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## Becoming to Know

Essays on Extended Epistemology of Knowledge Creation

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## Becoming to Know: Essays on Extended Epistemology of Knowledge Creation

Key words: Knowledge Management (KM), knowledge creation theory, extended epistemology, social learning, becoming ontology, becoming epistemology, action research, knowledge-creation spaces, knowledge activists

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*'The real act of discovery consists not in finding new lands but seeing with new eyes.'* Marcel Proust (1871-1922)

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# 1 INTRODUCTION

This is an exploratory, qualitative study that comprises four essays related to the dynamics of knowledge creation in the field of knowledge management (KM). By addressing some of the recent challenges of KM, I seek to find out *how the knowledge creation theory of KM can benefit from social learning theories*.

*What's wrong with KM?* Since 2000, several KM scholars (e.g., Cook and Brown 1999; von Krogh, Ichijo, Nonaka 2000; Tsoukas 2000; Wilson 2002; Styhre 2003; Schultze and Stabell 2004; Gourlay 2006; Nonaka and Toyama 2002, 2005, 2007; Nonaka, Toyama and Hirata 2008; Heisig 2009; Serenko et al. 2010) asked this question. In my literature review of KM, I encountered the following problems: the concept of KM seems to be rather limited; dichotomy rather than complementary views of knowledge dominate; harmonization and consolidation of concepts is required; discourses in KM are still colonized by information technology, and human and social factors are frequently neglected; discourses are dominated by 'epistemology of possession' rather than 'epistemology of practice'; KM needs to establish its identity; there is a communication gap between KM researchers and practitioners; it is not quite understood how knowledge is created in communities; there is a need for paradigm shift in KM research; the participative research paradigm is not common in KM research; transformative change and becoming ontology are largely unexplored; better understanding and better models are needed to and ontological and epistemological issues of knowledge creation would need more attention in KM research to better understand social processes of knowing and becoming to know. These challenges of KM provide good opportunities for contributions.

Many scholars consider 'the concept of knowledge management itself is limited' (von Krogh et al. 2000: 4). Their view is that KM relies too much on quantifiable, measurable information and it focuses mostly on creating tools, methods and instruments for manipulating existing knowledge. High-ranked knowledge officers of organizations have become passive analysts and controllers of knowledge as an 'asset'. Instead, practitioners could take the role of 'knowledge activists' and focus more on enabling conditions for knowledge creation processes (ibid.: 26-30). Concurring with these views, I believe that we cannot 'manage' knowledge as a commodity.

By exploring different, and in some cases even contradictory, perspectives and assumptions about knowledge and its management, Schultze and Stabell (2004) identify four main discourses in KM research. The discourses are grouped around social order (i.e., consensus versus dissensus) and epistemology (i.e., duality versus dualism) dimensions. The authors argue that the four discourses of KM research are: (1) critical discourse; (2) neo-functionalist discourse; (3) constructivist discourse; and (4) dialogic discourse. My study adopts the constructivist discourse that is based on 'epistemology of practice' rather than on 'epistemology of possession'. The constructivist discourse in KM research assumes duality rather than dichotomies. It contends that there is no finite stock of knowledge as knowledge is continuously emerging. It views that knowledge cannot be managed as an object separate from human actions because it is continuously shaped and being shaped by social practices of individuals and communities (ibid.: 557-558). In this study I argue that more attention in KM research is needed to explore the

social side of knowledge creation, interactions and practices of individuals in communities of practices.

A quantitative and qualitative analysis of KM publications in English over an 11-year period during 1990-2000 (Scarbrough, Robertson and Swan 2005) underlines the need for researching knowledge creation as a social phenomenon. The content analysis of 302 articles from 33 information systems (IS) and 12 human resources (HR) journals referring to KM revealed that 87% of publications were IS related while only 13% were HR related. The authors realize that KM is primarily associated with information technology (IT) and IS. Summing up their research findings, they state that ‘the IS community has been highly successful in colonizing the discourse of KM’ (ibid.: 204). They conclude that HR issues are neglected in the studied literature. However, they also notice that nearly all articles mention the limitations of IT-driven KM and argue the need for a more people-focused KM. However, moving toward a more human-focused KM is a reality today. Heisig (2009) argues that KM is in its new phase, where harmonization and consolidation of concepts is required. By comparing 160 KM frameworks, he determines (ibid.: 11) the four critical success factors of the KM as (1) human-oriented factors (culture, people, leadership); (2) organization (processes and structures); (3) technology (infrastructure and applications); and (4) management-process (strategy, goals, measurement). The leading importance of human-oriented factors in KM frameworks is essential in this study as the key concepts (learning, knowing and becoming) of the proposed framework belong to this first critical success factor.

A current comprehensive scientometric data analysis of 2,175 articles published by 4,236 authors in KM and Intellectual Capital (IC) journals during 1994-2008 argues that ‘KM/IC is still considered to be in its embryonic stages’ and it would be important to establish its identity (Serenko et al. 2010: 3). They conclude that ‘a large obstacle confronting the KM/IC field concerns the communication gap between researchers and practitioners’ and ‘there is a danger that KM/IC may lose its practical side and become a pure scholarly discipline’ (ibid.: 19 and 17).

Debates and discourses in the KM literature articulate the need for better understanding of the emerging community view of knowledge, where knowledge is embedded in human actions and interactions, in situated practices (e.g., Gherardi 2000; Gherardi and Nicolini 2002; Zboralski 2009; Sun 2010). There is a need for better understanding of the dialectics of the human factors in knowledge creation processes. The human focus and participative worldview are still rather neglected in KM research (e.g., Avison, Lau, Myers, and Nielsen 1999; Tuomi 2002; Scarbrough, Robertson, and Swan 2005). Furthermore, transformative change and becoming ontology are considered as largely unexplored territory in KM research (e.g., Senge, Scharmer, Jaworski and Flowers 2005; Stacey 2004[2001]).

I found out that regardless of the growing number of research studies and publications in KM, relatively little attention has been paid to understanding epistemological and ontological qualities of knowledge, the social process of knowing, and becoming to know (Wilson 2002; Styhre 2003). According to Styhre (2003: 8), the mainstream knowledge management theory has overtly ignored the ontological, epistemological and political qualities of knowledge in their claims. He argues that ‘it is important to



establish a new vocabulary, indeed a new epistemology, in the knowledge management literature' (ibid.: 24). Recent self-critical voices by the originators of the knowledge creation theory (Nonaka, Toyama and Konno 2000; Nonaka and Toyama 2002, 2005, 2007; Nonaka, Toyama and Hirata 2008) express the need for conducting further research and to have more discussions related to the ontological and epistemological issues of knowledge creation. Nonaka and Toyama (2005) argue that how knowledge and new praxis for interactions are created as synthesis of dynamic processes of human actions, interactions and sense making needs more exploration. Nonaka et al. (2008: xviii) point out that in their new theory of the firm they 're-examine the role of human beings in an organization from an ontological and epistemological point of view'. It is positive that they view knowledge creation theory as a dynamic and evolving theory that is open to constructive criticism, thereby helping to develop it further (Nonaka, Toyama, and Hirata 2008: 244):

We need to further our theory of a firm from the viewpoint of a firm as a knowledge-creating entity. ... we cannot really answer the question of how to create high-quality knowledge without *understanding human factors*. ... We also need to reconsider what exactly is a boundary of a firm. ... We still need to explore the theory of a firm as a synthesizing being. ... Viewing a firm as a *dialectical being* means that *we need to look into the process of its knowledge-creating activities*, not just the outcomes. Dialectics is a method of thinking and acting. (Nonaka and Toyama 2002: 995, 1005, and 1006, emphasis added)

...there is a need for theory that explains the *process* in which knowledge is created in practice by individuals making value judgments according to their particular *context* and situations, through *interactions* with the particular environment that surrounds them (Nonaka, Toyama and Hirata 2008: 13, emphasis added)

In order to address some of the aforementioned challenges of KM, in this study I focus on the dynamics of knowledge creation and explore how knowledge is created and how it could be enabled in human actions, interactions and practices in a specific community context. I challenge some of the assumptions of mainstream KM and I address the ignored ontological and epistemological issues of knowledge creation (cf., Wilson 2002; Styhre 2003; Nonaka, Toyama and Hirata 2008). I seek to enhance the understanding of the dynamic, dialectic, emerging process of becoming to know as a social phenomenon.

My contribution is to propose the term 'becoming epistemology' and a framework of becoming to know. This framework draws on the study of the KM literature and on the findings of four essays that are part of this study. Due to the exploratory nature of the study, the proposed framework of becoming to know was not an aim at the beginning of the research project, but it has emerged during the journey and while synthesizing the findings.

In the essays of the study (appendix 2), I build on concepts related to the knowledge creation theory of KM such as the knowledge creation process, *ba*, and the knowledge activist, and I discuss and apply three social learning theories: problem-based learning (PBL), experiential learning, and transformative learning. In two essays, I apply collaborative action research (AR), which is not a common research strategy in KM-research (cf., Avison, Lau, Myers, and Nielsen 1999; Serenko et al. 2010). I argue that this specific type of collaborative AR fits very well in the study of knowledge creation because of its participative character. Data are collected with several methods: participative observation, workshops, value mapping, reflections, and face-to-face

interviews. One might criticize this study for being too eclectic and for applying an exceedingly diverse range of concepts, approaches, and research methods. However, the counter argument is that the exploratory nature of the study requires multiple methods.

As the subtitle of the study indicates, the four essays of the study are connected by the extended epistemological view of knowing (e.g., Boisot 1995 and 1999[1998]; Heron and Reason 2001; Park 2001; Spender 1996, 1998; Spender in Boisot 1999[1998]; Reason and Bradbury 2002[2001]; Tsoukas 2006[2005]). Terms like ‘radical’, ‘extended’, ‘pluralist’, ‘enactivist’ epistemology are used synonymously by the authors: when Reason and Bradbury (2002[2001]), Heron and Reason (2001: 183) refer to ‘radical epistemology’ they add that they also call this an ‘extended epistemology’; Spender calls it ‘pluralist epistemology’; Tsoukas (2006[2005]: 5) argues that ‘enactivist’ epistemology assumes that knowing is action, knowing is contextual, and active knowers produce knowledge. In brief, I assume in this study an extended epistemology that is a ‘theory of how we know, which is extended because it reaches beyond the primarily theoretical, propositional knowledge of academia’ (Heron and Reason 2001: 149). Extended epistemology assumes a variety of ways of knowing, such as experiential, presentational, propositional and practical knowing. I follow this view because it fits well the purpose of the study, that is, to explore social processes of knowing and becoming to know.

The main research question of the study is:

Q 0: How can the knowledge creation theory of KM benefit from social learning theories?

Research questions by essays are the following:

Q 1: What are the emerging views of knowledge, what are the debates, and critical voices in the KM literature?

Q 2.1: How do people interact and create knowledge in a specific community?

Q 2.2: How do community members perceive the value of collaborative knowledge creation (CKC)?

Q 2.3: How can the collaborative learning approach (CLA) enhance knowledge creation in a community?

Q 3.1: Can a community have a learning style?

Q 3.2: What is a community learning style?

Q 3.3: How can the learning style of a community be determined?

Q 4: Can international business teachers better enable knowledge creation processes of their students and colleagues by becoming knowledge activists?

Q 4.1: Do teachers consider themselves ‘institutional functionaries’ who ‘transmit’ their knowledge or do they see themselves as fulfilling the catalyst, coordinator, and merchant of foresight roles of knowledge activists?

Q 4.2: How could teachers fulfill the six purposes of knowledge activists (i.e., initiating and engaging, rationalizing, communicating, integrating, educating, and representing the community members) in their practices and relationships?

My role as a researcher is important in this qualitative study. During the research project I had several concerns. Plato's well-known cave allegory highlights the main arguments I have developed and the choices I have made during the research journey. The story is as follows:

... those who are destitute of philosophy may be compared to prisoners in a cave, who are only able to look in one direction because they are bound, and who have a fire behind them and a wall in front. Between them and the wall there is nothing; all that they see are shadows of themselves, and of objects behind them, cast on the wall by the light of the fire. Inevitably they regard these shadows as real, and have no notion of the objects to which they are due. At last some man (*sic*) succeeds in escaping from the cave to the light of the sun; for the first time he sees real things, and becomes aware that he had hitherto been deceived by shadows. If he is the sort of philosopher who is fit to become a guardian, he will feel his duty to those who were formerly his fellow-prisoners to go down again into the cave, instruct them as to the truth, and show them the way up. But he will have difficulty in persuading them, because, coming out of the sunlight, he will see shadows less clearly than they do, and will seem to them stupider than before his escape. (Russell 1954: 147)

At the beginning of the research project I asked myself: Do I want to research the 'shadows on the wall' (i.e., the results of interactions, the explicit knowledge that is available) or the 'real things under the light of sun' (i.e., real people interacting with each other in an authentic environment)? Do I want to do research *on* people or *with* people? Do I want to 'escape from the cave', break the boundaries and to become involved in the processes of knowledge creation to gain an internal understanding of *how* people become to know what they know? Additionally, I asked myself if it is possible to escape from the 'cave' or old mindset and to approach the phenomenon differently than it has been studied earlier. Later, I was wondering whether I could enable knowledge creation by 'becoming a guardian' or a 'knowledge activist' and take on all issues of persuading others about my findings. In the last chapter of the study I will reflect on these initial concerns.

The study, including this introduction, has seven sections. The theories and concepts part (chapter 2) begins by presenting an orientation chart (figure 1) that illustrates the main theories, their roots, key concepts, and the focus of the study. I indicate the characteristics of phases and recent critical voices in KM literature. I describe the five development phases of the knowledge creation theory of KM - which is the focus of the study - during the period of 1995-2008. I show the four main paradigms of the learning theories, and then I focus on the social learning theories because they could help in answering the main research question. I present the concepts of knowing, learning and becoming and I summarize my key arguments.

In the research design and implementation section (chapter 3), I argue why this study follows the participative research paradigm, why becoming ontology and extended epistemology are appropriate philosophical assumptions for the study and why a specific, collaborative form of AR was selected as a research strategy. I discuss data collection methods, the scope of the research, and the research process. Next (chapter

4), I provide an orientation chart of the research project (figure 2). I re-state the research questions and present the key findings by essays.

In the Discussion chapter (chapter 5) I synthesize the findings of four essays by presenting and discussing their contributions to the main research question of the study (figure 3). I argue for the need of 'becoming epistemology' concept in knowledge creation theory and I present my views of this suggested concept. Next, I propose and discuss the framework of becoming to know (figure 4) that has emerged from the findings of four essays during the research project. Then, I provide an example for the proposed framework by discussing my role as researcher in this study. Thereafter, I discuss the possible theoretical implications of the proposed framework and I highlight how following ethical considerations during the research project led to good scientific practices. Finally, I discuss the quality of the study and its limitations.

Next, in chapter 6 I indicate future research opportunities and some practical implications for managers. And finally (chapter 7), as reflections I revisit the cave metaphor of Plato (chapter 1) and readdress my initial concerns based on the findings that emerged during this exciting research journey that is far from its end.

## 2 THEORIES AND CONCEPTS

Figure 1 below illustrates the main roots of KM and learning theories and their interrelatedness through the concepts of learning, knowing and becoming. I focus (bold lines in figure 1) on the knowledge creation theory of KM and on social learning theories.

