Knowledge management paradigms, philosophical assumptions: an outlook on future research

ABSTRACT

This study informs knowledge management (KM) research assessing the philosophical assumptions and paradigms that have formed around the discipline. Reviewing positivism, critical realism, interpretivism or constructivism, and pragmatism the researcher suggests to draw on constructivism to inform KM theory. Moreover it is suggested that a mixed methods approach is the most suitable to engage in research around KM so that a flexibility can be maintained that will allow for an open minded approach to detecting what KM is and how knowledge can be managed.

Keywords: critical realism, interpretivism or constructivism, knowledge management, positivism, pragmatism

INTRODUCTION

'Knowledge' and 'management' have existed as separate terms for decades. It was not until renowned Economist Peter Drucker (1993) declared that the future lays in the minds and not the hands of the people that knowledge management (KM) theory was first introduced to mobilise corporate effectiveness (Sveiby, 1990, 1997, 1999; Nonaka, 1991; Wiig, 1993). Knowledge is the corporate asset (Drucker, 1995; Liebeskind, 1996; Wiig, 2004) that is meant to be managed to enhance organisations' ability to compete (e.g. Campbell, Coff and Kryscynski, 2012; Davenprot and Prusak, 2000; Palte *et al.*, 2011; Pascal, Thomas and Romme, 2013; Pavel and Martin, 2011). Therefore, organisations seek to adjust their core

business strategies to manage knowledge effectively (Burkharda, Hilla, and Venkatsubramanyana, 2011; Erickson and Rothberg, 2011; Nonaka and Takeuchi, 1995).

There is no consensus on what knowledge is, whether it can be managed, and how KM is to be practiced. Moreover, there is no consensus among KM scholars on the paradigms and methods used to study knowledge processes in organisations (Alvesson and Kaerreman, 2001; Barley, Treem and Kuhn, 2018; Guo and Sheffield, 2008; Heisig *et al.,* 2016). There is widespread argumentation that the effective utilisation of knowledge positively affects organisational performance (Mertins, Heisig and Vorbeck. 2001; Sveiby, 1999), and that KM may assist organisations facing the increasing challenges of global competitiveness (Kalkan, 2008). Inkinen (2016: 242) however reports that "much deeper understanding of the organizational complexity and utilization of more sophisticated research models are needed to manifest the association between KM practices and financial performance outcomes." KM may be interpreted in various ways (Akehurst *et al.,* 2011; Barley et al.,, 2018; Davenport, De Long, and Beers*,* 1998). According to Dalkir (2005: 6) "at one extreme, knowledge management encompasses everything to do with knowledge. At the other extreme, it is narrowly defined as an information technology system that dispenses organisational know-how. Knowledge management is in fact both of these and many more." KM is arguably the theory of 'becoming aware of' knowledge embedded in an organisation and the adopting strategies to leverage it (Bukowitz and Williams, 2000; Mathis and Jackson, 2006). The purpose of this paper is to reflect on the philosophical assumptions and paradigms that have formed around the discipline, for this reason a definition for KM will not be established. In neutrality it can be said that the term KM is an action discipline that symbolises a range of strategies and practices used to adopt, create, distribute, enable, identify, retain, share, and transfer knowledge (Jennex, Smolnik and Croasdell, 2008).

Since KM is still in its "embryonic stage" (Serenko *et al.,* 2010: 3) reflecting on philosophical assumptions that have developed around KM research will assist in determining which paradigm to draw on when asking what question in KM research; these are positivism, critical realism, interpretivism or constructivism, and pragmatism (Burrell and Morgan 1979; Deetz 1996; Easterby-Smith, Golden-Biddle and Locke, 2008; Guba and Lincoln 1994; Schultze and Leidner, 2002; Schultze and Stabell, 2004). To begin we look at the paradigms that have developed around KM before discussing their feasibility for the discipline, this will be followed by a discussion and suggestions to facilitate theory building in the KM discipline.

