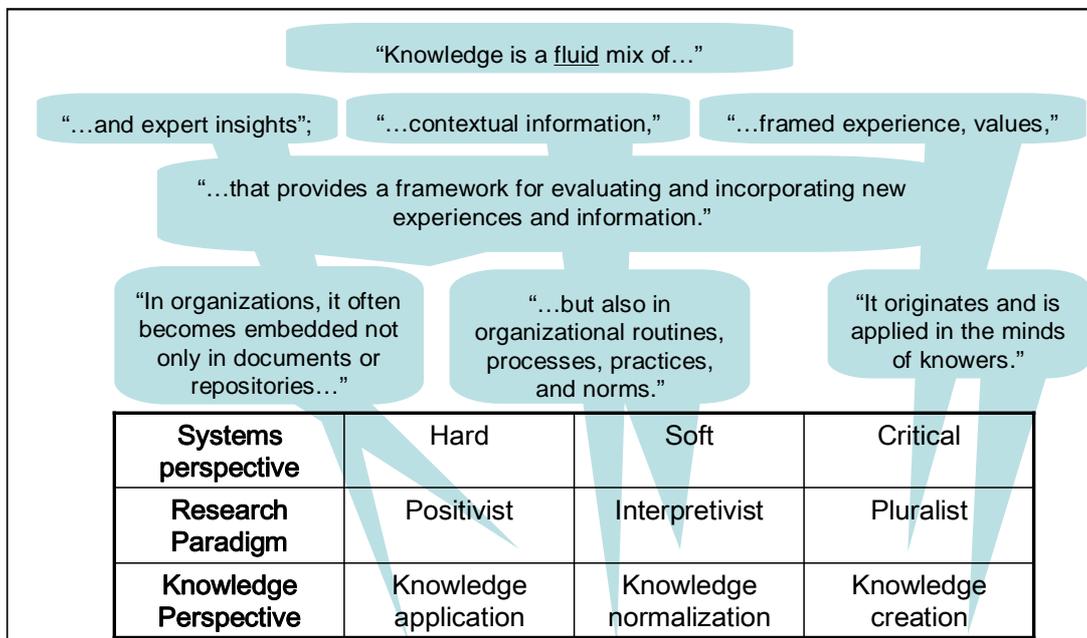


Figure 1: Discourse in knowledge management

Three perspectives maybe discerned here. *Firstly*, expertise and documented knowledge is the emerged (“explicit”) knowledge (Zack, 1999) that constitutes the knowledge representations or boundary objects available to members of both local and more global communities. *Secondly*, it is the aggregate of the action originated by knowers that, over space and time, appear as organizational routines, processes, practices and norms. *Thirdly*, knowledge that originates in a particular local context through the framed experiences and values of knowers is the emergent (“tacit”) knowledge (Polanyi, 1966) that captures the personal aspect of ‘the way we do things around here.’ These phenomena are underpinned by elements from three knowledge management perspectives: systems perspectives (hard, soft, and critical); research paradigms (positivist, interpretive, and critical pluralist); and knowledge perspectives (knowledge application, knowledge normalization, and knowledge creation). The three clusters constitute a typology of knowledge management theory and practice. These are seen as emphasizing the factual, interpersonal, and personal aspects of knowledge phenomena, respectively. Figure 1 illustrates how this cluster of aligned theoretical concepts may be used to deconstruct the Davenport and Prusak (1998) definition.