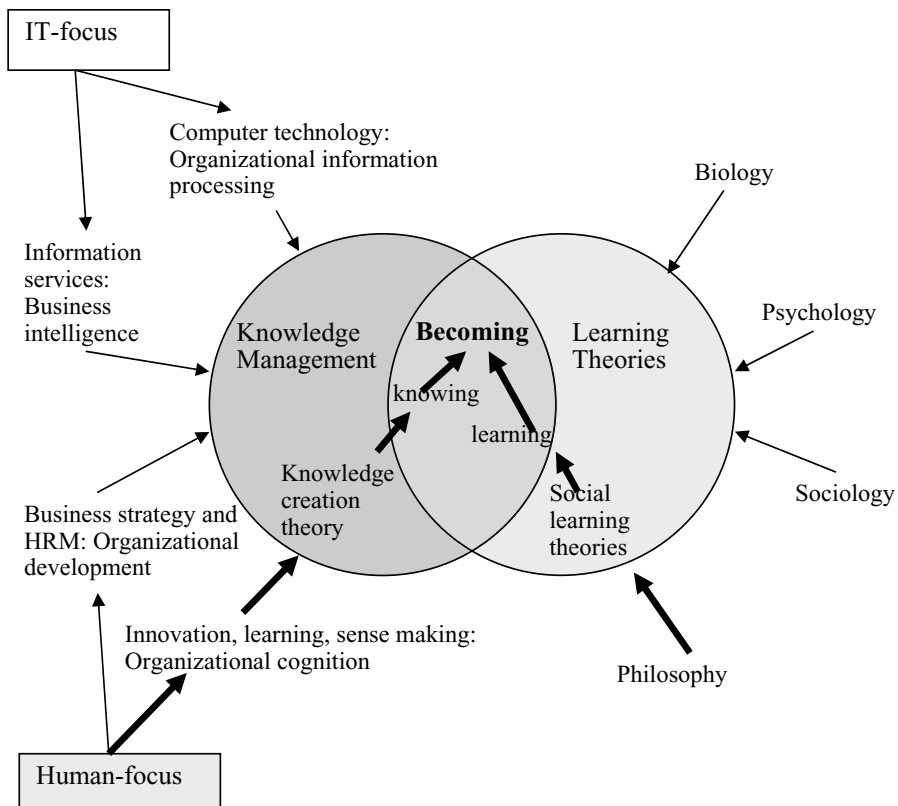


Figure 1 Focus of the study

### 2.1. Theories

Because I seek to find out how the knowledge creation theory of KM can benefit from social learning theories, I present here KM, the emerging development of the knowledge

creation theory of KM through 1995-2008, learning theories, and social learning approaches that are relevant to this study.

### **2.1.1. Knowledge Management**

Knowledge management has approximately 10-15 years of history as a discipline. It emerged around the middle of the 1990s from several disciplines that have long histories, well-established theories, and clearly defined concepts. My aim here is, while highlighting the main roots and development phases of KM, to present my personal views as well. KM cannot be dogmatic; it needs to be open to criticism. From the perspective of this study, it is important to view KM as a field in constant development and in interaction with other disciplines. KM is far from perfect; it faces several challenges and it is highly criticized. I present here some of the critical voices against KM to show the need for future research and contributions.

In the literature, the roots of KM are quite similarly defined and discussed by several authors (e.g., Sveiby 1997 and 2001; Jashapara 2004; Tuomi 2002; Roos J., Roos G., Dragonetti and Edvinsson 1997). KM is a relatively young discipline; however, two emerging roots could be identified: (1) roots related to locating, capturing, storing, measuring *existing* knowledge as assets with the help of information technology (IT) (e.g., organizational capital) and (2) roots focusing on enabling, developing, creating *new* knowledge in social interactions that could be of strategic importance for organizations (e.g., human and relational capital).

One can argue that language theories, as one of the human-focused roots of knowledge creation, are ignored in figure 1. Language plays a role both in learning and knowing. Language helps humans to make explicit their experiences (tacit knowledge). However, the role of language, especially if we view language only as limited to the verbal expressions, needs to be viewed with caution. The role of spoken language (words) in sense making, learning, and thinking is viewed as limited (e.g., Polanyi 1966; Weick 1995; Hobson 2002; Stacey 2004[2001]). Polanyi (1966: 4, emphasis original) argues that '*we can know more than we can tell*'. Not all of our knowledge could be codified and shared by using language as a symbolic system. There is another dimension, the tacit dimension of our knowing, and that is mostly embedded in experiences that are difficult to codify. Weick (1995) acknowledges the role of language in sense making, but he also perceives its limitations when he writes:

Sense is generated by words that are combined into sentences of conversation to convey something about our ongoing experience. If people know what they think when they see what they say, then words figure in every step. ... But all these words that matter invariable come up short. They impose discrete labels on subject matter that is continuous. ... Words approximate the territory; they never map it perfectly. That is why sensemaking never stops. Sensemaking is an ongoing process when people generate what they interpret. (Weick 1995: 106-107)

Weick (ibid.) refers to Wallas (1926: 106) by quoting '*How can I know what I think till I see what I say?*' Weick argues that sense making is an ongoing flow of events, it is not a metaphor, and it is not only interpretation. Making sense and interpretations (e.g., by using language) happens at the same time, interpretation is part of sense making.

Regarding a psychological developmental approach on the nature of thinking, Hobson (2002) argues:

Those psychologists who believe that human kind became unique by acquiring language are not altogether wrong. But they are not altogether right either. Before language, there was something else – more basic, in a way more primitive ... that propelled us *into* language. ... That something else *was social engagement with each other*. (Hobson 2002: 2, emphasis original)

He adds that language is important but ‘social engagement is what provides the foundations for language’. Stacey (2004[2001]) argues that in mainstream KM, language is understood as the translation of thoughts (mental models) of individuals that helps them to transmit (share) their thoughts to others. This assumption is based on the sender-receiver type of communication model. However, the challenge is that when knowledge emerges in social interactions, it cannot be always transmitted by using language. Language helps us to share some of that which we know, but how we become to know is related to social interactions. My focus in this study was not on the role of language in learning and knowledge creation, but on understanding knowledge creation through social interactions, understanding how people generate, through ongoing flows of becoming, what they interpret by language.

Figure 1 shows that KM is evolving from several sciences (Tuomi 2002) and this evolution is facilitated and highly supported by rapidly developing technologies such as information systems (IS), IT, information and communication technology (ICT), which enable people to know more about their environment and about themselves (i.e., augmented cognition). In KM, technology should be an inseparable, but not a dominating, part of human processes. New IT-solutions should augment human learning and knowing, but people are capable of becoming to know. Yet, very often the IT/IS/ICT-focus dominates the discourses, and human and social factors are frequently neglected in the KM literature. However, since 2000 there is an increasing corpus of KM literature (e.g., Cook and Brown, 1999; Gherardi 2000; Gherardi and Nicolini 2002; Orlikowski 2002; Hindmarsh and Pilnick 2007; Strati 2007; Zboralski 2009; Sun 2010) that take the ‘epistemology of practice’ approach where knowledge is emerging by the social practices of individuals in communities and it cannot be managed as a commodity separate from human actions (cf., Schultze and Stabell 2004).

The concept of ‘bridging epistemologies’ combines the ‘epistemology of possession’ and ‘epistemology of practice’ in a generative dance between knowledge and knowing (Cook and Brown 1999). Cook and Brown argue that knowing, as part of action, belongs to the ‘epistemology of practice’ and it emerges in dynamic, situated interactions of humans with the social and physical world when knowledge is a tool of knowing. Referring to John Dewey’s pragmatist perspective, Cook and Brown see knowing as something we do, and not something that we possess, not as something used in action or that enables action but as an aspect of action: “By ‘knowing’ we mean that aspect of action or practice that does epistemic work’ (ibid.: 387). I understand why they argue for a need of a new, bridging epistemology. Indeed, there is a need to move away from the functionalist paradigm based on ‘epistemology of possession’, dualism and on dichotomy thinking of knowledge and to move toward constructivist and dialogic paradigms where multiple types of knowledge exist and complement each other, and where knowledge and knowing are inseparable parts of practices. However, it

is hard to understand Cook and Brown's assumptions that 'knowledge is a tool of knowing'; 'interplay of knowledge and knowing can generate new knowledge and new ways of knowing' (ibid.: 381, 383); and that tacit knowledge 'is a tool or aid to action, not part of action itself' (ibid.: 388). For me, these assumptions imply the epistemology of possession where knowledge can be used as a tool or aid. Furthermore, I do not quite understand why they keep the dichotomies (i.e., tacit versus explicit and individual versus group knowledge) in their suggested model.

Understanding the diverse discourses around knowledge and organization in KM would need more attention. Gherardi (2000: 212) argues that KM cannot be based on a functionalist idea of knowledge. Knowledge needs to be understood as 'knowledge in practice' that does not reside in the heads of individuals nor it is a commodity that could be appropriated, conversed, exchanged, and stored by cognitive processes. In practice-based theorizing on learning and knowing in organizations, 'learning is a social and participative activity rather than merely a cognitive activity' (ibid.: 215) and knowing is not separate from doing. However, knowing has a duality feature. The coexistence and complementary character of variety of knowledges in different communities (i.e., engineers, contractors, site foremen) are demonstrated well by Gherardi and Nicolini (2002). They use 'safety' in a construction site as a theme to show how 'discursive practice in constellation of interconnected practices is fundamentally and necessarily also a dissonance and a cacophony' (ibid.: 420). Their practice-based research draws attention to the paradoxical nature of practices among interconnected communities such as coexistence of design and unpredictability, continuity and discontinuity, sharing knowledge and keeping it, harmonies and dissonance, consonance and cacophony, bright side and 'dark side' of crossing the boundaries of communities.

Similarly, a practice-based approach is taken by Orlikowski (2002) in her six-month, exploratory field study finding out about knowing in practice through researching the global product development practices of software engineers, support staff, local unit managers, project managers, and senior executives. She seeks to find out 'what constitutes effective distributed organizing in global product development', 'what is people *do* every day to get their work done' (ibid.: 249, emphasis original), 'how people in their ongoing practices constitute knowing how to engage in distributed organizing' (ibid.: 253). She, opposite to Cook and Brown (1999), adopts the view that "tacit knowledge is a form of 'knowing', and thus inseparable from action because it is constituted through such action" (ibid.: 251). For her 'knowing is an enacted capability' (ibid.: 256). Orlikowski argues that the importance of ongoing and situated action and the enacted aspect of knowing are often overlooked in studies on organizational knowledge. 'Recognizing knowing as an enacted and provisional capability means that it is inappropriate to treat knowledgeability as given and stable ... it suggests that continuity of competence – whether individual or collective - is never given, only achieved' (ibid.: 269). In brief, Orlikowski (2002) urges researchers on organizational knowing to rethink and re-conceptualize 'competence', 'core competencies', 'links between knowing and identity', 'best practices', and 'the notion of stickiness of know-how'.

By taking the practice-based perspective on work and organizing, Hindmarsh and Pilnick (2007) place the physical body at the heart of their analysis. Analyzing preoperative anaesthesia as a practice, they demonstrate the central and critical role of



the body as a resource for real-time coordination of team work. They argue that ‘the body is lost’ in ‘linguistic turn’ in organization studies and “to display intercorporeal knowing, to know bodies at work, is simultaneously to display competence in the anaesthetic room’s ‘community of practice’ (ibid: 1414)”. They highlight that body and talk mutually constitute the action and practices at work and ‘there is a complex of interconnected embodied resources - verbal, visual, tactile and material – brought to bear in coordinating the team’s work’ (ibid: 1415). This study follows the extended epistemology that underlines the multiple ways of knowing.

“The notion of ‘practice’ has profoundly altered the manner in which knowledge and learning in organizations are studied” (Strati 2007: 66). Drawing on Bourdieu’s definition of ‘practice’ that mental and corporeal, routine and improvisation, creativity and tradition are in unity, from this study’s perspective Strati (2007:66) asks an important question: ‘In what way are knowledge and learning connected with practice?’ In knowledge creation processes the bodily relations, sensations, feelings of people are inseparable from their interrelated and individual minds. There is a need to pay more attention to the role of ‘sensible knowledge’ and its connection to knowing and learning in KM research.

Recent studies in KM argue for better understanding of the dialectics of the human factors in knowledge creation processes in communities. Based on 222 community members in 36 communities, Zboralski (2009) analyzes the role of community members’ motivation to participate in communities of practice (CoPs), the importance of the community leader, and the influence of management support. In two case studies, Sun (2010) examines the impact of organizational routines on acquisition, creation, and utilization and sharing in KM processes. While empirical research of knowledge creation in CoPs is seen as important, it is still an underdeveloped field.

Emerging themes in contemporary KM studies are identified by quantitative/objective mapping of 1,230 journal articles which cited 29,601 publications as references during 1998-2007 (Ma and Yu 2010). Their findings show that during 1998-2002, the three leading themes were: (1) essentials of KM; (2) knowledge-based theory on organization and innovation; and (3) organizational learning. The leading themes in 2003-2007 were: (1) strategy of KM; (2) organizational learning; and (3) knowledge-based theory on innovation and organization. There is not much change in leading research topics in 1998-2007 in KM. However, Ma and Yu conclude that ‘the studies of knowledge-based theory on organization and innovation have somehow lost their popularity to organization learning theory’ (ibid.: 186). This increased focus on learning from the participative paradigm perspective in contemporary KM studies is essential for this study as it seeks to contribute to this field by offering a framework of becoming to know.

A recent study argues that ‘KM/IC is a new field that has not yet established dominant research paradigms or inquiry techniques’ (Serenko et al. 2010: 8). In 1994-2008 the three most favored approaches were: framework, model, approach, principle, index, metrics, or tool development; case study; and literature review. Serenko et al. (2010: 17) recommend that researchers in the KM/IC field should conduct more interviews, field experiments, ethnography, action research, focus groups, and interpretive study.

However, they also notice that in 2005-2008, compared with period 1994-2004, there has been a slight increase in qualitative research methods, including action research.

I found four distinct phases in the development of KM, despite being presented slightly differently by different authors (e.g., Nonaka and Takeuchi 1995; von Krogh, Ichijo, Nonaka 2000; Sveiby 2001; Tuomi 2002). In the *first phase*, before the 1990s, the focus was on the outcomes of knowledge creation, on knowledge of things, on data processing, and on information technology (IT). The goal was to observe, gather, store in databases, and manage existing knowledge in information systems as any other assets. The *second phase*, in the early 1990s, focused on organizational knowledge creation processes such as sharing tacit knowledge, creating a concept, justifying the concept, building a prototype, and cross-leveling knowledge (e.g., Nonaka 1991; Nonaka and Takeuchi 1995: 83-89). The goal was to understand the processes and create a theory of organizational knowledge creation (ibid.: 56-94). In the *third phase*, in the late 1990s, the focus turned to the sources and enabling conditions of knowledge creation within an organization such as instilling a knowledge vision (i.e., the organization's aspirations, organizational intention), managing conversations, mobilizing knowledge activists, creating the right contexts, and globalizing local knowledge (e.g., Nonaka and Takeuchi 1995, von Krogh, Ichijo, Nonaka 2000).

I argue that in the *recent phase* of KM, starting from the early 2000s, the focus has shifted from knowledge creation within a firm to inter-firm collaborations, toward networks and communities (e.g., Wenger and Snyder 2000; Gherardi and Nicolini 2002 Orlikowski 2002; Zboralski 2009), toward knowledge creation in human interactions (i.e., micro-level) (e.g., Griffin 2002; Stacey 2004, 2005a and 2005b; Shaw and Stacey 2006; Sun 2010), and toward a practice-based approach (e.g., Cook and Brown, 1999; Gherardi 2000). This was a necessary shift as the existing theories could not fully answer the question of how knowledge is created in collaborative interactions (cf., Tsoukas 2000). In spite of the slight differences in presenting the development phases of KM, authors seem to agree that the *next phase* of KM will be people-oriented and there will be more emphasis on understanding knowledge creation processes as social phenomena. The main focus in recent and upcoming phases will be on learning, knowing, innovations, understanding organizations as embodied practice (cf., Hindmarsh and Pilnick 2007), the role of 'sensible knowledge' in practice-based theorizing on organizational knowing and learning (cf., Strati 2007), and on understanding how humans become to know.

The knowledge landscape in the KM literature is quite confusing because of the numerous roots of KM and various perspectives on knowledge and its management (cf., Schultze and Stabell 2004). When attending workshops and conferences (appendix 1), I experienced the same confusion. People with different background use special professional jargon when referring to the same phenomena. Very frequently knowledge and information are used as synonyms. There is confusion about tacit knowledge, sticky knowledge, implicit knowledge, explicit knowledge, fluid knowledge, and diffused knowledge and so on. This paradoxical, 'oxymoronic' nature of KM has been mentioned by several authors (e.g., Spender 1998; Malhotra 2000; Kessels 2002; Wilson 2002; Styhre 2003). Spender (1998) expresses the need for a 'pluralist epistemological view' of knowledge. Garvey and Williamson (2002: 49) refer to Malhotra (2000), who opposed the combination of knowledge and management as two

opposite concepts and he talks about ‘knowledge intrapreneur’. Similarly, Styhre (2003: 25) argues about the paradoxical nature of KM saying that ‘knowledge management is an oxymoron: Knowledge is processual and fluid, management is aimed at control and order. One part of the concept is moving, one is fixed’.