PARADIGM DEVELOPMENT IN KM

When engaging in KM research, a reflection on the philosophical assumptions and paradigms that have formed around the discipline is valuable; even more so since knowledge is included in its definition (Schultze and Stabell, 2004). KM as a discipline originates through the contributions of scholars in economics, sociology, philosophy, and psychology, intellectual capital, artificial intelligence, information technology (IT), strategic management, and human resource management (HRM) (Baskerville and Dulipovici, 2006; Prusak, 2001; Swan, Scarbrough and Preston, 1999). The first main contribution for the KM community are Nonaka and Takeuchi's (1995) *The Knowledge Creating Company*; Sveiby's (1997) *The New Organisational Wealth;* Wiig's (1993) *Foundations to Knowledge Management* and *The Knowledge-Based Theory of the Firm* and its generation and application of knowledge (Grant, 1996; Spender, 1996). Serenko *et al.*'s (2010: 3) find that there has yet to be an agreement on what KM and what knowledge actually is (also see Barley *et al.,* 2018). Heisig et al. (2016; 1186) for example found that eight specific research themes dominate the discussion on KM: "business strategy, intellectual capital, decision-making, knowledge sharing, organizations learning, innovation performance, productivity and competitive advantage."

Fahey and Prusak (1998) note that developing a working definition for knowledge is problematic since the term serves numerous purposes. In principle knowledge means to know an action or process, where 'know' derives from the Latin word *noscere* standing for 'to know' and 'ledge' standing for 'action' and 'process' (Searle, 1969 in Senge *et al.,* 1999: 421). Through Polanyi (1998) we know that knowledge is either explicit or tacit in nature and that knowledge emerges through individual's integration in the world. (Argote and Miron-Spektor, 2011; Gourlay, 2006).

To develop an understanding of the different paradigms for KM we look for ontology and epistemology. Ontology assists in identifying the study's subject and hence what is considered to exist and in what form—i.e., tacit knowledge embedded in individuals (constructivism) or information stored in information technological (IT) systems (positivism)—(Guba and Lincoln, 1994). Schultze and Stabell (2004: 553) suggest asking '*what* is knowledge' and '*when* is knowledge' to identify the epistemological positioning. By asking *what* can be known, the research object can be identified, and asking *when* can determine the structure and activity within which knowledge exists (Cook and Brown, 1999)—e.g., within individuals, corporate sphere, IT systems. Addressing *how* then enables the methodology to use to observe reality (Guba and Lincoln, 1998). The approach to axiology then determines the purpose and use of the research outcomes.

Positivism in KM

"Knowledge is viewed as an asset and the role of KM is to progress individuals, organizations and society to the ideal state of enlightenment (or competitive strategy)"

(Schultze and Stabell, 2004: 557)

Positivists make "universal generalisations from empirical observations" (Mingers 2004: 91). A positivist is concerned with the discovery of the 'real' world, an objective world. The emphasis lies in generating universal laws by measuring and observing the physical and

technological world, as well as human activities that are to be observed objectively are happening in the social space (Guo and Sheffield, 2008). Under the positivist agenda knowledge is interpreted as an asset and separate from individuals (Schultze and Stabell, 2004). Participating in the KPMG (2003) survey 80% of participants "recognise knowledge as a strategic asset". Knowledge is an asset insofar that it is stored and used beyond its original creator. The argument is that knowledge is stored in books, the Internet, and IT systems.

The discourse on IT dominates the KM literature with 70 % of KM publications focusing on IT solutions (Easterby-Smith and Lyles, 2003). Even though the IT agenda "has been highly successful in colonising the discourse of KM" (Scarbrough, Robertson and Swan, 2005: 204), IT may never be a solution for KM effectiveness as it is only 20% of knowledge that may be explicit and possibly processed through IT systems (De Long and Fahey, 2000; EIU, 2007). The question is how can positivists engage in research on knowledge, when knowledge is an intangible good that is tacit in nature and embedded in individuals and organisations or only exists during social interaction? (Ma and Yu, 2009).