1.3 Pluralistic perspectives in practice

Ellingsen (2003) provides a case study of coordinating work in hospitals that illustrates how, in practice, hard, soft and critical systems perspectives are intertwined. In hospitals coordination depends on the integration of oral (soft system) and textual (hard system) knowledge management practices. Oral aspects are important in face-to-face interactions between a patient and a health worker, and between health workers. Textural aspects are important in record keeping and organisational memory. Three vignettes are provided about the case of a single patient who attends a department of rehabilitation over a period of one to two years. Care of the brain-damaged patient relies for success on the professional expertise and coordination of seven types of professionals (physician, nurse, occupational therapist, physiotherapist, speech therapist, psychologist, and social worker). *But who will say what these highly educated people know? And how will the knowledge distributed among them be recorded?* According to the chief physician “we need a common framework or an ideology; for instance, there is a connection between body impairment and how to manage things in everyday life... *This means that everything is interconnected and accordingly must be regarded as a whole.*” (ibid, p. 50) An electronic patient record system is to be adopted, but this tool requires explicit prior agreement on a structured format that works for all seven types of health professionals. Contradictions emerge between the formal requirements for the use of the technology, and the heterogeneous nature of the perspectives of different types of health professional. The use of the new, more formal reporting mechanism had the effect of reducing the extent of oral practices, and increasing textural knowledge management practices. As a result, the social relationships among the different kinds of professionals changed, and informal or mutual accommodation took place.

Contradictions also emerged during discussions about the norms that should govern the legitimate joint authorship of the electronic patient record. The use of explicit and uniform requirements for patient records in a heterogeneous professional environment creates tension. Hammering creates sharp distinctions between the hammer, the hammerer, and those being hammered. The use of an electronic tool sharpens distinctions between rules, those who make the rules, and those that must obey the rules. In this case, the physician is making the rules and the members of other health professions are expected to obey. The formality associated with the use of the electronic tool has the effect of intensifying the power imbalances between different types of professionals. The use of the tool becomes the occasion for promoting the professionalism of some specialties and the downgrading of others. Additional accommodations and additional accountability were required. “It implies hard work...The participants had to accept that some of their professional assessments were evaluated in a more critical perspective.” (ibid, p. 51). Knowledge management practice must resolve competing values and requirements for efficient record keeping, mutually supportive interpersonal relationships, and access to power. While the electronic tool itself is neutral in the face of power relations, its use in organisations is not. In hospitals at least, a holistic and pluralistic approach to knowledge management is required.

1.4 Research objectives

It is clear that the simultaneous application of multiple perspectives, or pluralism, is inherent in the Davenport and Prusak (1998) definition, and in the Ellingsen (2003) case study. What is not clear is the degree to which pluralism is embraced by the general knowledge management literature. The literature favours a hard systems (positivist) approach that prioritizes observation and generalization over action to improve practice in a particular context (Guo and Sheffield, 2008). The current study aims to surface systems perspectives underlying knowledge management theory, and to select frameworks that embrace pluralism for further study. Non-pluralistic and pluralistic frameworks located in a search of the general knowledge management literature are presented in the next two sections.

2. Frameworks in knowledge management

Because knowledge management is a heterogeneous field researchers engaged in different topics and communities may observe different phenomenon and report different findings. Croasdel, *et al.* (2003) examines the 76 research papers presented at the Hawaii International Conference on System Sciences (HICSS) during the period 1998–2002. They find that conceptual difficulties are limiting the development of a common vocabulary among members of the KM research community — “Unfortunately, it appears that knowledge is often formed from bonds that are hard to understand from the outside looking in and difficult to explain from the inside looking out.” Guo and Sheffield (2008) analyse 160 knowledge management research articles in ten influential journals for the period 2000–2004. They find that research published in influential journals under the rubric of knowledge

management is characterised by clear statements of research purpose, paradigm and methodology. The authors found no evidence that conceptual difficulties are limiting the development of a common vocabulary among the community of KM researchers who read these ten journals. The confusion surrounding different findings is reduced if research is grounded in theoretical frameworks such as those identified in this and the subsequent section.