Knowledge management is an evolving discipline; therefore, it is natural that its theories and concepts are emerging. It is natural to have several definitions side by side depending on the roots and views on knowledge and knowing. However, there are some inconsistencies in KM terminology and they have been noticed and strongly criticized by several scholars (e.g., Sveiby 1997 and 2001; Spender 1998; Malhotra 2000; von Krogh, Ichijo and Nonaka 2000; Stacey 2004[2001]; Kessels 2002; Wilson 2002; Styhre 2003; Jashapara 2004). Von Krogh, Ichijo, and Nonaka (2000) argue that knowledge cannot be managed, only enabled, and they consider knowledge creation a craft, not a science (ibid.: 32). They suggest using ‘knowledge development’ or ‘knowledge creation’ instead of KM. Similarly, Sveiby (2001) dislikes the term ‘Knowledge Management’ and suggests the use of phrases like ‘to be Knowledge Focused’ or ‘to see the world from a ‘Knowledge Perspective’. Sveiby (1997 and 2001) defines KM as ‘The Art of Creating Value from Intangible Assets.’ Jashapara (2004: 11) proposes a vast variety of definitions of KM by collecting numerous definitions having different perspectives, such as information systems (IS), human resource (HR) process, integrated (IS and HR), and strategic perspectives. In this study, I follow the definitions of KM that emphasize the human, process, and learning perspectives.

Wilson (2002), an information scientist, in his famous and highly skeptical article titled *The nonsense of ‘knowledge management’*, concludes that KM ‘is an umbrella term for variety of organizational activities, none of which are concerned with the management of knowledge’ (ibid.: 1). Wilson considers KM to be a management fad, consultancy practice, a substitution for marketing. He argues that, since 1997, the number of publications with KM in their titles has increased exponentially, and KM has achieved a fashionable status in the business world. However, around 2002 the growth and popularity of KM has slowed down. Wilson is convinced that KM will fade away soon.

Jashapara (2004: 12-14) asks the question: ‘*Is knowledge management a fad?*’ He raises counter arguments against the views of information scientists such as Wilson (2002) and others. He argues that bibliographic statistics show that KM is not fading away. KM has its roots, not in consultancy practices, but in well-established, old theories and it stands up to rigorous analysis. Articles related to KM strategies have been published in highly ranked and referred journals. KM as a discipline is part of the curriculum of many respected business schools. Jashapara (ibid.) admits that in some cases KM has been misused and it was only rhetoric and a marketing tool. On the other hand, the reality shows that KM has become an integral and essential part of the strategies and business practices of several large organizations.

Styhre (2003) takes a critical view on what he calls the mainstream of KM (e.g., Nonaka and Takeuchi 1995; Pfeffer and Sutton 1999; Dixon 2000; von Krogh, Ichijo and Nonaka 2000; Davenport and Prusak 2000). Styhre (2003: 8) asks the question: ‘*What is wrong with the mainstream knowledge management theory?*’ He argues that the mainstream KM theory gives a simplistic view of KM, thus ignoring the epistemological, ontological, and political qualities of knowledge; it mainly views

knowledge as a commodity, asset, and assumes that knowledge comes from the top management level (Chief Knowledge Officers). Styhre's goal is to promote an understanding of KM theory by showing complementary views on knowledge and on management.

KM scholars (von Krogh, Ichijo and Nonaka 2000: 25) - even earlier than Styhre (2003) - ask the same question: *'What's wrong with knowledge management?'* They see three main pitfalls of KM:

1. KM relies on easily detectable, quantifiable information, which means that information and knowledge are seen as the same concepts, as many KM initiatives fail to make a fundamental distinction between the two. They argue that these two concepts are different because information forms the basis for knowledge. Knowledge goes further than information as it captures emotions, beliefs, commitments and actions. Furthermore, knowledge is not always detectable as it cannot always be captured and stored.
2. KM is devoted to the manufacture of tools. They point out that in KM the value creating tools and measurement methods are overemphasized and there would be a need to focus more on people, their interactions, social links, personal networks, and the micro-communities where knowledge is created.
3. KM depends on a knowledge officer. Von Krogh, Ichijo and Nonaka (2000) consider it a problem that in many organizations knowledge initiatives are planned, developed and controlled by high-ranking executives. They recommend that instead of trying to manage knowledge (which is impossible) from outside, knowledge officers should consider themselves as knowledge activists (ibid.: 29) who are insiders, actively involved in emerging knowledge creation processes. This would be the way they could enable the process of knowledge creation from inside.

In table 1 below, I summarize Stacey's (2004[2001]) main concerns against mainstream KM and I indicate the challenges of KM and knowledge creation theory. Some of them will be addressed in this study.

**Table 1 Challenging the mainstream KM assumptions**

<b>Assumptions of mainstream KM</b> (based on Stacey 2004[2001]: 13-39)	<b>Challenges</b>
(1) Humans interpret the pre-given external reality, they form neural maps (memories) that they store and retrieve to process new data.	Objective ontological assumptions about reality are problematic as learning, knowing, and becoming are ontologically subjective categories. Thinking is not only reflecting (mirroring) the objective reality. The external reality is created and enacted by humans (social construction of reality, becoming).
(2) The individual mind is a function of the individual brain that represents the pre-given reality in structured mental models (contents).	Individuals are part of society and knowledge is contextual.
(3) Language is the translation of the mental models of individuals that helps to transmit the mental models (thoughts) to others (sender-receiver communication model, mimicry).	Language is not the only symbol applied in communication. Knowledge emerges through participation, involvement, and experiences in social interactions. Knowledge is not an object-like commodity that can be shared and transmitted.

<p>(4)</p> <p>Thoughts come before action. Thinking is a way of information processing based on the existing mental model of individual minds.</p>	<p>Sense making is retrospective and social (Weick 1995: 17-62). Knowing arises and emerges in continuous social interactions and there is no necessary sequence.</p>
<p>(5)</p> <p>Individual learning and knowledge creation is assumed to be a change in individuals' mental models.</p>	<p>Learning is not only individual and it is not only a change in thinking but a change in actions, feelings, and perceptions.</p>
<p>(6)</p> <p>There is a dichotomy of knowledge into tacit or explicit forms. There is an assumption that knowledge creation is a system of flows between these two categories of knowledge (Nonaka and Takeuchi 1995). Organizations transmit explicit, codified, processed knowledge. Individuals transmit tacit knowledge through mimicry (knowledge dichotomy and split between social and individual).</p>	<p>There is no split between tacit and explicit knowledge; they exist in harmony in knowing (e.g., Polanyi 1962; Tsoukas 1997).</p>
<p>(7)</p> <p>A split exists between social (e.g., common procedures, cultures, best practices, routines) and individual levels. An assumption is made about the existence of a group mind.</p>	<p>There is no split between social and individual levels (ontological unity); they exist at the same time.</p>
<p>(8)</p> <p>Primacy of individuals because of the assumption that new knowledge is created in individual minds (split between social and individual).</p>	<p>Individual minds are not primary in new knowledge creation. Communities and participation in social interactions are important in new knowledge creation (e.g., Lave and Wenger 1999[1991]; Brown and Duguid 1991; Heckscher, and Adler 2006).</p>
<p>(9)</p> <p>Individual and social minds are subjects in the system and they create the future. The change is caused by external actions (systems thinking).</p>	<p>The future emerges and it cannot be known in advance.</p>
<p>(10)</p> <p>Emotions are separated from thinking (split between emotions and rationality). There is the assumption that negative feelings do not promote knowledge creation. Emotions are treated in a normative way and the co-existence of negative and positive feelings in learning and knowledge creation is not accepted. There is neglect of the paradoxical nature of feelings, power and politics in knowledge creation.</p>	<p>Emotions, politics, power, personal relationships, and intuitions are essential parts of knowing and becoming. Sensing, acting, feeling, and thinking are in unity during the learning, knowing, and becoming process.</p>

### 2.1.2. *Evolving theory of knowledge creation*

The focus of the study is the knowledge creation theory of KM (figure 1). This is a dynamic and emerging theory. To provide contributions to the theory, it is crucial to see its development from a historical perspective and to ascertain its current status and challenges. I have identified five steps in the theory development through 1995-2008.

*First*, Nonaka and Takeuchi (1995: 56-94) argue that ‘the transformation process within these two (i.e., epistemological and ontological, added) knowledge spirals is the key to understand’ (ibid.: 90) their theory. The *four main elements* of their theory are: the four modes of knowledge conversion through the SECI (socialization, externalization, combination, and internalization) process that together with the time dimension generate the epistemological and ontological spirals of knowledge; the contents of knowledge (i.e., knowledge assets: sympathized, conceptual, systemic, and operational knowledge) that are the outputs and inputs of the knowledge spiral; the five-phase knowledge creation processes (sharing tacit knowledge, creating concepts, justifying concepts, building an archetype, and cross-leveling knowledge); and the five enabling conditions (intention, autonomy, fluctuation/creative chaos, redundancy, and requisite variety). This first phase could be considered as the foundation of the theory.

*Second*, Nonaka, Toyama and Konno (2000) provide a unified model of dynamic knowledge creation. The *three elements* of the model are: SECI, *Ba*, and leadership. The proposed model of knowledge creation here has three elements: the SECI process; *ba*, the shared context for knowledge creation; and knowledge assets, the inputs and outputs and moderators of the knowledge-creating process. In contradiction (at least as I understood) with the proposed theory in 1995, here the knowledge spiral grows out of these three elements. The SECI process differs slightly here, too. It contains the factors that constitute each phase in the SECI process, namely: empathizing, articulating, connecting, and embodying. The four types of *ba* are: originating, dialoguing, systemizing, and exercising *ba*. The four categories of knowledge assets have different names than in 1995: experiential, conceptual, systemic, and routine knowledge assets. The contribution of this paper is that here they focus on how the knowledge-creating process could be managed. This phase directed the attention to the role of leadership (i.e., providing the knowledge vision, developing and redefining knowledge assets, leading SECI, and building and connecting energizing *ba*). The necessary conditions or enabling factors here are extended and they include: autonomy, creative chaos, redundancy, requisite variety, love, care, trust and commitment.

*Third*, von Krogh, Ichijo and Nonaka (2000: 3-44) argue that the focus needs to be on enabling conditions of knowledge creation. They present a model (ibid.: 261) showing how organizations can transform themselves into a knowledge-creating organization by shifting their focus from the content (i.e., knowledge assets), from capturing and locating, transferring and sharing existing knowledge to the processes and contexts of new knowledge creation, by providing enabling conditions that will lead to new innovations. They present (ibid.: 9) the knowledge enablers differently than it was presented in 1995 by Nonaka and Takeuchi. In 2000, the five knowledge enablers are: instill a vision, manage conversations, mobilize activists, create the right context, and globalize local knowledge. This third phase of the development of the theory underlined the importance of the context.

*Fourth*, von Krogh and Grand (in von Krogh, Nonaka and Nishiguchi (ed.) 2000: 13-35) focused on the third (according to Nonaka and Takeuchi 1995) phase of knowledge creation processes: justification. Their aim was to open the black box of justification. They claim that their paper completes the understanding of the general knowledge creation process and, therefore, it ‘contributes to the theory of knowledge creation (Nonaka 1994; Nonaka and Takeuchi 1995), by explicitly analyzing the role of justification in its relation to dominant logic’ (von Krogh and Grand in von Krogh, Nonaka and Nishiguchi (ed.) 2000: 15). Their main arguments are that justification is essential for understanding knowledge creation because knowledge creation cannot be isolated from the role of dominant logic. Dominant logic has the following three dimensions: corpus of knowledge: business boundaries, theories about the key success factors, referential success stories; images of knowledge: criteria for legitimized knowledge, managerial schemata, sources of relevant information, and so on; and ideological values (i.e., value system, social and institutional context, business philosophy, vision). The fourth phase of the theory development explained how knowledge is justified.

*Fifth*, Nonaka, Toyama and Hirata (2008: 1-52) argue for the need of a new theory of the knowledge-based firm. Their new theory is built on theory of knowledge creation. They argue that we have to make a ‘paradigm shift in the way we think about knowledge and its management. Rather than conventional knowledge management, what we need is *knowledge-based management*’ (ibid.: 1-2, emphasis original, cf., Sveiby 2001). They point out:

Knowledge is created through the synthesis of contradiction. ... To survive in the constant flow of unceasing change and interrelatedness, we cannot be mere observers or reactors. We need to take *action* when facing a particular situation in order to change the flow. *Phronesis* is the ability to grasp the essence of situation in process and take action necessary to create change. (Nonaka, Toyama and Hirata 2008: 4, emphases original)

Their proposed model (ibid.: 27) has *seven basic elements*: the SECI process of (1) dialogue and (2) practice; (3) the knowledge vision and (4) driving objectives; (5) *Ba*, a space-time dimension; (6) knowledge assets; (7) the environment as ecosystem of knowledge. In brief, this last phase of the theory development shows the need for a paradigm shift in thinking about knowledge and the need for integrating philosophical ideas and concepts in the theory. The emphasis here is on the subjective, process-relational, practical, and aesthetic aspects of knowledge creation. This phase of theory development has opened opportunities for this study to contribute.

To conclude, the knowledge creation theory has become more detailed and specific through 1995-2008. However, the ‘essence’ or ‘engine’ of the knowledge creation theory, the knowledge spiral as interaction of tacit and explicit knowledge in the SECI knowledge conversion process has remained the central element of the theory. Nonaka’s knowledge creation theory and its assumptions have been criticized by several authors (e.g., Cook and Brown 1999; Gourlay 2006; Schultze and Stabell 2004). Next, I briefly highlight a few important criticisms of the theory to underline the need for contributions.

When Cook and Brown (1999) point out a few weaknesses of discussions on organizational knowledge in the KM literature, they critically view some of the

assumptions of Nonaka and Takeuchi's knowledge creation theory. They argue that 'even in this growing body of literature that explores epistemologically significant themes, there typically an expressed or implied tendency to treat knowledge as being essentially of one kind', privilege the individual over the group, and to treat organizational learning as individual learning (Cook and Brown 1999: 382). They argue that one form of knowledge cannot be converted into the other, 'tacit knowledge cannot be turned into explicit, nor can explicit knowledge be turned into tacit' (ibid.: 385). However, this is one of the main assumptions of Nonaka's knowledge conversion process (i.e., SECI) that is the 'engine' of the knowledge creation theory. Cook and Brown (1999) call for more research on knowledge creation in interconnected communities and they argue that "there is a need for a better understanding and better models of how this essentially non-transferable or 'situated' dimension of knowledge and knowing, as elements of an organization's core competency, can be 'generated in' (rather than 'transferred to') other groups or organizations" (ibid.: 398). This study seeks to answer this need by proposing a framework for dynamic knowledge creation.

Gourlay (2006: 1415) argues that the whole idea 'that knowledge is created through and interaction of tacit and explicit knowledge involving four modes of conversion is flawed'. He considers the most serious conceptual weakness of the framework the omission of inherently tacit knowledge and the use of a radically subjective definition of knowledge: 'knowledge is in effect created by managers'. According to Gourlay, the knowledge creation framework of Nonaka has conceptual difficulties and it lacks conceptual clarity. For instance:

- the radically subjective definition of knowledge as 'justified true belief' is misleading because too high a role is given to manager's beliefs in this process and it omits scientific forms of knowledge;
- "knowledge is not created by some relation (or 'interaction') between two kinds of knowledge but through human activities or practices" (ibid.: 1428);
- the distinction between tacit and explicit knowledge seems unclear;
- tacit-to-tacit and tacit-to-explicit knowledge transformations could be more simply expressed as 'learning-by-doing';
- tacit knowledge viewed unidimensionally because tacit knowledge must account 'for both inherently and contingently tacit knowledge'
- tacit knowledge is created and maintained continuously by ongoing experiences of people and not as conversion of explicit knowledge to tacit knowledge;
- "explicit knowledge is not 'externalized' tacit knowledge, but representations of abstractions from ongoing practices that appear salient to their understanding and the exercise of control over them, as well as useful for communicating with others" (ibid.: 1428).