Theory testing is often seen in positivist research. In example, positivist scholars refer to the knowledge-based theory of the firm that emerged from the resource-based view (Grant, 1996; Senge, 1990). The focus is on knowledge being the most important asset of a firm. An example of a KM research conducted via a positivist framework is the study of Holsapple and Joshi (2004). The purpose was to establish how different types of knowledge are managed. The authors conducted a survey study. The categorised outcomes meant to be representational laws to be used elsewhere (Guo and Sheffield, 2008). Here knowledge is interpreted as an asset. Knowledge is "an object that can be separated from the knower" (Schultze and Stabell, 2004: 557). The philosophy is that there is a management of control that overlooks the independent object, knowledge. The focus is to create a strategy for KM and thus Holsapple

and Joshi (2001) created the knowledge chain model that can be used as a generalising module to enhance competitiveness.

Constructivism in KM

> KM exists to those knowing, believing, interpreting, using, and developing the discipline (LeCompte and Schensul 1999).

Constructivists, also known as interpretivists (Guba and Lincoln, 1994), believe that the world is socially constructed: "there exist multiple socially constructed realities not governed by any natural laws, causal or otherwise" (Guba and Lincoln, 1989: 86). The social world exists on basis of language and meaning (Wittgenstein, 1958) and "organisational phenomena construct each other" (Schultze and Stabell, 2004: 557). KM is socially constructed (Earl, 2001; LeCompte and Schensul, 1999; Nonaka and Peltokorpi, 2006): KM is a concept that emerged in the 1990s through the interpretation that 'knowledge work' and 'knowledge workers' will lead to success (Drucker, 1993; Toffler, 1990; Quinn, 1992). Moreover, KM has been constructed by interested parties in management studies such as human resources management, total quality management, and information systems, psychology and economics (Argote, 2005; Baskerville and Dulipovici, 2006; Earl, 2001; Gu 2004, Nie, Ma and Nakamori 2009; Nonaka and Peltokorpi, 2006; Swan et al., 1999).

Under the constructivist view KM is situated in specific contexts or communities that share a common belief of KM existence and relevance (Hazlett, McAdam and Gallagher 2005). In fact do paradigms form under such conditions as Kuhn (1970) found that "paradigm develops through consensus within a social community of scientists through many practical mechanisms such as learning societies, journals, or funding bodies" (in Mingers, 2004, p. 90). Since communities can alter over time, so can their way of defining KM.

For a constructivist it is accepted that knowledge originates from individuals (Polanyi, 1967, 1998), indifferent to whether knowledge is tacit or explicit in nature. Through individuals' ability and willingness to interact with the environment, knowledge may be processed and thus managed (Gertler, 2003; Polanyi, 1998; Wiig, 2004). For constructivists the human-factor in KM is important (Heisig, 2009; Jakubik, 2011) as knowledge cannot be managed without individuals' participation in knowledge processes (Felin and Hesterly, 2007; Kaufmann and Runco, 2009; Rechberg and Syed, 2014; von Krogh *et al*., 2000). In fact, "knowledge is not created by some relation (or 'interaction') between two kinds of knowledge [explicit v tacit], but through human activities or practices" (Gourlay, 2006: 1428).

Constructivist researchers grasp meaning of social actions (Bell, 2010). To develop theory, a constructivist researcher looks for patterns and creates meaning about social actors' pluralistic interpretation of the world (Creswell, 2003; Karataş-Özkan and Murphy, 2010). The epistemological position is that there are no such things as facts or law-like generalisations that can be drawn. Instead, everything evolves through social practices and shared cultures between individuals and groups (Mingers, 2004). As an example, Cassell et al. (2006) investigate the perspectives that individuals have on KM "to interpret their view of the world" (p.295). Orlikowski (2002) who looked at the everyday activities of employees in an organisation and how they relate to KM. Another study by Hahn and Subramani (2000) looked at frameworks of knowledge management systems to describe the issues and challenges for developed theories and practice in KM. To study the KM systems to provide "an inductively developed framework for this important class of information systems" (Hahn and Subramani, 2000: 302), the authors interviewed knowledge managers about "the nature of the knowledge and the locus of the knowledge underlying knowledge management systems" (Hahn and Subramani, 2000: 303).