2.1 Literature search

The general knowledge management literature is searched for frameworks influential in developing a common vocabulary among members of different knowledge management research communities. Promising frameworks are those that score against three criteria: *foundational theory* (that is, frameworks that develop and/or review concepts and relationships, taxonomies and perspectives of theoretical importance, and/or of broad application to knowledge management researchers); *impact* (frameworks frequently cited by knowledge management authors); *inquiry* (frameworks that develop or review the philosophical assumptions underlying knowledge management research and/or research paradigms). The search process delivered more than 50 frameworks that scored well against a single criterion, including the following:

Foundational theory: Baskerville and Dulipovici, 2006; Croasdell, *et al.*, 2003; Grover and Davenport, 2001; Holsapple and Joshi, 2004; Lehaney, Clark, Coates, and Jack, 2004; Peachy and Hall, 2005; Rubenstein-Montano, *et al.*, 2001; Shin, Holden, and Schmidt, 2001; Stenmark, 2002.

High impact books: Wenger, 1999 (5000 citations); Nonaka, 1994 (3000 citations); Nonaka and Takeuchi, 1995 (3000 citations); Davenport and Prusak, 1998 (2000 citations).

High impact articles: Hansen, Nohria, and Tierney, 1999 (1000 citations); Nonaka and Konno, 1998 (900 citations); Blackler, 1995 (700 citations); Alavi and Leidner, 2001 (500 citations); Orlikowski, 2002 (300 citations); Earl, 2001 (200 citations).

Inquiry: Guo and Sheffield, 2007; Jackson, 2005; Marshall and Brady, 2001; Orlikowski, 2002; Panagiotidis and Edwards, 2001; Schultze and Leidner, 2002, Sorensen and Kakiyara, 2002.

2.2 Findings

In total approximately 17,000 citations have been made to the high impact books and articles, thus establishing their influence in knowledge management research. Eight frameworks are chosen that, collectively, perform well against all three criteria. Three of these frameworks support pluralism via well-defined systems perspectives, and are investigated in the following section. The remaining five frameworks are briefly described below. An indication is given of the dominant system perspective.

Hierarchy: from data to information to knowledge. (Stenmark, 2002). The theme that objective data is the ultimate source of both socially useful knowledge and personal knowledge is seen as focusing on knowledge as context-independent facts. (*Hard systems*).

Flow: the knowledge management value-chain. (Shin, 2001). This framework treats knowledge as an organizational resource to which value is added as it moves downstream through the local activities in the value chain. This is a work-flow metaphor that focuses on efficiency and effectiveness in achieving organizational goals. (*Hard systems*).

Exchange: the knowledge market. (Grover and Davenport, 2001). The exchange and flow frameworks are both oriented to promoting organisational success through efficient knowledge transfer. However, unlike the knowledge management value-chain, the exchange framework attempts to describe individuals' rational motivations for sharing knowledge with each other. This framework assumes that the very act of sharing knowledge will lead to benefits and so the imperative for the organization is to find means of increasing the efficiency of the market. (*Hard systems*).

Transformation: knowledge conversion. (Nonaka, 1994). SECI (socialization, externalization, combination, internalization) focuses on the social processes at work in the transformation of explicit to implicit knowledge, and vice versa. Inasmuch as the SECI model does not dwell on the technical systems required for the (non-transformative) storage and dissemination of explicit knowledge, nor on the preconditions required to address power relations, it does not fully investigate the role of objective facts and personal values. (*Soft systems*).

Systems thinking: emergence. (Rubenstein-Montano, *et al.*, 2001). Systems thinking is not well represented in knowledge management research. The single article encountered (Rubenstein-Montano, *et al.*, 2001) interprets knowledge management themes in terms of systems concepts such as people, learning and technology. While a holistic approach is recommended there is no explicit or implicit recognition of any particular underlying knowledge perspective. (*A mixture of hard and soft systems*).

2.3 Multiple perspectives in knowledge management

Table 1 provides a simple graphical representation that links the eight frameworks to systems perspectives, research paradigms, and knowledge management domains, and classifies them as pluralistic or non-pluralistic.