However, Gourlay says that 'Nonaka and his colleagues' attempt to provide a straightforward useable theory of knowledge creation was an ambitious one, and we should not be surprised at difficulties like these' (ibid.: 1421). He proposes a new framework and claims that 'different kinds of knowledge are created by different kinds of behaviour' and knowledge can be managed indirectly, through managing behaviour (ibid.: 1431). This study could contribute to this view because it focuses on practices and interactions of people in communities.



In exploring the contradictory nature of knowledge, Schultze and Stabell (2004: 556) propose a framework that combines four different assumptions about knowledge and its management. The four metaphors they suggest are: knowledge as asset; knowledge as mind; knowledge as discipline; and knowledge as power. In this framework, in my view, Nonaka's knowledge creation theory belongs to the neo-functional discourse because its assumptions about knowledge are based on dichotomies (i.e., dualism) and it has a strong tendency toward social order or equilibrium where the role of rationalization and management control is high. Schultze and Stabell (2004: 568) argue that there is a need to add evolutionary dimensions of knowledge development to the framework. I believe that this study, by focusing on the constructivist discourse of the proposed framework by Schultze and Stabell where 'knowledge is continuously shaping and being shaped by social practices of individuals in communities' (ibid.: 558), where knowledge is viewed as mind, which does not separate knowledge from action, and where the focus is on practices of learning and knowing, could offer some contributions in this area.

Above I outlined five phases of the dynamic theory of knowledge creation during the period of 1995-2008. As the theory evolved, it became more specific. It can be seen how the theory became more focused on the synthesizing and dialectical role of organizations, on the role of individuals, their experiences, their interactions with the social and non-social environment (ecosystem) in this process. However, the theory is not perfect and, as its critics pointed out, it would need more clarity in its assumptions, paradigms, concepts, and models. The theory is emerging and it opens opportunities for new contributions. Recently, the theory shows more interest in understanding the *constant state of getting to know* (i.e., becoming to know), which is the area where this study could contribute.

Next, I examine learning theories by focusing on the social theory of learning because it could support a better understanding of the research phenomenon of the study.

### **2.1.3. Learning theories**

How human knowledge develops, how knowing increases, *how knowing comes to be* are the common concerns of both learning theories and the knowledge creation theory of KM, regardless of their different roots (figure 1). Comprehensive presentation and discussion of roots and the development phases of all learning theories are beyond the purpose of this study (e.g., language theories are not considered in this study). First, I present briefly the four main paradigms of learning theories, and then I focus on social learning.

Learning theories have a long history. One might say that learning theories are as old as human history. People have been always fascinated by learning. Therefore, questions like 'How is knowledge acquired? How do we know what we know? How do we know what we do not know? How do we learn? How does knowing come to be?' are essential questions. However, because of their long history, it would be impossible to discuss and scrutinize profoundly the development of *all* learning theories within the scope of this study. Instead, I briefly present (table 2) the four emerging paradigms of learning theories, namely: behavioral; cognitive; constructivist; and social learning.

Table 2 Four paradigms of learning theories

Paradigms and selected issues	Behavioral Theories	Cognitive Theories	Constructivist/Humanist /Cultural Theories	Social Learning Theories (followed and addressed in this study)
(1) View of learning	Acquisition of new behavior and identity; Change in behavior;	Acquisition and reorganization of knowledge, mental process; insight information processing, skill memory, perception; transformation of cognitive structures;	Personal act to fulfill potential; personal development; it is a conscious, intentional learning as it focuses on the mental process of meaning making;	Interaction, observation in social context; observation is the source of learning; moving to the center of community of practice (CoP); experience and mimicry;
(2) View of knowledge	Objective view of knowledge; knowing <i>that</i> ; focus on the content, explicit knowledge;	Objective view of knowledge; builds upon existing knowledge; individual internal; knowing what and how;	Knowing what, how, why and who; focus on the process;	Knowing what, how, why, who, and where; focus on the context and enabling conditions;
(3) Aim of education	Change the objectively observable behavior (stimulus and response);	Develop capacity and skills to learn; constructing cognitive maps (mental models);	Become autonomous and self-actualized; individual learning objectives;	Combine theory and practice; full participation; utilization of resources;
(4) Locus of learning	External stimuli: events and natural reflex; behavior;	Intrinsic motivation; internal structuring (rational thinking); mental exercise;	Affective and cognitive needs (feeling and thinking);	Interactions within and between the social and non-social environment;
(5) Teacher's role	Being the source of knowledge and information; being a role model; ensuring to reinforce the right behavior and correct responses; arranging the environment to achieve the desired response; control;	Structuring the content of the learning process; structuring the environment (stimulated worlds); managing the process; communication and transfer of knowledge to learners; communication, explanation, recombination, contrast, inference, problem solving;	Facilitating the development of the whole person; helping understanding but not being the source of knowledge; identifying the level (past knowledge and experience) of each individual and building on that level;	Creating communities for interactions, participation, and learning; creating the social context for learning; becoming a learner, a knowledge activist; encouraging the use of the learned behaviors back on the job;

(6) Student's role	Acquisition of existing knowledge; modeling the teacher's behavior	Student's interest; theoretical contradictions;	Student's interest in learning;	Active participator; learning by doing;
(7) Learning process	Goals-Contents-Assessment; memorizing facts (fact memory);	Change in thinking; clarifying concepts; definition of problem, information search, analysis, and evaluation; building new mental models; developing new insights or modifying old ones; constructing cognitive maps; concrete experience-observation and reflection-abstract conceptualization-active experimentation (Kolb);	Personal development; understanding emotions; experiencing, analyzing, reflections, theory building, and new experiences; discovery and problem solving; analyze, interpret, and predict information;	Creating new knowledge; collaborating: collective learning; problem-oriented; practical; focused on real problems;  Participative inquiry: setting up the context, presenting research problems, creating working theories, critical evaluation, searching deepening knowledge, developing deepening problems, new theory, distributed expertise; Social learning: attention, retention, motor reproduction, motivational processes; drive-cue-response-reward (Miller and Dollard);
(8) Learning methods	Teacher centered; lectures; programmed instruction; exercise and associations (Watson); classical conditioning: stimulus-response (Pavlov); operant conditioning: stimulus-response-reward/punishment (Skinner);	Individual and group assignments; projects; analyzing a task and breaking it into manageable parts (modules); clear objectives and measuring results against those objectives,	Different methods; individual assignment; group work; project work; role play; open ended learning experience; task oriented; objectives and results are difficult to measure and they are different for each learner,	Theoretical and practical contradictions; practical utility; real problems; solving complex and ill structured problems (PBL); expansive learning cycle; simulations; project work; imitation and modeling (Bandura, Davis and Luthans);

(9) Development of skills	Model-imitation-evaluation;	Research; experimenting; analytical;	Self-reflections; problem-solving; analytical; emotional;	Communication; networking, collaboration, creating new practices together; apprenticeship (learner and master);
(10) Evaluation and Assessment	Teacher evaluates; quantitative (grades) evaluation	Teacher and student evaluate; qualitative assessment of the learning process;	Student or student groups evaluate qualitatively the learning process;	All participants evaluate if the practical problem was solved; self-observation; self-monitoring; reflection-in-action (reflexivity);
(11) Examples and Types	Competency based training; skill development training;	Cognitive development; Intelligence; Memory; learning how to learn; Experiential learning;	Self-directed learning; Humanistic approach to learning; Experiential learning;	Collaborative learning; Problem-based Learning (PBL); Transformative learning; Activity theory; Situated learning; Apprenticeship; Progressive Inquiry; Social participation; Conversations; Double-loop learning; Action learning;
(12) Authors	e.g., J.B. Watson; I. Pavlov; B.F. Skinner; R. Burns; W.M. Baum; E. Thorndike; Gulthrie; Hull; Tolman;	e.g., Piaget; Lewin; Bruner; Tolman; Koffka; Kohler; Ausubel; Gagne; Kolb;	e.g., Piaget; Papert; Vygotsky; Rogers; Maslow; Kolb;	e.g., Bandura; Lave and Wenger; Salomon; Argynis; Vygotsky; Engeström; Hakkarainen; Davis and Luthans; Mezirow;

To increase understanding of the shifts in thinking and basic assumptions, in table 2 above, I focus on critical issues relevant to this study such as the view of learning, the view of knowledge, the aim of education, the locus of learning, the role of teacher and student, the learning process, learning methods, the development of skills, evaluation/assessment, and examples of specific types of learning theories and approaches. The main sources of table 2 are Chowdhury 2006 and Wenger 2005[1998].

From table 2 above, it is evident that the two extremes of learning theories are the behavioral (i.e., objectivist theory of learning) and the social (i.e., subjectivist) learning paradigms. Social learning theories have developed as a critical reaction to behavioral learning theories. Social learning theories emphasize the role of social context, interactions between people, belonging to a community, and the ability of the learner to develop (i.e., construct or create) his or her own learning. Social learning approaches assume that knowledge seekers are motivated, critical thinkers, problem-solvers, who could, through reflections, add *new* meaning to their old experiences. In this way, their knowing increases and they themselves are changing and becoming different persons (i.e., emergence of self).

While behavioral learning is teacher-focused (i.e., teacher as knowledge provider), social learning is a learner-focused (i.e., knowledge seeker) approach. However, in real learning situations there is a need for variety of learning. In this study, I argue that there is a need for an extended epistemology where *both* the knowledge provider and knowledge seeker play important roles and these roles are not assigned to either of them, but they can swap these roles during the learning processes. There is a need to consider the different learning theories as complementary rather than exclusive to each other in the knowledge creation processes.

Therefore, I do not fully agree with Gardner (2006a: 6), who said that behaviorism died during the second half of the twentieth century when the cognitive revolution was launched. My argument is that we need behaviorist learning because it complements other ways of learning and because there is a need for an extended epistemology in knowledge creation processes. Nevertheless, I found Gardner's (ibid.) theory of multiple intelligences (i.e., a holistic view of human intelligence) relevant to my study. He provides the following definition:

I define an *intelligence* as a biopsychological potential to process specific forms of information in certain kinds of ways. Human beings have evolved diverse information-processing capacities - I term these "intelligences" - that allow them to solve problems or to fashion products. To be considered "intelligent", these products and solutions must be valued in at least one culture or community. (Gardner 2006a: 29, emphasis original)

Gardner (2006a) considers musical, spatial, bodily-kinesthetic, and naturalist intelligences in addition to linguistic and logical-mathematical intelligences. He considers important the interpersonal and intrapersonal intelligences as well as existential intelligence. Gardner (2006b) suggests that in the future we need to develop five minds, such as the disciplined, synthesizing, creating, respectful, and ethical minds. I argue that to develop these five minds we would need to view knowledge in multiple ways.

I found Gardner's (2006b) strong criticism against formal education relevant to this study. He writes:

I believe that current formal education still prepares primarily for the world of the past, rather than for the possible worlds of the future... We acknowledge the importance of science and technology but do not teach scientific ways of thinking, let alone *how to develop individuals with the synthesizing and creative capacities* essential for continual scientific and technological progress. ... **we think of science as the prototype of all knowledge, rather than one powerful way of knowing** that needs to be complemented by artistic and humanistic and perhaps also spiritual stances. (Gardner 2006b: 17, emphases added)

In brief, learning theories are dynamic. They are changing and progressing continuously and they are open to new assumptions. Learning theories are interrelated and they overlap. They are multidisciplinary as they have their roots in several disciplines (figure 1). I argue that to develop minds for the future, we need to learn in various ways. Therefore, we need an extended epistemology of learning and knowing. Knowledge needs to be considered not only as scientific, theoretical knowledge but knowledge that is a social process, an activity of people, contextual and has multiple dimensions.

I showed that learning theories aim to explain how humans acquire, transfer, and create knowledge. Similarly, the knowledge creation theory of KM is interested in a better understanding of how people and organizations *become to know*. Therefore, I argue that it would be useful to consider learning theories in this current phase of knowledge creation theory of KM. Next, I focus on social learning theory because it is the most relevant learning paradigm for this study.

#### 2.1.4. *Social learning theories*

While acknowledging the contributions of other scholars (cf., table 2 item 12), in this study I focus only on a few of them (Mezirow 1991; Lave and Wenger 1999[1991]; Wenger 2005[1998]; Boisot 1999[1998]; and Stacey 2004[2001]). Essays of this study (appendix 2) address only three areas of the social learning theories: the collaborative learning approach (i.e., problem-based learning PBL); experiential-; and transformative learning.

How knowledge develops in a community context as actions and interaction of people needs more understanding (cf., Tsoukas 2000). *Collaborative learning* could help to understand some aspects of social knowledge creation processes. Knowledge develops in social situations through learning and thinking processes. I concur with William F. Hanks (foreword in Lave and Wenger 1999[1991]) when he argues:

Lave and Wenger seem to challenge us to rethink what it means to learn, indeed to rethink what it means to understand by putting the meaning, understanding and learning processes into social contexts because for them learning is a process that takes place in a participation framework, not in an individual mind, learning is a way of *acting in the world*, learning is way of *being in the social world*, not a way of coming to know about it. (Hanks in Lave and Wenger 1999[1991]: 13-24, emphasis added)

Therefore, Lave and Wenger argue that the concept of legitimate peripheral participation means a 'multiple, theoretically generative interconnections with persons, activities, knowing, and world' (ibid.: 121). Wenger (2005[1998]: 5) argues that there

are four deeply interconnected components of social theory of learning, such as, meaning, practice, community, and identity. *Meaning* develops during the sense making process, it is learning by experiencing. Meaning makes it possible for us to name and to understand our experiences and to communicate them to others. *Practice* is an engagement in action in a specific context and time, it is learning by doing. *Community* is the social context where learning takes place by interacting with people. *Identity* is who we are in the learning process, 'it creates personal histories of *becoming* in the context of our communities' (ibid.: 5, emphasis added). I argue that these components of social theory leaning could play important roles in the current phase of knowledge creation theory of KM as well.

*Experiential learning* theory (ELT) could help to understand the holistic and dynamic characteristics of knowledge creation as it is a holistic theory of learning that it is built on six propositions (Kolb and Kolb 2005: 194): (1) learning is best conceived of as a process, not in terms of outcomes; (2) all learning is relearning; (3) learning requires the resolution of conflicts; conflicts, differences, and disagreement are what drive the learning process; (4) learning is a holistic process of adaptation to the world (thinking, feeling, perceiving, and behaving); (5) learning results from synergetic transactions between a person and his/her environment; (6) learning is the process of creating knowledge. Kolb (1984: 41) argues that learning is a process where 'knowledge is created through the transformation of experience. Knowledge results from the combination of grasping and transforming experience.' This social, holistic, processual, contextual, dialectic and dynamic view on learning is essential in capturing the process of becoming to know.

How *new* knowledge emerges is not fully understood (cf., Stacey 2004[2001]). *Transformative learning* is important in this study as it could help to understand why and how *new* knowledge emerges. Mezirow (1991), a social learning theorist, distinguishes three types of learning, such as, (1) instrumental learning (i.e., learning to control and manipulate the environment), (2) communicative learning (i.e., learning to understand the meaning of what has been communicated), and (3) reflective learning (i.e., learning to understand oneself, to change thinking and actions). He argues that emancipatory or reflective learning is the way that leads to transformative change and *new* knowledge because first, it is able to transform meaning schemes and perspectives and second, it is able to transform actions. This change happens through reflections on content or process and on assumptions.

Reflective learning involves assessment and reassessment of assumptions. Reflective learning becomes transformative whenever assumptions or premises are found to be distorting, inauthentic, or otherwise invalid. Transformative learning results in new or transformed meaning schemes or, when reflection focuses on premises, transformed meaning perspectives. (Mezirow 1991: 6)

Naturally, while studying the social learning theory literature, I found several similarities between them. There are similarities between Wenger's (2005[1998]) social theory of learning and Mezirow's (1991) transformative learning theory. While Mezirow (1991) argues that in transformative learning both perception and cognition play important roles, Wenger (2005[1998]) argues that learning happens as an interplay of participation and reification and they 'form a unity in their duality' (ibid.: 62). I argue that this unity (i.e., phronesis) and dynamic interaction of perceptions and judgments is

the interplay between learning and knowing, which leads to becoming to know. There are similarities between Stacey's (2004[2001]: 60) arguments, when he challenges the mainstream KM assumptions (table 1), arguing for transformative teleology to achieve *new* knowledge creation and Mezirow's (1991) transformative learning theory. 'Learning always involves making a new experience explicit and schematizing, appropriating, and acting upon it', 'learning is a dialectical process of interpretation in which we interact with objects and events, guided by an old set of expectations', 'when we learn something, we attribute an old meaning to a new experience' (Mezirow 1991: 11). Not all learning is transformative, but in transformative learning 'we reinterpret and old experience (or a new one) from a new set of expectations, thus giving a new meaning and perspective to the old experience' (ibid.: 11).