Constructivists seek meaning behind the fuzzy term of knowledge and to understand the purpose of KM in social systems, such as organizations and communities of practise (Alvesson and Kaerreman 2001, LeCompte and Schensul 1999). A constructivist does not see knowledge to be an asset, yet as an intangible form of knowledge that is in question to be manageable. It is understood that there can be no separation of knowledge from the individual knower or the social group in which knowledge is created (Cohen, 1998, Pentland, 1992, von Krogh and Roos, 1995). Research in interpretive form refer to a theoretical construct such as organizational learning (OL) and Weick and Roberts (1993) and their notion of the 'collective mind' of an enterprise. In example, Argyris and Schoen (1978) who, after analysing learning in organisations, found that "members of an organization act as learning agents for the organization" (in Ma and Yu, 2009, p. 184). Or, Senge (1990) who looked at OL and shared organizational vision and meaning, as well as attitudes towards problem solving. Researchers using OL theory for their study place emphasis on the role of the employees and the need for employees' engagement in innovation (Earl 2001).

Critical Realism in KM

"Knowledge is the fundamental factor of competition and companies with superior knowledge are better equipped" (Ma and Yu, 2009: 183)

A critical realist studies the nature of causality within a world that exists independent of human knowledge (Bhaskar, 1978). For a critical realist, KM is a product of the struggle for competitiveness amongst knowledge intensive social players. KM is a strategy that can enhance best practice in a social setting within which knowledge is seen as power (Foucault, 1977) and a corporate asset (Drucker, 1993). Kaufmann and Runco (2009) for example find that the tacit element of knowledge is the most competitive source of labour security (see also Rechberg and Syed, 2013). A realist accepts that knowledge is constructed, but emphasises that there is a 'real world, of causalities beyond the conceived reality' (Mingers, 2004).

Whether KM is a result of such external causalities such as economic drivers may be questioned, since KM may exist only to those who created it or know of its existence: knowledge workers are a product of the 21st century and may have existed before they were labelled as such.

The realist takes an active role as the investigator trying to find that power and knowledge are closely interlinked if not even interchangeable (Foucault, 1977). The goal is to improve the world by illustrating the power relations and to alter the way things are done. A critical realist sets out to uncover assumptions that we make about the world to bring awareness to the inequality of power amongst social groups (Mingers, 2004). Nie *et al.* (2009) did for example uncover such inequality when reviewing the literature finding that KM is tending to be used as the next management strategy to exploit the labour force. Rechberg and Syed (2014) address the tendency of the appropriation of individual knowledge by management as well as the possible struggle of knowledge ownership that may emerge though the concept that knowledge is power (Rechberg and Syed, 2013). Other discussions on the struggle for power in the knowledge economy occur in subject areas such as international class division, in international political economy and copy rights issues (i.e. Dulipovici and Baskerville, 2007; Tseng and Fan, 2011). Realists thus try to use their research to empower the underprivileged by informing them about the systematic reproduction of social constructs that are seen to be misleading and suppressing. Adopting a critical realistic approach can thus help in examining the concept of KM in relation to equal opportunity rights, labour exploitation and employability.

Pragmatism in KM

> "Knowledge is understood as always being incomplete, formed and continuously assured by human argumentation within an inter-subjective community of communication" (Stumme, Wille and Wille, 1998: 451)

Pragmatism was created by Peirce (1878) and officially founded by James in (1897) as an alternative to research paradigm. Research conducted via a pragmatic or pluralistic paradigm sets the focus on the research problem, choosing methods that can best answer the research questions (Creswell, 2003). A pragmatist looks at the practical consequences, the research entails and tries to assist in solving real-world situational problems. Moreover, pragmatists see irresolvable conflicts embedded in an external reality (Tallise and Aiken, 2005), with ideas being produced by the group of individuals, not solely by the individual (Snarey and Olson, 2003). A pragmatic approach may thus be a better research fit if more is known on the subject of KM.