Table 1: Perspectives and frameworks in knowledge management

Knowledge Management Perspectives			
Systems perspective	Hard systems	Soft systems	Critical systems
Research paradigm	Positivist, focusing on objective facts	Interpretive, focusing on social norms	Critical pluralist, focusing on personal values
Knowledge management domain	Knowledge application	Knowledge normalization	Knowledge creation

Non-pluralistic knowledge management frameworks

Hierarchy: Data, information, knowledge (Stenmark, 2002)	XXX		
Flow. Value chain (Shin, 2001)	XXX		
Exchange. Market (Grover and Davenport, 2001)	XXX		
Transformation: SECI (Nonaka, 1994)	X	XXX	X
Systems thinking (Rubenstein-Montano, <i>et al.</i> , 2001)	XXX	XX	X

Pluralistic knowledge management frameworks

Critical systems (Jackson, 2005)	XXX	XXX	XXX
Scientific discourses (Schultz and Leidner, 2002)	XXX	XXX	XXX
Habermasian inquiry (Guo and Sheffield, 2007)	XXX	XXX	XXX

3. Pluralistic frameworks in knowledge management

This section explores the three frameworks that support pluralism. Each framework is anchored in well-defined systems perspectives that differentiate and integrate all three systems perspectives. All three pluralistic frameworks may be useful in analysing “the potential and the implications of the different discourses.” (Schultze and Leidner 2002, p. 213).

3.1 Critical systems: Conflict and power

Jackson (2005) broadens the dialogue between knowledge management and systems thinking to include a variety of theories and methods, and employs the latter to critique knowledge management frameworks. A particular focus is how knowledge management deals with the conditions enabling knowledge creation. (Tackeuchi and Nonaka, 2004). Knowledge creation is seen as a dialectical process in which the deeply held beliefs and (value) commitments of individuals “is dynamically created out of contradictions in a dialectical process” whereby “individuals confront their own most cherished assumptions and a synthesis of different perspectives emerges” (Jackson 2005, p. 190). A social systems approach that champions human agency and employs an interpretivist approach to inquiry is considered a necessary but insufficient move away from more static and mechanistic approaches that focus on objective facts. Knowledge management still needs to confront the conflict, and relations to power, that are inherent in knowledge creation (Marshall and Brady, 2001; Müller-Merbach, 2004; Panagiotidis and Edwards, 2001; Pozzebon and Pinsonneault, 2006). Inasmuch as the dialectical process at the heart of organisational learning requires conflict, and involves the

exercise of power, “a critical systems approach, embracing ethical concerns, is essential” (Jackson, 2005, p. 191).

3.2 Scientific discourses

According to Schultze and Leidner (2002), ‘In information systems, most research on knowledge management assumes that knowledge has positive implications for organizations. However, knowledge is a double-edged sword: while too little might result in expensive mistakes, too much might result in unwanted accountability. The purpose of this paper is to highlight the lack of attention paid to the unintended consequences of managing organizational knowledge and thereby to broaden the scope of IS-based knowledge management research.’ (ibid, p. 213). Schultze and Leidner (2002) adopt a framework developed by Deetz (1996) for classifying scientific discourses. Although Deetz’s framework is intended to provide a taxonomy of research for organization science, it can also be used to “make sense of knowledge management research as well as knowledge management itself” (Schultze and Leidner 2002, p. 215). (Figure 2).

The framework consists of two dimensions: the ‘origin of concepts and problems’ dimension and the ‘relation to dominant social discourse’ dimension. The first dimension is concerned with how research concepts and problems are developed. At the local/emergent end of the continuum concepts are *developed from* a specific situation whereas at the elite/a priori end existing concepts are *applied to* a specific situation. The second dimension is concerned with the stance of the researcher in relation to the status quo. The consensus end of this continuum seeks to maintain order and equilibrium and regards this as the natural state of social systems. In contrast, the dissensus end is at odds with the dominant social structure and ‘considers struggle, conflict, and tension as the natural state’ (ibid, p. 216).