Transformative learning involves reflectively transforming the beliefs, attitudes, opinions, and emotional reactions that constitutes our meaning schemes or transforming our meaning perspectives (sets of related meaning schemes). (Mezirow 1991: 223)

How *new* knowledge emerges as a dialectic interaction between two complementary learning strategies in the social learning cycle (SLC) is explained by Boisot (1999[1998]). He argues that SLC integrates the two different but *not* mutually exclusive knowledge creation assumptions, namely, the cumulative and a paradigmatic view of knowledge. Boisot (ibid.: 90-116) argues that the first one, what he calls N-learning (i.e., neoclassical learning), leads to a 'hoarding strategy'. It means that knowledge is cumulative and it is a collection of facts and theories. Conversely, the second one, the S-learning (i.e., Schumpeterian learning) leads to 'sharing strategies'. This strategy could lead to a paradigm change or shift. He emphasizes, however, that these two learning strategies are complementary rather than competitive and they can coexist. The S-learning could be considered as transformative learning that leads to *new* knowledge by questioning existing assumptions based on real world experiences. Concurring with all above, I argue that transformative teleology and transformative learning are essential in *new* knowledge creation because they challenge the old ways of thinking and this way they could lead to changes in actions, identity, and knowing. I consider them as the driving force of becoming to know.

In brief, I found the collaborative learning approach, the experiential learning theory, and the transformative learning as social learning theories relevant to the recent phase of knowledge creation theory. They could help us to better understand how knowledge develops in a social community context, to see the holistic, dynamic and contextual character of knowledge creation, and to realize what drives the becoming to know processes, why this process continues, and how the old transforms to new knowledge.

## 2.2. Concepts

The fact that learning and knowledge creation are interrelated is a self-evident, commonly shared idea (figure 1). However, I seek to delve into this relationship deeper. There are several questions that would need more understanding: Does learning always create new knowledge? What type of learning fosters knowledge creation? What type of knowledge is created during the learning processes? Is it only theoretical knowledge? Where is this knowledge located? Is it in individuals' heads and thus does it need to be



transmitted to others or is it in situated practices? Where does knowledge come from? Does knowledge come from activities people do in specific contexts? How does it happen? What enabling conditions are there to help knowledge creation? How do we know what we know? How to enable knowledge creation? What is the changing role of education and educators in knowledge creation in today's knowledge economy?

These questions might be old, but asking them again and again could lead to new insights and better understanding. Therefore, in this study I seek to explore the interrelatedness of learning and knowing because I seek to understand *how* it leads to becoming to know. Next, I present the concepts of learning, knowing, and becoming.

### 2.2.1. *Learning*

Learning is seen differently under different paradigms (i.e., behavioral, cognitive, constructivist, social). Engeström (1994) distinguishes first, second, and third order types of learning. In his view, behavioral learning theories belong to the first order learning where conditioning of reward and punishment, imitations and copying of certain behaviors belong to learning. In second order learning, trial and error, experimentation and investigation are the ways to learn. The third order learning (e.g., expansive learning, transformative learning) is when the learner questions the validity of tasks and problems and the learner makes an effort to change the context that posed the problem.

As third order learning, *transformative learning* is relevant to this study (essay 4) because it could lead to *new* knowledge. Transformative learning has two dimensions (Mezirow 1991; Kohonen et al. 2001: 18). First, the meaning perspective that consists of generalized orienting predispositions and second, the meaning scheme that is a cluster of specific attitudes, values, beliefs, and feeling where critical reflection and action are essential. For Mezirow (1991) action includes:

Making a decision, making an association, revising a point of view, reframing or solving a problem, modifying an attitude, or producing a change in behavior ... Action in transformation theory is not only behavior, the effect of a cause, but rather "praxis", the creative implementation of a purpose. (Mezirow 1991: 12)

In transformative learning the learner reflects on the insight and makes a conscious decision to act. Because this learning is influenced by the living social cultural context and time - where the agent, its activity, and the world are integrated in practice - it could be considered as situated learning (Lave and Wenger 1999[1991]).

In this study I follow the main principles of social perspective on learning defined by Wenger (2005[1998]: 226-229) as follows:

- learning is inherent in *human* nature
- learning is the ability to negotiate new meanings
- learning creates *emergent* structures (e.g., communities of practice)
- learning is fundamentally *experiential and social*
- learning *transforms* our identities

- learning constitutes trajectories of participation (i.e., history of participation, individual and collective *becoming*)
- learning means dealing with boundaries (i.e., multi-membership)
- learning is a matter of social energy and power
- learning is a matter of *engagement*
- learning is a matter of imagination (i.e., processes of orientation, reflection, exploration)
- learning is a matter of alignment
- learning involves an interplay between the local and the global (i.e., dynamic combination of engagement, imagination, and alignment) and
- learning cannot be designed, it can only be designed for.

According to the social learning perspective, learning cannot be isolated from social practice and contexts. I concur with Wenger (2005[1998]) who says that learning cannot be designed, ‘learning happens, design or no design’ but we can design *for* learning’ (ibid.: 225, emphasis original). Learning can be facilitated, enabled (e.g., education, educators, knowledge activists). Similarly, a context and conditions for learning could be designed. I assume that learning happens consciously and/or unconsciously, in formal and/or informal contexts (e.g., education, work, family, friends, and society). It happens throughout life. Concurring with Lave and Wenger (1999[1991]), I assume that learning is located not in individual heads, but in the processes of co-participation and in experiences. I see learning as a social act, as a process of practice.

One social learning approach is *collaborative learning*, where knowledge emerges through discussions, active dialogues among the learners while working in groups to achieve a shared understanding. Collaborative learning is an iterative process during which knowledge is constructed. One key goal of collaborative learning is to enhance the critical thinking of the learners by questioning existing solutions and assumptions and by creating new ones. Knowledge seekers take an active part in the learning process and they take responsibility for their own learning. In this process anyone of participants could take the role of knowledge provider or knowledge seeker. These roles could be taken dynamically. Collaborative learning has different forms such as investigative learning, progressive inquiry-based learning, project-based learning, problem-based learning (PBL). In essay 2 (Table I) of this study, I gave a detailed description of the collaborative knowledge creation processes as it was experienced during an action research project in a specific community.

In order to attain a holistic view on learning, the *experiential learning* theory (Kolb 1984) is applied in this study (essay 3). It has four characteristics (Kohonen et al. 2001: 30). First, learning is the process of creating knowledge through the transformation of experience in which the learner is actively involved. Second, learning is a continuous process that is grounded in experience (i.e., knowledge and skills learned in one experience will help to understand the situation in next experiences). Third, learning requires the resolution of conflicts between dialectically opposed modes of grasping and transforming experience. Fourth, learning is a holistic process of relating to the real world.

In brief, learning involves not only explicit knowledge, but also tacit knowledge that can emerge in collaborative actions, interactions, finding new ways of doing things, developing new skills by acting in a specific community context, and in questioning, transforming old ways of doing and thinking. Learning as a meaning making process leads to knowing, which is a state of understanding our concrete experience, our social cultural situation, and ourselves. How does it happen? I concur with Wenger (*ibid.*) saying that learning means *becoming* an ‘insider’, ‘moving towards the center of the community’. Similarly, Brown and Duguid (1991: 48, emphasis original), when they talk about workplace learning, argue that ‘The central issue in learning is *becoming* a practitioner not learning *about* practice. This approach draws attention away from abstract knowledge and cranial processes and situates it in the practices and communities in which knowledge takes on significance’. I argue that regardless of the common view that learning *is* knowledge creation, the process of becoming to know would need more understanding.

### 2.2.2. *Knowing*

Knowing could be viewed from different perspectives, such as philosophical, social psychological, psychological, learning theories, organization studies, and others. Without aiming for a comprehensive presentation of knowing, here I illustrate some of the perspectives that are the most relevant to this study.

Polanyi (1966), a philosopher, sees knowing as having two parts; one is the intellectual part, the ‘knowing what’, and the other is the practical part, the ‘knowing how’. He argues that ‘these two aspects of knowing have similar structure and neither is ever present without the other ... “knowing”, therefore, to cover both practical and theoretical knowledge’ (Polanyi 1966: 7). This unity of the explicit and implicit knowledge in knowing is important because the major criticism toward the SECI model of Nonaka and Takeuchi (1995) and Nonaka, Toyama, and Konno (2000) is the dichotomy of explicit and tacit knowledge (*cf.*, table 1).

Weed (2003: 165-179) represents the cognitive philosopher’s view of knowing. She writes that knowledge and knowing develop in two interactive thinking processes. On the one hand, processes of direct contact with the real world where people collect experiences through kinesthetic, auditory, imagistic, conceptual experiencing. In these processes the goals are to give meaning, sense and names to terms and to understand the experience. For Weed, sense making is an interpretation of a concrete experience. “Sense is the bridge between first person singular meanings and public, ‘third realm’ thoughts.” Senses ‘make it possible for people to discuss their experience and come to understand what they hear and read’ (*ibid.*: 143). On the other hand, knowing could be considered as a result of two interrelated human processes such as the knowing *in* the real world (‘object positing’) and knowing *about* the world (‘property attributing’) processes. Weed argues that the ‘world to mind’ and the ‘mind to world’ thinking processes are different, but *both* are needed for creating new knowledge. She argues that ‘cognition has no content without experiential interaction’ (*ibid.*: 13). I concur with her that knowledge creation can be understood better by understanding the union or synthesis of these two processes. One possibility to understand knowledge creation could be of replacing the passive observer with a knowledge activist who is actively

seeking to understand the changing world by becoming involved in these ‘messy’ and very human processes.

Mead (1973 and 1967[1934]: 75-82) a philosopher, sociologist, and psychologist, provides the social psychologist’s view on knowing. He talks about meaning as a phenomenon that is closely associated with the social processes and that arises in social interactions. For him, meaning is the result of a social act, as both meaning (i.e., the object of thought) and knowing emerge in social experience: ‘Mind arises through communication by a conversation of gestures in a social process or context of experience – not communication through mind’ (Mead 1967[1934]: 50; cf., table 1 item 2). He assumes a broadened view of language and signs. Language is more than words it is also attitudes or gestures. Similarly, social semiotics, that studies the social dimensions of meaning making processes of human practices, defines ‘language as one among a number of systems of meaning’ (Halliday and Hasan 1985: 4). Through social processes of meaning making knowledge and knowing develops.

Weick (1995), a psychologist, discusses knowing when he quotes Wallas (1926: 106): ‘How can I *know* what I think till I see what I say?’ (Weick 1995: 12, emphasis added). Weick sees knowing as part of the sense making process that has seven characteristics: grounded in identity construction, retrospective, enactive of sensible environments, social, ongoing, focused on and by extracted cues, and driven by plausibility rather than accuracy. Sense making includes creation and discovery, and interpretation. For Weick sense making is not only interpretation as it is for Weick. Weick (ibid.) argues that sense making keeps action and cognition together, for him sense making is both authoring and interpretation.

For learning theory scholars, like Lave and Wenger (1999[1991]: 122), knowing is ‘inherent in the growth and transformation of identities and it is located in relations among practitioners, their practice, the artifacts of that practice, and the social organization and political economy of communities of practice’. Wenger (2000: 226) defines knowing as ‘a matter of displaying competencies defined in social communities’.

Organization studies scholar Styhre (2003: 22) argues that there are two alternative epistemological assumptions about knowledge in organizations: (1) knowledge as an objectively definable commodity, knowledge as an asset (i.e., knowledge) and (2) knowledge as a social construct, knowledge as a process (i.e., knowing). As Styhre (2003: 51, emphasis original) puts it, ‘*Knowing* is what continuously unfolds as we make use of knowledge in action. Conceiving of knowledge in processual terms, i.e. *knowing*, opens the door to a more skill and experience-oriented view of knowledge’. I follow this view of knowing where knowing develops in human, dynamic, emerging, evolving processes and it is *both* an individual *and* collective knowing. In my view, knowing is the view of knowledge as a process compared with the opposite, the asset view of knowledge. The process view of knowledge, where knowledge is embedded in actions is an emerging view in KM literature (essay 1). I argue that the process view of knowing will gain importance in the theory of knowledge creation because the focus shifts to human interactions and participation in communities, where culture, politics, power, and ethics will play important roles.

In conclusion, I found similarities in how several authors (e.g., Polanyi 1966; Weed 2003; Mead 1967[1934]; Weick 1995; Lave and Wenger 1999[1991]; Wenger 2000; Styhre 2003) view knowing. They all emphasize the close connection between the knowing, person, activities, and the world. The knower and the known cannot be separated. Knowing means not only scientific, objective knowledge of the phenomenon but knowing also includes other types of knowledge such as representational, relational, and reflective knowledge (i.e., extended epistemology of knowing). Knowing develops when people create concepts, ideas, models, and when they discover relationships between ideas, through reading, speculating, inventing, conversations, and interactions. Knowing emerges when we standardize, connect thoughts, develop models, sort, organize, categorize abstract concepts and definitions to discover existing and new patterns and connections between concepts from different disciplines. I argue that ‘knowing what we know’, and especially ‘knowing what we do not know’, is the drive to learn more about the concrete experience or about the new concepts, the newly discovered patterns or relationships. Knowing is a source, a platform, a motivating drive for new intentions, new viewpoints that will drive the person to develop new relationships with the real world and to create new contexts for further learning. It is important to note that during the learning, knowing processes the person itself is changing (i.e., emergence of self, becoming) as he or she develops new understanding, new meanings, new intentions, goals, and new perspectives.

### 2.2.3. *Becoming*

Becoming is an essential concept of this study (figure 1). In table 3 below, without aiming comprehensiveness, I briefly outline how becoming is viewed in different disciplines and by several scholars.