DISCUSSION

At present, there is no consensus on what "constitutes the centre of the discipline, or the paradigms and methodologies that unite members of KM communities" (Guo and Sheffield, 2008: 673). KM is a "complex, dynamic and still very fuzzy construction" (O'Donnell, 2004: 295), which makes it difficult to choose one single paradigm for research in the field. This problem can also be rooted back to the discipline's emergence from other disciplines such as information technology, psychology, economics and management studies (Argote, 2005; Baskerville and Dulipovici, 2006; Gu, 2004; Nie, et al. 2009; Swan, et al. 1999). This multi-directionality causes this fundamental debate about what knowledge is, and whether it can be managed (Alvesson and Kaerreman, 2001; Berger and Luckmann, 1967).

To justify the paradigm choice, and address *how* to undertake the research, and thus what research methodology is best suited to obtain answers, Guba and Lincoln (1994: 108) suggest answering the following questions:

"*The ontological question*: What is the form and nature of reality and, therefore, what is there that can be known about it?" (Guba and Lincoln, 1994: 108). If knowledge is

embedded in the mind of individuals (Weick and Robert, 1993) there can be no separation of knowledge from the individual knower and the social group in which individuals collaborate to create knowledge (Cohen, 1998; von Krogh and Roos, 1995). For a constructivist, "individual learning does not necessarily lead to organisational learning" (Karataş-Özkan and Murphy, 2010: 458); here the individual is the source of knowledge. From a constructivist paradigm, knowledge is ever changing and the epistemology is one of practice. Here knowledge is interpreted as 'mind' and rooted in individual knowledge carriers (Schultze and Stabell, 2004). A constructivist paradigm allows studying "relational processes of knowledge construction in the course of social interaction in organisations" (Karataş-Özkan and Murphy, 2010: 461). Moreover, KM is complex and flexible in how it is practiced. Truth cannot be externally known, but is socially constructed (Hatch and Cunliffe, 1997) and knowledge is continuous and shaped by individuals and their interaction in the social world (Schultze and Stabell, 2004). There is no universal definition or law, and no external world that constructs KM. Instead, KM is a social system or process constructed in organisational specific contexts, knowledge rooted in and emerging through individual interpretation and interaction with the world: an interpretative paradigm would thus be a suitable fit for a study on KM (Alvesson and Kaerreman, 2001; Holdaway, 2000; Karataş-Özkan and Murphy, 2010; Ma and Yu, 2009).

"*The epistemological question*: What is the nature of the relationship between the knower to the would-be knower and what can be known?" (Guba and Lincoln, 1994: 108). "The individual creates, modifies and interprets the world" (Burrell and Morgan, 1979: 3). Respectfully, the individual employees within the work environment rather than information in IT systems is a suitable object of KM research. Moreover, and there may be multiple interpretations on what can be known, developed through the interaction process between researcher and researched (Guba and Lincoln, 1994).