These two dimensions create four quadrants, each of which is oriented towards a particular scientific discourse: normative, interpretive, critical, and dialogic. The normative discourse is characterised by ‘codification, the normalization of experience, and the search for law-like relationships’ (ibid, p. 17). ‘Normalization’ in the context of scientific discourse emphasizes objective facts. The interpretive discourse assumes reality is socially constructed and seeks consensus on organizational activities from participants’ ‘own frame of reference’ (Collis and Hussey, 2003, p. 53). ‘Normalization’ in the context of communities of practice (Wenger, 1999) revolves around social norms, and hence the interpretive scientific discourse. The objective of critical discourse is to make apparent forms of domination and conflict which implicitly lead to power imbalances between organisation members. Finally, the dialogic discourse recognises that reality is socially constructed yet the multiple narratives and perspectives are disjointed and incoherent. The dialogic discourse differs from the critical discourse ‘in that it considers power and domination as situational and not owned by anything or anyone’ (Schultze and Leidner, 2002, p. 217). Only the dialogic and critical discourses emphasize power relations, and the explicit need for personal commitments and values.

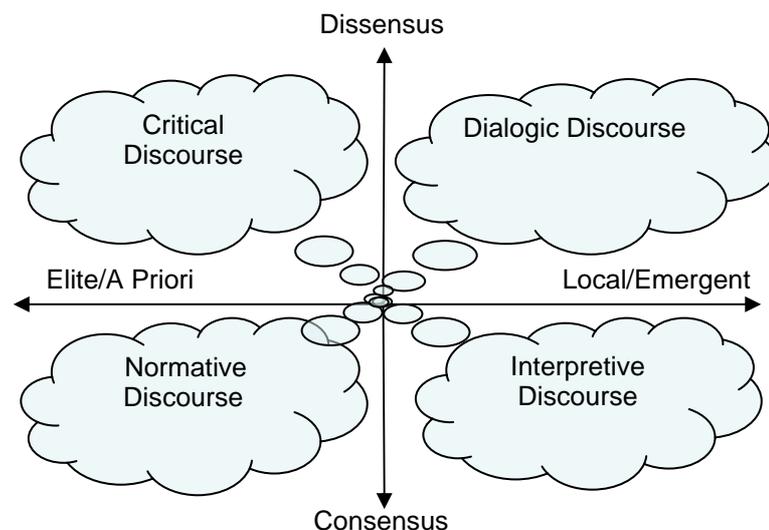


Figure 2: Deetz’s scientific discourses

3.3 Habermasian inquiry

Guo and Sheffield (2007) develop a critical pragmatist system of inquiry (Forester, 1993). The system combines elements of pragmatism (Churchman, 1971; Menand, 2001) and Habermas's Theory of Communicative Action (Habermas 1984, 1987). The focus is on practice, and the use of the system is intended to provide a 'universally pragmatic framework useful in managing the complexity, and conceptualizing the richness, of knowledge phenomena'. The framework is organized as a three-level integrating structure based on Habermas's three knowledge interests (technical, practical, and emancipatory) and the rationality associated with each. (Habermas, 1968). The other three design elements (Churchman's roles, knowledge dynamics, and research paradigms) are positioned according to these three encompassing levels. The resulting framework 'represents a complex learning system, where there are bidirectional loops between each pair of the three levels of rationality'. (Figure 3).