**Table 3 Views of becoming**

Views of becoming	Characteristics
<p><b>Philosophy</b></p> <p>(e.g., Heraclitus, Aristotle, Hegel, Bergson, Dewey in Russell 1954; Audi 2003[1998]; Weed 2003)</p>	<ul style="list-style-type: none"> <li>• Everything is changing;</li> <li>• Change, as cyclical modification of objects;</li> <li>• Knowledge emerges from practice, knowledge emerges from practical undertakings ‘the union of being and not-being is becoming’;</li> <li>• Becoming is a series of events, ‘becoming is a series of states’, endless stream of becoming;</li> <li>• All reality is temporal, process, and evolutionary;</li> <li>• Human knowledge is gradually growing;</li> <li>• Becoming is pragmatic and dialectic change;</li> <li>• Combination of two dialectically interacting thinking processes, such as, processes that are directly connected with concrete experience (real world, practical, crafting experience) and processes of logical, abstract thinking;</li> <li>• Dialectic interplay of world-to-mind and mind-to-world leads to knowledge and both are needed for knowledge creation;</li> </ul>

	<ul style="list-style-type: none"> <li>• Epistemic chain is a chain of beliefs, justified belief is important for knowledge;</li> <li>• Both direct knowing (e.g., experiencing, seeing, hearing, touching) and indirect knowing (e.g., imagining, thinking, speculating) are important parts of becoming to know;</li> </ul>
<b>Psychology</b>  (e.g., Csikszentmihalyi 1991)	<ul style="list-style-type: none"> <li>• Becoming is flow of experiences;</li> </ul>
<b>Language Theories</b>  (e.g., Halliday and Hasan 1985; Halliday 1993)	<ul style="list-style-type: none"> <li>• Language is essential in meaning making processes of knowing;</li> </ul>
<b>Sociology</b>  (e.g., Berger and Luckman 1991[1966])	<ul style="list-style-type: none"> <li>• Humans influence the environment that could be natural, social and cultural, but at the same time, humans are influenced by reality;</li> <li>• Becoming happens as an interaction between humans and the environment;</li> </ul>
<b>Social Theory of Learning</b>  (e.g., Lave and Wenger 1990)	<ul style="list-style-type: none"> <li>• Becoming an 'insider' by learning how to function in a community (legitimate peripheral participation);</li> <li>• Knowledge develops through social construction of meaning in specific communities;</li> </ul>
<b>Organization Science</b>  (e.g., Orr 1990; Brown and Duguid 1991; Stacey 2007[1993]; Van de Ven and Poole 1995; Weick and Quinn 1999; Stacey, Griffin, and Shaw 2000; Stacey 2004[2001]; Senge, Scharmer, Jaworski, Flowers 2005; Carlsen 2006)	<ul style="list-style-type: none"> <li>• Social construction of shared understanding in collaborative activities contributes to the construction and development (i.e., becoming) of self;</li> <li>• Becoming is dialectic and teleological change;</li> <li>• Becoming, regarding the complex responsive processes, is 'coherent patterns of interactions, of the process itself';</li> <li>• Continuous change is a redirection of what is already under way;</li> <li>• Continuous change is Confucian: cyclical, processional, without an end state, equilibrium seeking, eternal;</li> <li>• Transformative teleology assumes that individual and social are not separated and there is a becoming ontology, becoming is the way of the emerging individual and social identities during the interactions among people;</li> <li>• Transformational change has three steps: sensing, presencing and realizing;</li> <li>• Becoming is dialogic imagination of practice, it is also about life enrichment, and about imagination;</li> </ul>
<b>Knowledge Management</b>  (e.g., Styhre 2003; Sveiby and Skuthorpe 2006; Nonaka, Toyama and Hirata 2008)	<ul style="list-style-type: none"> <li>• Becoming to know through and extended concept of language and signs (storytelling, dance, rituals, paintings);</li> <li>• View of knowledge as subjective, process-relational, aesthetic, and practical action reveals how knowledge is continuously created;</li> </ul>

Changes in nature and the physical environment have been studied widely starting from the Greek philosophers. Becoming is mostly seen as change, as cyclical modification of objects. But how does knowledge develop? How do humans become to know? Philosophers, like Heraclitus, Aristotle, Hegel, Henri Bergson, John Dewey (in Russell 1954) discussed the issue of becoming. Heraclitus' view was that everything is changing. Aristotle viewed knowledge in a pragmatic and dialectic way. He argued that the single most important source of knowledge is 'phronesis', experiences, skills that enable practices, and he argued that knowledge emerges from practical undertakings (cf., Styhre 2003: 54). Hegel had a dialectic view and argued that 'the union of Being and Not-Being is Becoming' (in Russell 1954: 760). Russell (1954: 848) writes that Hegel 'conceives human knowledge as organic whole, gradually growing in every part, and not perfect in any part until the whole is perfect.' Henri Bergson took an evolutionary view by saying that '*becoming* is a series of states' (ibid.: 821, emphasis original), or saying that 'in reality there are no separate solid things, only an *endless stream of becoming*' (ibid.: 822, emphasis added). John Dewey represented the evolutionary perspective. Dewey thought that 'all reality is temporal, and process, though evolutionary, is not, as for Hegel, the unfolding of an eternal Idea' (Russell 1954: 848). These philosophical views, as examples, demonstrate that *becoming* is not a new phenomenon.

Weed (2003), a philosopher, argues that knowledge creation is a combination (i.e., synthesis, phronesis) of two dialectically interacting thinking processes, such as, processes that are directly connected with concrete experience (real world, practical, crafting experience) and processes of logical, abstract thinking. Audi (2003[1998]) discusses epistemology, the theory of knowledge and justification. He talks about belief, justification, and knowledge. In brief, his argument is that 'without situational justification ... there would not be belief justification. ... justified belief is important for knowledge ... much of what we justifiably believe we also know' (ibid.: 3-4). I consider Audi's definition of epistemic chain important. He defines an epistemic chain as 'a chain of beliefs with at least the first constituting knowledge, and each belief linked to the previous one by being based on it. (ibid.: 188). His argument is 'that if there is *indirect* knowledge, there is direct knowledge, but also, that if there is indirect knowledge, that very knowledge is *traceable* to some direct knowledge as its foundation' (ibid.: 193, emphasis original). This corresponds with Aristotle's views and it means that both direct knowing (e.g., experiencing, seeing, hearing, touching) and indirect knowing (e.g., imagining, thinking, speculating) are important parts of becoming to know.

Csikszentmihalyi (1991: 88-89), a psychologist, argues that the five characteristics or dimensions of the flow experience are: (1) clarity of goals or 'situations that facilitate the clarity of goals' (i.e., knowing-what), finding goals that give meaning to experience; (2) receiving feedback, caring about concrete feelings and experiences (i.e., interactions); (3) feeling of control, feeling of possibilities and making choices, even breaking existing rules and trying new things (i.e., experimenting, learning in different ways, extended epistemology); (4) intrinsic motivation, commitment and concentration on the task in a safe environment that allows mistakes (e.g., learning community context, student-tutor relationship); and (5) creating challenges, 'providing increasingly

complex opportunities for action'. Csikszentmihalyi discusses these characteristics of the flow experience for a family context. I argue that these dimensions of flow experience are relevant for becoming to know.

Language theorists (e.g., Halliday and Hasan 1985; Halliday 1993) argue that the role of an extended definition of language and signs (e.g., bodily gestures, dance, music, paintings, drawings and sculptures) plays important role in meaning making and knowing. KM scholar Sveiby, and a painter, educator and custodian of traditional stories Skuthorpe (Sveiby and Skuthorpe 2006), demonstrate how aboriginal people in Australia sustained their culture without having a written text of their traditional stories. How knowledge and meaning was created through storytelling, dancing, rituals, and paintings (i.e., a broadened concept of language and signs). Social semiotics is a meaning making process in social context. Halliday (1993: 94, emphasis original) argues that language needs to be understood in broader terms than just a text, and it needs to be connected to society and social practices because 'language is the essential condition of knowing, the process by which experience **becomes** knowledge'.

The claim of Berger and Luckman (1991[1966]: 66-67) that the process of becoming man has double environmental relationships is relevant here. They say that humans influence the environment that could be natural, social and cultural, but at the same time, humans are influenced by reality. 'While it is possible to say that man (*sic*) has a nature, it is more significant to say that man constructs his own nature, or more simply, man produces himself' (ibid.: 67). They continue that 'it is important to emphasize that the relationship between man (*sic*), the producer, and the social world, his product, is and remains a *dialectic* one' (ibid.: 78, emphasis added). They argue that the three dialectical moments in social reality are: '*Society is a human product. Society is an objective reality. Man is a social product*' (ibid.: 79, emphasis original). It is essential that production of society and man is an ongoing, continues, dialectic process. I think that this emergence of the environment and emergence of self are essential for becoming to know.

Lave and Wenger (1990) consider knowledge as interconnected with social practice that develops through social construction of meaning in specific communities. Learning happens when community members move towards the center of the community and that involves becoming an 'insider'. Brown and Duguid (1991: 47) refer to Orr (1990) and state that social construction of shared understanding in collaborative activities contributes to the construction and development (i.e., becoming) of self, to formation of identity. Learning is inseparable from working, from acting in a community, in a specific context.

Becoming is a change. Van de Ven and Poole (1995) provide a typology of change process theories. Process theories of organizational development and change are classified according to modes of change as prescriptive or constructive and according to units or motors of change as single or multiple entities. The four process theories discussed are life cycle, evolution, dialectic, and teleology. Regarding the phenomenon of this study, the constructive modes of change (dialectic and teleology) could be considered. Dialectic change cycle includes: thesis, antithesis, synthesis of conflicting views and feedback. The process of the teleology cycle has the following steps: envisioning/setting goals, implementing goals, dissatisfaction, and searching/interacting.



Weick and Quinn (1999) distinguish between episodic and continuous change, discussing organizational change and development. They argue that continuous change assumes that ‘organizations are emergent and self-organizing, and change is constant, evolving and cumulative’; this change is ‘a redirection of what is already under way. Change is Confucian: cyclical, processional, without an end state, equilibrium seeking, eternal’ (ibid.: 366). Continuous change is relevant to becoming to know.

Teleology is significant to becoming. However, according to Stacey (2004[2001]: 27 and 60, 2007[1993]: 265), teleology could have different forms and the concept of becoming is understood differently by rationalist, formative, and transformative teleology. *Rationalist teleology* assumes that autonomous people make decisions about their goals based on thinking and rational arguments and then they consciously move towards these goals. Becoming in this view is planned and designed beforehand and implemented in an organized way (e.g., like in formal education). *Formative teleology* assumes that the final state people want to achieve can be known beforehand and the phases of change, how the goal could be achieved, can be determined beforehand. In this form of becoming the individuals sustain their original identities developed in micro-interactions and they actualize what they already know, they formalize themselves in macro-level interactions. In this view of becoming there is no change in the knowing and identity, it is nothing else than taking the existing micro-level interactions to a macro-level. It assumes that someone (e.g., teacher) knows what needs to be learned. *Transformative teleology* is a challenge for systems thinking and it has a very different perspective on becoming (Stacey, Griffin, and Shaw 2000; Stacey 2004[2001]; and Stacey 2007[1993]). The transformative teleology framework assumes the ontology of becoming where individual and social are not separated into different levels like, for example, in the mainstream KM literature (cf., table 1). In transformative teleology, while people are forming their environment (including other people), they are being formed at the same time by their environment. This perspective realizes the importance of the context in becoming. Becoming, regarding the complex responsive processes, is ‘coherent patterns of interactions, of the process itself. Patterns of interaction produce further patterns of interaction and nothing else. These constitute individual and collective identities’ (Stacey 2007[1993]: 265).

Becoming involves transformational change that is ‘a largely unexplored territory both in current management research and in our understanding of leadership in general’ (Senge, Scharmer, Jaworski and Flowers 2005: 5). According to Senge et al. (2005), transformational change or profound change needs deeper social connectivity, deeper understanding that develops through practice. Transformational change (ibid.: 87-88) has three major stages sensing, presencing and realizing: (1) ‘Observe, observe, observe’ meaning sensing the world, becoming one with the world; (2) ‘Presencing’, retreat and reflect, allow the inner knowing to emerge; and (3) ‘Realizing’, act swiftly, with a natural flow. Senge et al (2005: 219) refer to seven capacities of their theory of ‘U’ that leads us through transformational change: suspending (seeing our seeing, sensing – transforming perception), redirecting (seeing from the whole), letting come, letting go, crystallizing (envisioning what seeks to emerge), prototyping (enacting the living microcosmos), and institutionalizing (embodying the new).

Carlsen (2006: 132) views becoming ‘as a dialogic imagination of practice’. He explores organizational becoming as a set of ongoing authoring acts situated in

everyday work. His point is that ‘organizational becoming should be explored as more than a processual view of change. Becoming is also about life enrichment, and thus about *imagination*’ (ibid.: 132, emphasis original). His view shows that creative skills, imagination, breaking the old mental models are important in becoming to know.

The concept of becoming is mentioned in recent publication of KM scientists Nonaka, Toyama and Hirata (2008). When proposing a new knowledge-based theory of firm they re-examine the role of individuals from an ontological and epistemological point of view:

We argue that knowledge as a management resource cannot be understood without understanding the interactions of the human beings who create it. ... each human being is a unique collection of experiences and is in a constant state of *becoming* to create a future through embracing and managing of contradictions. In this interactive process, individuals continually change themselves and their environment, and management of the firm becomes reflection of this activity. (Nonaka, Toyama and Hirata 2008: xviii, emphasis original)

They (ibid.) emphasize the subjective, process-relational, aesthetic, and practice view of knowledge. This is exactly the focus what is required in KM if we want to understand knowledge creation. Furthermore, their views became closer to transformative teleology than it was earlier (cf., Nonaka and Takeuchi 1995). However, I found it not quite compatible with transformative teleology because they assume that the firm has a *clear*, goal or vision of the future defined beforehand of what it wants to achieve. Somehow, I could not fully agree with this, as the goal of the firm itself emerges and changes as a result of human interactions. The future is the ‘known unknown’; we know that it is there but we do not know what it will be (cf., Stacey 2004[2001]). I could agree with Nonaka, Toyama and Hirata (2008) if they assume that the goal and vision could change dynamically through time.

### 2.3. Summary and conclusions

In brief, in this chapter I summarized some critical voices in the KM literature; presented the five phases of the evolving knowledge creation theory of KM through 1995-2008; outlined the four learning theory paradigms (i.e., behavioral, cognitive, constructivist, and social learning theories); discussed social learning theories relevant to the study (i.e., collaborative, experiential, and transformative learning); and presented the concepts of learning, knowing, and becoming.

Related to KM and the theory of knowledge creation, I have three arguments. *First*, KM does not have well-defined, clear concepts and a definition but rather it has several, sometimes confusing, definitions existing side by side. It could be considered natural because the theory is evolving from several roots. However, it also gives ground for criticism. *Second*, the focus of KM has shifted from locating, capturing, transferring what we know to social knowledge creation and to enablers of knowledge creation (i.e., knowledge vision, conversations, knowledge activists, context), but theories could not explain *how* knowledge is created in social interactions in communities. Therefore, there is an opportunity for new contributions. *Third*, because the next phase of KM will focus on innovations and new knowledge creation instead of measuring and leveraging

existing knowledge, we will see a very fast growth in the people-track. The focus will be on how people become to know.

Related to learning theories, I argued *why* social learning theories are relevant to this study and *how* the three learning approaches - which were selected in essays of this study (appendix 2) - could contribute to the understanding of the knowledge creation theory of KM. Now, I conclude the following: (1) I argued that the knower and the known are in unity. Therefore, in learning processes anyone could be a knowledge provider or a knowledge seeker (i.e., these roles are not fixed to teacher and student roles). I argued that learning is a way of being in the world and not only knowing about it. Persons, activities, knowing, and the world are interconnected (situated learning). (2) I argued that there is a need for extended epistemology, a variety of learning because we need to learn in many different ways to develop minds for the future (multiple intelligences, cf., Gardner 2006a and 2006b). There is a need for a variety of learning situations where both the knowledge provider and knowledge seeker play active roles. (3) I showed that transformative teleology and transformative learning are relevant to this study because they could lead to *new* knowledge by questioning existing assumptions based on real world experiences and they could lead to a change in knowing by challenging the old ways of thinking and acting. Therefore, they could help to understand the process of becoming to know.

Finally, I presented the three concepts of the study (i.e., learning, knowing and becoming) from different perspectives (cf., table 3). Because of the explorative nature of the study, a variety of different social learning approaches, concepts and theories are necessary. I strongly believe that limiting my attention to one theory and a few concepts at the beginning of the research project would have made the study easier. However, I am convinced that it would not give the same excitement, intellectual richness, and opportunities to discover something new during the research journey.

### 3 RESEARCH DESIGN AND IMPLEMENTATION

Research design includes decisions regarding the research paradigm, research philosophies, and research strategy of the study. Research implementation embraces the operational decisions regarding data collection methods, the scope of the study, and the research process.

#### 3.1. Research paradigm

I follow the participative research paradigm (e.g., Heron and Reason 1997 and 2001; Guba and Lincoln 2005: 295-319; Fisher et al. 2007[2004]: 14-25) because I seek to understand knowledge creation as a social process. The participatory or cooperative research paradigm is highly similar to social constructivism, which is rather dominant in today's Scandinavian organizational research. However, there are some differences between the two. Based on Guba and Lincoln (2005: 299-303) and Heron and Reason (1997: 289-290), I summarize the main differences as follows:

- **Ontology** in constructivism assumes relativism – local and specific co-constructed realities and participatory paradigm assumes a participative reality – a subjective-objective reality, co-created by the mind and a given cosmos;
- **Epistemology** in constructivism research is transactional/subjectivist, co-created findings while in participatory research epistemology is critical subjectivity in participatory transaction with the cosmos, it is an extended epistemology of experiential, presentational, propositional, and practical knowing, findings are co-created;
- **Nature of knowledge** in constructivism it is individual and collective reconstructions, sometimes it based on consensus while in participatory research, knowledge is an extended epistemology where there is primacy of practical knowing, critical subjectivity, living knowledge;
- **Accumulation of knowledge** in constructivism knowledge is more informed and sophisticated reconstructions, while in a participatory world view, knowledge is created in communities of inquiry embedded in communities of practice;
- **Methodology** in constructivism hermeneutical/dialectical, in participatory research the methodology is political participation in collaborative action inquiry (AR), practical has primacy, and use of language is grounded in shared experiential context.