It is not in the interest of a positivist to lose objectivity and therefore to engage in dialogue with those studied. Studying KM for "conventional benchmarks of 'rigor', internal and external validity, reliability and objectivity" (Guo and Sheffield, 2008: 676) is problematic, as knowledge is intangible and tacit in nature, embedded in individuals and organisational space through social interactions (Ma and Yu, 2009). A positivist may therefore only gain a limited understanding of KM as individuals' emotions and knowledge may not be measured. As to Habermas (1971), it is this explicit knowledge, which has been freed from human interest and attitude that is the *only* true form of knowledge (Chia, 2003). Polanyi (1998: 64) advises, however, that such a promise of science is limited since "knowledge in science is not made but discovered" by individuals. Research axiology of representational laws that can be used elsewhere is unrealistic as KM effectiveness can be determined by various intangible aspects such as corporate culture. Even though their position of neutrality may be valuable for some research, it is seen as too optimistic that general laws can result from the research. Values matter and thus generalisations are not seen to be reputational for understanding how knowledge is interpreted and managed in organisations. Constructivists find it difficult to follow the positivists' approach to neutrality. They believe in an 'inter-subjective world'; the observer is thus not neutral, but is involved in the social infrastructure (Guo and Sheffield, 2008). This constructed agenda is understood to be trustworthy and authentic, and a good alliance of social norms and values (Guo and Sheffield, 2008). An interesting dimension of conducting research in KM is that the researcher appeals to respondents to share their knowledge, to manage that knowledge, without losing it, seeking to create new knowledge (i.e. building theory) in an explicit document (papers and thesis), that can then be transferred and shared with others. In that respect, KM is done while using KM as a strategy to manage and make sense of respondents knowledge.

Implications

According to Ma and Yu (2009) the KM discipline is developing slowly since there is the tendency of KM authors co-reference each other (also see Baskerville and Dulipovici, 2006). This agrees with Kuhn's (1970) paradigm development where the overlap with other disciplines can enhance such dominance. KM as a discipline lacks a common definition (Jakubik, 2011) embodying various taxonomies around knowledge, KM and how it can be studied (Guo and Sheffield, 2008). Von Krogh *et al*. (2000: 4) rightfully wonder whether KM as a discipline in itself is limited.

Organisation theorists express the need to manage individuals' collective knowledge (Barney, 1991; Penrose, 1959). Wheatley (1992) warns however, that the 'Weltanschauung', the view of the world of the 1980s, cannot address the complexity of modern organisations. Rechberg and Syed (2013, 2014) extensively discussed knowledge and its management, explaining how the attempt to manage knowledge may obstruct its very mission. According to Schultze and Leidner (2002) there however is a dominance of a positivistic approach, finding that more than half of research conducted in KM is of positivistic nature. These findings are confirmed by Barley *et al.* (2018: 294) who in their meta-analysis on KM found that the majority of KM scholars chose an 'objective-based conception of knowledge' where the emphasis lies in addressing *where*, *which*, and *what* questions. Examples to such research agendas could be *where* is knowledge located in the organization; *which* knowledge is to be processed, and *what* knowledge adds value. Here knowledge is a defined object. Less authors follow a 'practice-based perspective on knowing' focusing they research on addressing *how* question: *how* can knowledge be shared in the organization and *how* can knowledge become wisdom. It is however only through addressing *how* question that new understanding on KM can be formed (Barley *et al.,* 2018).

The theory of knowledge explains that individuals are the source of knowledge (Polanyi, 1967, 1998). Nonaka, Toyama, and Hirata (2008: 2) rightfully address the need for a "paradigm shift in the way we think about knowledge and its management". That there is such a positivistic dominance in KM is astonishing since KM consists of the intangible and fuzzy term knowledge. A positivist approach assists to utilize information flow yet a critical realistic view is needed to address the challenges of the power struggle in the 21st Century knowledge economy. The KM discipline is further believed to be people focused and socially constructed. One can therefore agree with Guo and Sheffield (2008) who stated that the "paradigms are considered as not mutually exclusive or incommensurable, but as points of triangulation on knowledge that emerges from discourse among KM researchers and practitioners about theoretical perspectives, research paradigms, and research methods" (p. 676). Burrell and Morgan (1979) do however argue that the "paradigms exist independent of each other and - they are unrelated and should thus not be compared or mixed" (in Mingers. 2004 p 88).