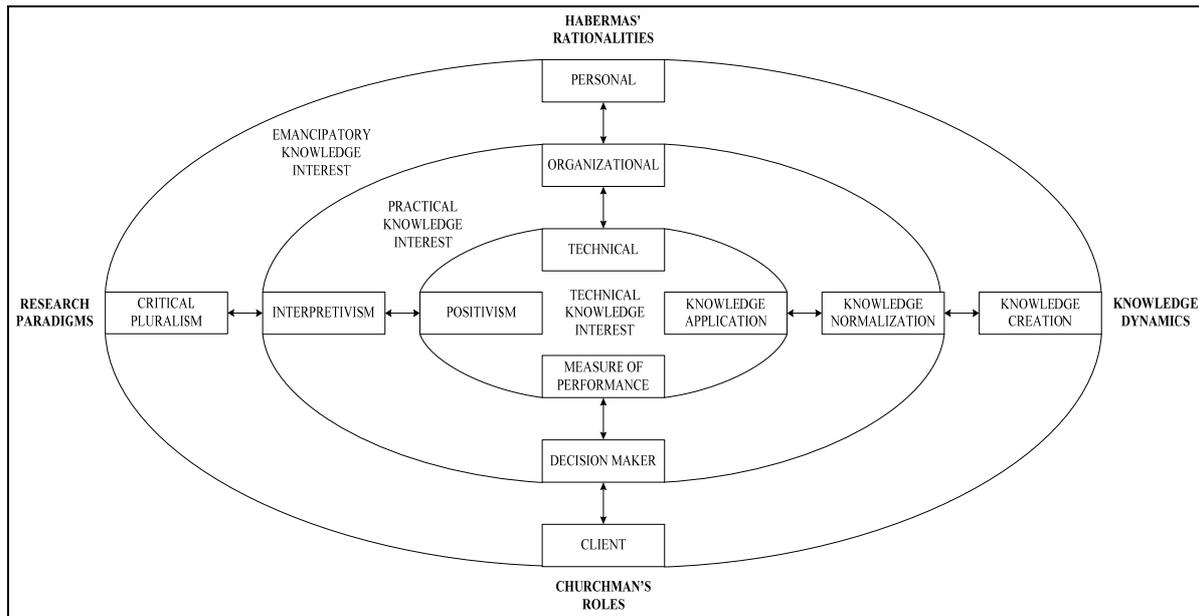


Figure 3: The Habermasian inquiring system

Knowledge creation

The relevance of the framework to knowledge management is established through knowledge dynamics associated with the intersecting domains of knowledge creation, knowledge normalization, and knowledge application. A knowledge initiative in one domain 'always already' assumes a horizon of possibilities made possible through the existence of the other two domains. Fundamentally, knowledge creation is enacted by individual stakeholders (clients, in terms of Churchman's roles) through their uniquely personal cognitive processes. These include processes associated with power relations, social justice and ethics (Sheffield and Guo, 2007) that serve Habermas's emancipatory knowledge interest. Critical pluralism is seen as an appropriate paradigm for studying the conflict that each stakeholder experiences among competing guiding images, beliefs, values, aspirations, and commitments. (Mingers, 2001).

Knowledge normalization

The idea of knowledge normalization is similar to Nonaka's knowledge spiral, in which knowledge is developed, refined, and amplified from the individual to the organizational level. Knowledge normalization serves Habermas's practical knowledge interest and Churchman's organizational decision maker role - clients' personal knowledge is normalized (socialized) according to the collective values of the decision maker in order to become organizational knowledge. The interpretive paradigm is seen as appropriate for research that investigates the inter-subjective meaning and mutual accommodations central to the normalization process. (Orlikowski, 2002).

Knowledge application

Finally, knowledge application refers to how knowledge - created at the personal level, and normalized at the organizational level - is ultimately utilised in day-to-day operations to achieve organizational results (competitive advantage, organizational capability). By performing against measures such as these, knowledge application 'realizes' organizational knowledge, thus serving Habermas's technical knowledge interest. The positivist paradigm is seen as appropriate in evaluating technical excellence validated by objective truth.

4. Discussion and conclusion

4.1 Discussion

Only the pluralistic frameworks described above capture the richness of the practical example provided by Ellingsen (2003), and the working definition provided by Davenport and Prusak (1998). The alignment between knowledge management perspective (viz, knowledge application, knowledge normalization, knowledge creation), the three pluralistic frameworks, and coordinating work in hospitals is summarised below. (Table 2).