The participatory paradigm is an evolutionary, emergent and a reflexive worldview that has five dimensions according to Reason and Bradbury (2002[2001]: 6-11): (1) participatory evolutionary reality where subject and object are interdependent; (2) practical being and acting; (3) extended epistemology, diverse forms of knowing; (4) relational ecology, and (5) meaning and purpose.

The extended epistemology dimension is especially important for this study as it connects the essays (appendix 2). In the participative research paradigm, knowledge and knowing is acquired through a variety of ways (i.e., extended epistemology). In the participative worldview, research is conducted by researchers in collaboration. Researchers interact and learn through active engagement in the process. According to this paradigm, researchers require emotional competence, a democratic personality and

skills. Findings are co-created through the collaboration of people. Consequently, research that follows this paradigm could not be absolutely value-free.

### 3.2. Research philosophies

My research philosophies are becoming ontology and extended epistemology. For Tsoukas (2006: 2-8) ontology means how we see the world. Do we see it as a closed system or as an open system that is constantly evolving, changing and therefore it is in the process of becoming? He says that epistemology deals with the question: How do we know what we know? He contrasts the representational epistemology (i.e., where the phenomenon can be represented by information available about the phenomenon) and the enactivist epistemology (i.e., where knowing is action, contextual and produced by active knowers). Avenier and Gialdini (2009: 37) summarize the main questions of ontology, epistemology and methodology in the following manner. Ontology asks: What is there that can be known? What is the nature of reality? Questions related to epistemology are: What is the relationship of the knower to the known (or to the knowable)? How can we be sure that we know what we know? Methodology asks: What are the ways of elaborating knowledge? However, in my view the clearest definitions were given by Nonaka (2009): Ontology is how to be and epistemology is how to know.

I follow the becoming ontology, which is a one-tier ontology because it assumes that there is no split between things and processes, no split between the individual and the social. It focuses on activities (i.e., practices of agents), on processes (i.e., process ontology), and it sees things as emerging from those processes. 'It replaces the troublesome ontological dualism of *thing* and *activity* with the monism of activities' (Rescher 1996, in Chia 2003: 49, emphasis original). According to Chia (2003: 107-109), becoming ontology has the following four axioms:

1. Ontological primacy of process, indeterminacy, flux, formlessness, and continual change;
2. Limitations of language in understanding our reality, '*we can know more than we can tell*' (Polanyi 1966: 4, emphasis original);
3. Emphasis on the heterogeneous, multiple, and nonlinear character of the real-world events (i.e., events cannot be planned beforehand); and
4. There are no clear starting and ending points of the events (i.e., there is no clear cause-effect relationship) and the future is a 'construction', the 'known-unknown'.

Furthermore, Chia (2003) argues that 'these four theoretical emphases in a becoming ontology provide a fertile base for reconceptualizing organization and the function of OS' (i.e., he means organization studies, *ibid.*: 109, emphasis original). There is a need for research and contributions in the field of becoming ontology (e.g., Stacey 2004[2001]; Rescher 1996; Chia 2003). Transformative teleology assumes the ontology of becoming:

Movement is toward a future that is under perpetual construction by the movement itself. There is no mature or final state, only perpetual iteration of identity and difference, continuity and transformation, the known and the unknown at the same time. The future is unknowable but yet recognizable, the known-unknown. (Stacey 2004[2001]: 60)

I argue that becoming ontology is relevant to this study because it helps to understand why and how change takes place and how new emerges during interactions. It helps to understand in its complexity and continuity how the non-linear, human process of becoming to know happens.

I follow the extended epistemology as my research philosophy. The concept of extended epistemology is defined by Heron and Reason (2001 in Reason and Bradbury (eds.) 2007[2001]: 149). They identified four ways of knowing, namely:

1. Experiential knowing, that is, knowing through perceptions, concrete experience with the physical and social world (i.e., learning in the world);
2. Presentational knowing means expressing the meaning of the experience (e.g., dance, painting, story);
3. Propositional knowing develops through ideas and theories (i.e., logical thinking, learning about the world); and
4. Practical knowing that means knowing how to do things, how to act in the real world.

Extended epistemology means that knowing develops in diverse forms. It claims that not only theoretical knowing, but also practical knowing, critical subjectivity, and living knowledge are essential. Practical and theoretical knowledge are interwoven because while practical knowledge, the embodied know-how (i.e., knowing), is the foundation of all cognitive actions (i.e., thinking), theoretical knowledge (i.e., know-why) guides our practical actions. Torbert (1991), for example, talks about intuitive knowing, intellectual knowing, sensuous knowing and empirical knowing.

Several other scholars (e.g., Allee 2003; Boisot 1995 and 1999[1998]; Spender in Boisot 1999[1998]; Popkin 1979; Reason and Bradbury 2002[2001]; Torbert 1991; Heron and Reason 2001) express the need for extended epistemology when studying knowledge creation in a social context. Terms like ‘extended’, ‘pluralist’, ‘radical’, ‘enactivist’ epistemology are used by the aforementioned authors as synonyms. For example, Heron and Reason (2001: 183) write “a radical epistemology, involving four ways of knowing. We also call this an ‘extended epistemology’”. Spender calls it ‘pluralist epistemology’, Reason and Bradbury call it ‘extended epistemology’, Heron and Reason (2001) call it ‘radical’ epistemology. Tsoukas (2006[2005]: 5) argues that enactivist epistemology assumes that knowing is action, knowing is contextual, and active knowers produce knowledge. In this study (chapter 5) I propose a new term ‘becoming epistemology’ and define its characteristics.

Because organizations are living systems, and to understand how they are formed in the ‘world-making’ process of people, we need a pluralistic view of epistemology. Knowledge creation and organizations (i.e., community as an informal organization) as social phenomena are very complex. Consequently, different approaches are needed to understand them. Allee (2003: 49) assumes that ‘in the living, networked world of organizations, we must understand companies not as discrete entities but rather as elements in a socioeconomic ecosystem’. For her, organizations are complex, living systems, ‘social constructs that arise out of the collective consciousness of people with shared purpose, character, intention, values, and assumptions, and who hold a sense of the corporate identity’ (Allee 2003: 54). Therefore, she concludes that understanding a complex system ‘requires multiple lenses and multiple minds’ (ibid.: 63), and a multi-

method approach. Similarly, Boisot (1995 and 1999[1998]) and Spender (in Boisot 1999[1998]) argue that there is a need for pluralist epistemology in the knowledge-based theory of the firm, because they consider the organization to be a place for interactions of different knowledge. Boisot (1995) proposes the information space (i.e., I-space) framework for the analysis and identification of knowledge assets. Boisot could be criticized for having an asset view of knowledge. However, his positive contribution is the I-space framework. He considers that the social learning cycle (SLC) (i.e., the way of knowledge creation) takes place in the I-space that is determined by epistemological, utility, and cultural spaces.

In organization research there is a need for extended epistemology. Already in the 1970s, Popkin (1979) claimed that the Western thinking was suffering from ‘epistemological schizophrenia’ of the separation of mind and body, subject and object, the knower and the known. There is a need for an extended epistemology, a multiple way of knowing, in a participatory worldview when we all participate in creating our realities (Reason and Bradbury 2002[2001], where the knower and known are in unity. Likewise, Park (2001: 81-90) supports the need for extended epistemology. He argues that in participatory research there are multiple forms of knowledge, namely, representational knowledge that identifies relationships between variables and it develops through interpretations of meaning; relational knowledge that is about understanding the community relationships; and reflective knowledge, meaning relating to what is wrong and what is right in a given context. In this study I follow the extended epistemology and I argue that it is relevant to this study because it helps to see and understand the social processes of becoming to know.

### **3.3. Research strategy**

Action research (AR) as a research strategy is not common in academic research. Avison, Lau, Myers, and Nielsen (1999) have conducted two surveys to find out the acceptance of AR by the academic community. In 1991, they studied 19 journals and 155 articles and they found only one article referring to AR. In 1997, they surveyed the key words of 20 leading journals in fields of business, education, health and public services for a 25-year period (1971-1995) and they found only 29 articles on AR. They conclude that the academic community has almost totally ignored AR. The same findings are experienced in KM research. Nevertheless, AR has long traditions and it is a quite popular strategy in researching educational practices (e.g., Stenhouse 1975; Hopkins 1985; Walker 1985; Carr and Kemmis 1986; McNiff 1997[1988]). Three essays of the study (appendix 2) are related to educational context and or practices.

However, AR as a research strategy is not a new phenomenon. Pasmore (2007[2001]: 38-48) presents the origins of AR and he points out that AR has started to develop since the 1930s and, among many others, he mentions John Dewey (i.e., reflective thinking, democratizing education, collaborative research), John Collier (participative approach in research), and Kurt Lewin as pioneers of AR. The long history of AR is not the focus of this study. However, due to the social phenomenon of the study, I think it is necessary to give a working definition of AR here. Action Research is defined by Carr and Kemmis (1986) as ‘a form of self-reflective inquiry undertaken by participants ... in social (including educational) situations in order to improve ... (a) their own social or

educational practices, (b) their understanding of these practices, and (c) the situations (and institutions) in which these practices are carried out'. Others define AR in the following way:

Action research is a participatory, democratic process concerned with developing practical knowing in the pursuit of worthwhile human purposes, grounded in participatory worldview which we believe is emerging at this historical moment. It seeks to bring together action and reflection, theory and practice, in participation with others, in pursuit of practical solutions to issues of pressing concern to people, and more generally the flourishing of individual persons and their communities (Reason and Bradbury 2002[2001]: 1).

Action Research has its roots in pragmatic philosophy, critical thinking, humanistic psychology, constructionist theory, systems thinking and complexity theory. The pragmatic nature of AR is well expressed by Avison, Lau, Myers, and Nielsen (1999: 96): 'In action research, the emphasis is more on what practitioners do than on what they say they do.'

Action Research has its strengths and weaknesses. Its *strengths* are: it produces practical knowledge and this way it improves practices and increases the well being of people; it is collaborative and participative; it is democratic research because it involves all stakeholders in knowledge creation; it not only leads to know-how but it also develops people's skills and abilities to create new knowledge during the research process; it is a research with people not on people that helps the researcher to gain an insight knowledge; it combines theory and practice as researchers and practitioners act together; and it addresses complex, real life problems and concerns.

Despite its several strengths, AR has been strongly criticized, especially by the academic community, because of its *weaknesses*. The main criticism of AR is that it is too pragmatic, and it produces only practical (know-how) knowledge. One claim against AR is that it is not scientific (McNiff 1997[1988]: 126), meaning that it does not contribute to the main corpus of knowledge, and has little or no significant scientific value. This lack of scientific value is one reason why it is so hard to publish the findings of AR in academic journals. The criticism stems from the 'messy' character of AR and from its lack of control of the processes. Additionally, AR has the following weaknesses: the difficulty to communicate to others the cyclical process; the difficulty to publish a paper that follows AR; the difficulty to assess the validity of the findings; and it is difficult to generalize the findings because they are context- and time-specific. Furthermore, conducting AR is time-consuming because there are several research cycles. It is a hard and demanding job as it requires continuous involvement and reflections from the researcher. It could be stressful to deal with continuous changes. Action Research is not value-free research because it requires high involvement of the researcher. Conducting AR can be difficult due to the need to gain access to the organizations and to people who want to collaborate and contribute. Organizing the context for learning sessions is very demanding.

I choose collaborative AR as a research strategy because of the social phenomenon of the study and, I believe, that it would help me to address some of the challenges of KM (table 1). Action Research fits the participative research paradigm, becoming ontology and extended epistemology of the study very well. I argue that the social phenomenon of this study cannot be well understood from outside. By being involved in the practices



and activities of people as a researcher, I could gain a very rich understanding of the complexity of the phenomenon. Naturally, there are other research strategies (e.g., case study research, ethnography) where the researcher is directly involved and could gain an insider view of the phenomenon. I have not selected case study research because it would be difficult for me to negotiate full access to organizations and to be part of their activities. Ethnography would have required full access to organizations, to build high trust with the participants, and to be involved full-time in their practices. Additionally, ethnography would have been very time-consuming for an extended period. As a part-time researcher, conducting AR cycles fit my work schedule better.

To conclude, I selected collaborative AR because of its following characteristics: it focuses on practical issues that are important for people; it views knowledge as a process (i.e., *knowledge-in-action*); it is participative and democratic; it is emancipatory, which means that it not only produces practical knowing but at the same time it also develops people's skills and ability to produce new knowledge and therefore it contributes to the becoming process of individuals and the community (e.g., Coghlan and Brannick 2001); and it emerges over time in an evolutionary and development process (e.g., Reason and Bradbury 2007[2001]). Besides producing practical knowledge that is meaningful to the participants, AR aims at contributing to the better understanding and sense making of our activities and our world. From the perspective of this study, I consider the most important strength of AR is that it combines theory and practice. This *connectionist role* between theoretical (i.e., logical thinking, judgments) and empirical knowledge (i.e., perceptions) is of utmost important in knowledge creation, in becoming to know. These characteristics convinced me that AR is an appropriate research strategy when the research phenomenon is a highly complex process. Action Research fits the research philosophy of the study well. Furthermore, collaborative AR could help to propose a framework of becoming to know.

### 3.4. Research methods

This study is a qualitative, exploratory research that consists of four interlinked essays (appendix 2). Regarding the type and objectives of essays, I apply several research methods during the research project. Therefore, I shall present them in accordance with each essay.

In order to write essay 1, I acquired knowledge by reading KM literature and by attending workshops and conferences (appendix 1). The advantages of a literature review are that it provides a good overview of recent discourses in the research field, it helps to identify debates in the KM literature, it aids in seeing the chronological development of the field, it brings forth critical voices (table 1), it assists in identifying the research gaps and needs, it provides opportunities for contributions, and it positions the study in the stream of different views. The disadvantages of this method are that some important sources could be neglected, some critical voices could be missed, it could be done in a specific time frame, and it could become quickly outdated. The journal editor's suggestions helped me to update the essay.

In essay 2, which is an empirical research paper, I employ different ways to collect data during the four month implementation of the project as well as after the implementation

phase. The data sources are participative observation, structured observation, memo, workshops, problem opening and closing sessions at each company, value-mapping, voice and video recording, and reflections from participants. Additionally, I received very constructive feedback from reviewers, the editor, and from my tutors. The multi-method data collection was a purposeful decision to gain data during the project that are as rich as possible.

Essay 3 is a conceptual paper based on the literature review (essay 1) and experiences (essay 2). Herein, I propose the concept of knowledge-creation spaces and the SAFT model. I test the model in an authentic context of the learning community (essay 2) to determine the emerging character of learning preferences (i.e., the ways of learning) of this specific community during the life-cycle of the AR. I presented an earlier version of this paper in a conference in order to collect feedback from participants (appendix 1). It was a useful source because it helped me to re-write the paper. Feedback from my tutors also contributed to an improved version of the paper.

Essay 4 is based on 22 semi-structured face-to-face interviews before the merger of two universities of applied sciences. This data collection method gave me the opportunity to ask additional, clarifying and complementary questions, thereby clarifying information. Furthermore, it was a valuable source for observation of interviewees, who shared with me more than what I had asked because they told me personal, sometimes even sensitive and confidential information. Therefore, face-to-face interviews have strong ethical considerations from the researcher's perspective. Organizing the interviews requires flexibility and empathy from the researcher. For example, one person asked me to conduct the interview in an art gallery and not in her workplace. The interviews were audio recorded and transcribed afterwards. These data also provided the basis for a paper that was presented in an international conference (appendix 1). Once again, the feedback received from the interviewees, conference participants, my tutors, and the editor helped to improve the paper.

### **3.5. Scope of the study**

I present the scope of the present study essay by essay because each essay of this study could be considered a small study in its own right. I focus on when and how long the studies were conducted, the geographical area, what organizations were involved, and participant profiles.