According to Ma and Yu (2009), Senge *et al*. (2005) and Serenko *et al.* (2010) KM research draws too little on practical research and Booker *et al.* (2013) find that practitioners draw on scholarly work to inform corporate KM practices. This gap between KM research and its application in practice may be one possible cause for KM ineffectiveness. It is important therefore to draw on both scholarly and empirical studies to promote that KM scholarship is to draw from practice, i.e. employees' suggestions to inform KM scholarship. For this reason Spender (2008: 167) addresses the need for fieldwork stating that:

> "ultimately, the various futures of knowledge management will be distinguished according to the theory of practice they adopt- that will become the field's touchstone, and absent a conceptual break with the concept of action as inevitably purposive there can be no substantial theory of knowledge management."

Mackenzie and Knipe (2006) promote that any paradigm may employ mixed methods to fully inquire phenomena, and Creswell (2003) and Thomas (2003) suggest that qualitative and quantitative methods are complementary, and can be incorporated at different stages for research to enrich data collection, necessary to enrich the KM field of research. In this case "*the methodological question*: how can the inquirer go about finding out whatever he or she believes can be known?" (Guba and Lincoln, 1994: 108). Since meaning is derived through the construction of reality, a constructivist approach to methodology is seen to be the best fit. Such an approach to research seeks to find "how things really are and work" and so "structuring the inquiry so as to be able to discover (or test presumptions about) causal mechanisms is especially important" (Guba and Lincoln, 1989: 89). Walsham (1995) suggests that in-depth case study research, for researchers employing an interpretative paradigm, is the most appropriate method. It is through the chosen methodology that the perceived reality of individuals can be reconstructed.

Van Maanen (1979: 520) suggests that it is through qualitative research that "meaning, not the frequency, of certain more or less naturally occurring phenomena in the social world" can be researched. Qualitative research is an "umbrella term uncovering a range of interpretative techniques which seek to describe, decode, translate and otherwise come to terms with the meaning" (Van Maanen, 1979: 520). Methodological choices can therefore vary to enable theory building (Glaser and Strauss, 1967). To document "the richness and diversity of meanings people attribute to phenomena" repertory grids can be used (Holdaway, 2000: 166). Repertory grid can support the quality of the findings by allowing interviewees to reflect on their understanding of KM (Silverman, 2007). Furthermore, since repertory grid can aid to build models of a particular domain such as KM it is seen to be a useful tool to add (McKnight, 2000)

The greatest challenges for analysing qualitative data are "credibility, transferability, dependability, and confirmability" (Shah and Corley, 2006: 1826). It therefore is important to reflect on the role oneself plays in the entire process, and thus data collection and analysis (Alvesson and Harley, 2008; Cunliffe, 2003). Analysing the data, the researcher should thus consider physicist and Nobel Laureate Werner Heisenberg, stating that: "what we observe is not nature itself, but nature exposed to our method of questioning" (quoted in Capra 1997: 40). In example, the 'interviewer effect', where both verbal and non-verbal cues, as well as the difference between the said and the meant will influence the way the data will be interpreted (Gummesson 2006). Especially when using an interpretative approach where method, data and findings are created and recreated during the research proceeds (LeCompte and Schensul 1999).

Generalisations from studies done through interviews and focus groups is difficult (Cassell et al. 2006a), but since "our strengths are empathy; ability to listen; creatively interpret meaning; conceptualise; and see new phenomena or see old phenomena from a different angle, we should certainly make the most of them" (Gummesson, 2006: 174).

CONCLUSION

While there is no doubt that there exists an academic field of KM the question on "what it is, how good its work is, and what its prospects and needs are" is still unclear (Ma and Yu, 2009: 175). The positivist/quantitative approach to research dominates the KM discipline (Chen and Chen, 2006; Ma and Yu, 2009), even though knowledge is predominantly tacit and constructed by individuals' interaction and interpretation of the world. Reviewing positivism, critical realism, interpretivism or constructivism, and pragmatism the researcher suggests to draw on constructivism to inform KM theory. Moreover it is suggested that a mixed methods approach is the most suitable to engage in

research around KM so that a flexibility can be maintained that will allow for an open minded approach to detecting what KM is and how knowledge can be managed.

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