Table 2: Pluralistic frameworks and their application to Ellingsen (2003)

Knowledge management domain	Knowledge Application	Knowledge Normalization	Knowledge Creation
Critical Systems (Jackson, 2005)	Static and mechanistic approaches that focus on objective facts	Dialectical process to resolve contradictions	Conflict and relations to power are inherent in knowledge creation
Scientific Discourses (Schultz and Leidner, 2002)	Normative Discourse	Interpretive Discourse	Critical and Dialogic Discourses
Habermasian Inquiry (Guo and Sheffield, 2007)	Technical Knowledge Interest	Practical Knowledge Interest	Emancipatory Knowledge Interest
Coordinating Work in Hospitals (Ellingsen, 2003)	A textual tool is applied in the form of electronic patient record technology	Mutual accommodation of different types of health professionals	While the tool itself is neutral in the face of power relations, its use in organisations is not

Knowledge application

Critical Systems characterises Knowledge Application as comprised of static and mechanistic approaches that focus on objective facts. Knowledge Application is aligned with the Normative Scientific Discourse and the Habermasian Technical Knowledge Interest. In Ellingsen (2003), Knowledge Application consists of the implementation of a textual tool in the form of electronic patient record technology.

Knowledge normalisation

Critical Systems characterises Knowledge Normalisation as a dialectical process to resolve contradictions. Knowledge Normalization is aligned with the Interpretive Scientific Discourse and the Habermasian Practical Knowledge Interest. In Ellingsen (2003), Knowledge Normalization consists of the mutual accommodation of different types of health professionals.

Knowledge creation

Critical Systems characterises Knowledge Creation as inherently involved with conflict and relations to power. Knowledge Creation is aligned with the Critical and Dialogic Scientific Discourses, and with the Habermasian Emancipatory Knowledge Interest. In Ellingsen (2003), Knowledge Creation involves the assertion that while the electronic tool itself is neutral in the face of power relations, its use in organisations is not.

5. Conclusion

The literature search identified more than 50 knowledge management theoretical frameworks, but only three that are pluralistic. It is concluded that the knowledge management literature as a whole favours a single systems perspective (hard systems); a single research paradigm (positivism, focusing on objective facts); and a single knowledge management domain (knowledge application). (Table 1). This singular (non-pluralistic) approach produces theories about knowledge that has

already emerged. Yet the Davenport and Prusak (1998) definition of knowledge includes two other perspectives – soft systems and critical systems – that focus on the organizational and individual aspects of emergence, respectively.

Pluralism was defined as support for all three of the systems perspectives that are implicit in the popular Davenport and Prusak (1998) definition of knowledge. The three pluralistic knowledge management frameworks – critical systems, scientific discourses, and Habermasian inquiry – were found to share common characteristics. All three recognise that conflict is the precondition to knowledge creation, and that power relations, value commitments, and ethics are central to knowledge management. The case on coordination work in hospitals illustrates that, in practice, the simultaneous application of all three systems perspectives is required. (Table 2).

In practice, knowledge management must address the need to simultaneously solve technical problems, resolve interpersonal issues, and dissolve personal conflict. A holistic and pluralistic approach to organizing knowledge, ideas, and experience, is required. The contribution of the paper is the comparison of knowledge management frameworks on the basis of underlying system perspectives, and the identification, description, and application of pluralistic frameworks. These systems perspectives constitute different discourses on the quite different purposes served by knowledge management. They therefore constitute important aspects of design theory for collaborative technologies that address situations in which facts, norms and feelings are intertwined. It is beyond the scope of this paper to examine the link between purpose and methodology. The paper contributes to the literature that seeks to understand the complexity of knowledge management practice via 'awareness of the potential and the implications of the different discourses in the study of knowledge and knowledge management'.

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