The literature study (essay 1) explored a selected range of KM publications during the period of 1990-2004. I identified and summarized the emerging views of knowledge, the main concepts, tools, and perspectives in more than 25 publications. The final version of the paper was published in 2007.

Action Research (essay 2) was implemented in spring 2005 during a four month period. However, the AR-cycles (plan-act-observe-reflect) of the project took considerably longer (24 months) because planning, organization, and creation of the community context already started in spring 2004 and the research report with reflections was published in spring 2006. The planning included writing the project proposal, visiting the potential companies, having several project briefings with the company

representatives, presenting them the project idea and the collaborative learning approach (CLA). The research plan was rewritten and submitted for funding. Finally, there were four Finnish international companies who committed themselves to the project. There were 31(8) managers, 14(11) students, 5(2) teachers, and 4(2) leadership, branding, and communication experts from three small Finnish companies participating in the project (N.B. The core members of the community are in brackets). Altogether, the community had 54(23) members. The backgrounds of the participants were diverse in gender, age, education, occupation, and culture (e.g., six different nationalities). Managers came from different areas, such as branding, human resources, sales, communication, and marketing. The four large companies operate in the environmental measurement, insurance, electronics, and construction sectors. During the implementation period (4 months), we had 4 problem identification sessions (one at each company), 3 workshops with all participants, and 3 closing sessions at each company. Six months after the implementation, participants were asked to reflect on their learning. Reflections were summarized in a research report that was published in spring 2006. The research paper was published in 2008.

Essay 3 is a conceptual paper based on research that included the study of experiential learning theory (ELT) and knowledge creation theory (KCT) literature. The goal was to find out how knowledge creation processes work in a community, how a community learns (different ways of knowing) and develops common learning preferences. The 241 identified interactions, mapped during the AR research done for essay 2, provided the input data for this study. An earlier version of this essay was presented at a doctoral conference in 2006. The essay was published in 2009.

The data collection for essay 4, which is a qualitative research paper, was conducted in autumn 2006. The scope of data collection included two international business programs from two Finnish universities of applied sciences. The request for a face-to-face interview was sent to 38 teachers, of which 3 were not available (e.g., maternity or research leave). There were 22 teachers interviewed, thus almost 63% of teachers of the two IB programs were involved in this research. More than 24 hours of audio material was collected and transcribed into 412 pages of text. With regard to the profiles of the interviewees, it could be concluded that the majority of them were female (64%), 87% of the interviewees were more than 40 years old (41-50 years: 55%, and more than 50 years: 32%). The majority of the teachers were Finns. There were only two foreign nationalities among them. The competences of the teachers were dominated by business (77%), compared with languages (14%), and methodology (9%). Teachers had on average 11.5 years of teaching experience and 8 years of work experience in the given school. Earlier versions of this essay were presented in two international conferences in spring 2007 and 2008.

### **3.6. Research process**

The research process of this study was relatively long as it started almost a decade ago. However, this time frame provided me the opportunity to follow the development of KM - which has emerged in the mid 1990s - for a reasonably long period. Throughout the research process, I was constantly involved in KM-related activities, teaching, attending conferences, workshops, and seminars, reviewing the literature, conducting

empirical research, and working on journal papers. Most importantly, I met leading KM scholars during the research process. Although the list of names is not comprehensive in appendix 1, it gives an indication of the people who have had a significant impact not only on my research topic, philosophy, and methodology selections, but also on my intellectual development (i.e., becoming).

I summarize my research process in appendix 1 to illustrate my involvements in KM-related seminars, workshops, forums, and conferences. They played an important part in starting and conducting this research because they piqued my curiosity, raised my interest in certain topics, developed my skills, and influenced my decisions during the research process. In brief, they gave depth and meaning to my experience. Additionally, in appendix 1 I indicate my activities and the outcomes of my efforts (i.e., research report, conference and journal papers) during the whole research journey.

## 4 FINDINGS

In figure 2 below, I indicate the works completed that are relevant to this study, such as the research report, conference and journal papers. Figure 2 illustrates the emergence of the essays of the study (appendix 2). Now, I briefly summarize the findings of the four essays.

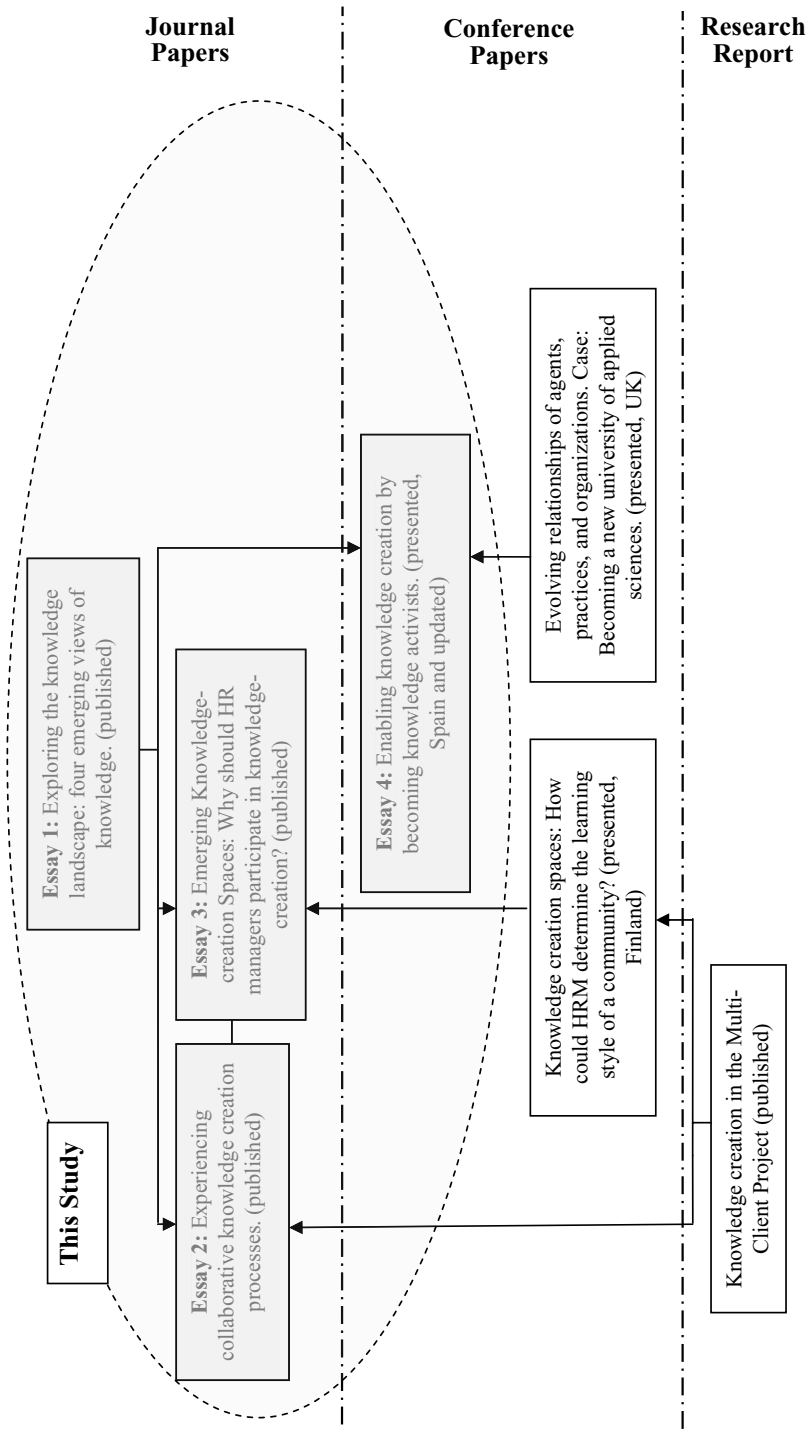
### 4.1. Exploring the knowledge landscape: four emerging views of knowledge

The goal of essay 1 was to study KM literature and explore emerging types and views of 'knowledge' as the main concept of KM, and to develop a framework to illustrate the interrelationships of different views and types of knowledge. In addition, I sought to discover areas in KM that would need further research. In essay 1 there was no clearly formulated research question. However, based on the goal of the essay, it can be formulated as:

Q 1: What are the emerging views of knowledge, what are the debates, and critical voices in KM literature?

By reviewing the KM literature through period of 1990-2004, I discovered that the knowledge landscape is confusing. KM is still a young discipline – despite the strong criticism against KM and viewing it as part of other disciplines, like IT, HRM, strategy - and therefore, it is natural to have different, sometimes even contradicting views of knowledge side by side in the literature. The exploration of the knowledge landscape revealed four emerging but complementary views of knowledge in the reviewed KM literature. Besides viewing knowledge from an epistemological (i.e., explicit and tacit) and ontological standpoint (i.e., individual and social), knowledge is viewed as a commodity (i.e., embodied and not-embodied), and as a community (i.e., embedded and not-embedded). I found out that the community view of knowledge is in the process of emerging. This is a new, exciting and not fully explored phenomenon in the knowledge landscape, which may offer new challenges for businesses as well as possibly having practical implications for researchers.

My exploration showed that there is a shift toward a process view of knowledge that 'challenges the whole foundation of management thinking' (Garvey and Williamson 2002: 22). In KM research it means that the focus is now on the community view of knowledge and the social embeddedness of knowledge. In the KM literature there is an epistemological debate about the unity or separation of explicit and tacit knowledge (e.g., Ryle 1984[1949]; Polanyi 1962 and 1966; Brown and Duguid 1991 and 1998; Wenger 2005[1998]; Nonaka and Takeuchi 1995; Burrell and Morgan 2000; Scharmer 2000). There are recent ontological and epistemological debates about knowledge and the process of knowledge creation. Additionally, there is a debate about how cognitive and social sciences see knowledge (Mika 2005). Duguid (2004 in Mika 2005: 83), which argues that while cognitive sciences see knowledge as context-free, mostly explicit, a model, a resource, and transferable, in the social sciences knowledge is viewed as contextual, mostly tacit, a practice, a process, and experience-based.



**Figure 2 Essays of the study**

An important finding was that the discourses in KM literature are dominated by the information systems and the human resource issues are quite neglected (cf., Scarbrough, Robertson, and Swan 2005). The relationships between individual and organizational knowledge are still unclear and *how* individual knowledge becomes organizational knowledge is still not fully understood. Tsoukas (2000) argues that although organizational knowledge has been extensively researched, an important question still remains unanswered: *How is knowledge connected to action?* Stacey (2004, 2005a, 2005b, 2007) is very critical towards the ‘mainstream knowledge management’. He is very skeptical about its assumptions (cf., table 1) and he expresses new challenges for KM. Wenger and Snyder (2000) argue that a community of practice is an informal grouping with the goal of developing members’ capabilities, and building and exchanging knowledge. However, it is not clear, *how* this happens.

In brief, based on the findings of essay 1, I concluded that because the reviewed literature does not quite explain *how* knowledge is created in communities, conducting research in this area could provide opportunities for new contributions. As figure 2 illustrates, the findings of essay 1 influenced my further research decisions.

## 4.2. Experiencing Collaborative Knowledge Creation Processes

In this section, I discuss the findings of essay 2 in the order of its three research questions.

Q 2.1: How do people interact and create knowledge in a specific community?

In this essay I studied interactions in a specific community of managers, teachers and students. This community was formed with the aim of learning together about internal branding-related problems or issues of four Finnish companies. There were 23 core and 31 peripheral members in this community. This specific community provided the context for researching knowledge creation as a social phenomenon. My focus was on understanding human interactions because knowledge needs to be understood not only as an asset, or as an outcome of learning, but also as heuristic processes embedded in human actions and interactions. The interactions happened in intra-company contexts (i.e., opening and closing discussions, students’ interviews and surveys) and in an inter-organizational context (i.e., workshops) where people from all four companies, university of applied sciences, and consulting firms participated. These face-to-face interactions were identified and mapped (figure 2 in essay 2) together with participants by applying value mapping (Allee 2003) as a tool.

An interesting finding of these community interactions was that we (i.e., I was a member of the community) realized that it was not necessary for knowledge to be ‘transferred’ to work practices because it was created in work practices. All interactions were related to authentic, *in situ* problems (i.e., internal branding and strategy, internal branding and collaboration, and internal branding and leadership) defined in each organization. The community members realized that organizational knowledge does not exist without individual knowledge and vice versa. Organizational knowledge is more than the sum of individuals’ knowledge working for the organization because knowledge is not only in individuals’ heads, but it also develops in social interactions.

The findings showed that through collective experiences community members have developed a common understanding because their thinking has converged during the processes of dialogues. Another finding was that the iterative process of AR, going through action research cycles (i.e., plan-do-observe-reflect) for ten times has reinforced the knowledge creation process because community members became conscious and aware of their own and others' views and their relation to the phenomenon. Knowledge has been created through interactions and common practices in specific situations.

Nonaka (2009) expressed the need for a 'human-centered management' and a phronetic leadership. By referring to Aristotle, professor Nonaka argued that phronesis is the connection between 'episteme' (or scientific knowledge) and 'techne' (or skills, crafts, practical knowledge). In my view, phronesis plays an important role in understanding becoming to know, which is a dynamic and dialectic interplay between learning and knowing. In essay 2, phronesis was facilitated by the applied collective knowledge creation processes (CKCP) framework - which was developed during this research - and by the collaborative learning approach.

Q 2.2: How do community members perceive the value of collaborative knowledge creation (CKC)?

Findings from reflections (that were collected during and after the implementation of the research) indicated that collaborative knowledge creation (CKC) was perceived valuable as it has resulted in changes in participants' practices, in their 'working live' (e.g., Shaw and Stacey 2006), and in their thinking.

Collaborative knowledge creation combined with value mapping made it possible not only to identify the knowledge receivers and providers during the interactions, but also to realize that members of a community are neither knowledge providers nor receivers, instead they perform *both* roles at the same time. The net perceived values were shown by participants, and by each session (Table II in essay 2). These findings showed *how* value was created through interactions. The findings indicated that factors such as time spent together, increased trust, and getting familiar with the value mapping tool and with the CKC approach have increased the perceived values of sessions. The findings demonstrated the link between the intensity (figure 3 in essay 2) and the perceived values of interactions. Additionally, according to the feedback, the value mapping was perceived as a useful tool because it showed the intangible exchanges and their values. The intangible exchanges are mostly hidden in interactions. Therefore, making them visible has supported the knowledge creation.

Q 2.3: How can the collaborative learning approach (CLA) enhance knowledge creation in a community?

Collaborative learning approach is a social learning approach in which knowledge emerges through active dialogues among the learners while working in communities on a specific problem to achieve a better understanding. It is an iterative process during which knowledge is constructed in learners' minds operating within a social context. One key goal of collaborative learning is to enhance the critical thinking of the learners by questioning existing solutions and assumptions and by creating new ones (cf., transformative learning). Learners take an active part in the learning process, taking responsibility for their own learning.



The findings indicated that CLA has enhanced knowledge creation because learning happened in a community context by focusing on, from the members' point of view, important, current, authentic business problems. Establishing the community context is a necessary step for social learning because this is where socialization, participation, conversations, and learning can occur. The CKC process had the following steps: developing the community context, defining the authentic business problem, presenting the business problem to the whole community, discussing and searching for solutions together, challenging and questioning the original problem statement, finding solutions together for the re-stated problem, presenting the solutions to each company and taking actions, and analyzing and synthesizing the CKC processes. These steps follow the phases of the AR cycle.

During the research I found out that social learning cannot be understood without considering the individual learner's practices in micro-level interactions. The main phases in micro-level knowledge creation are peer-to-peer dialogues, commenting, discussing, sharing, and re-conceptualizing. Bringing a structure into highly unstructured human processes of knowledge creation by applying a specific form of social learning (i.e., PBL) helped participants to understand what they were doing and why they were doing it. In addition, participants of this specific community learned the CLA and the value mapping tool in practice.

In brief, experiencing the collaborative knowledge creation processes indicated how learning and knowledge creation processes are related. The learning process is viewed as a source of new knowledge, and at the same time it is influenced by existing knowledge, prior knowledge. One can argue that it is an obvious, commonly shared idea that learning *is* knowledge creation. On the other hand, do we understand the relationships of learning and knowing? Does learning always create new knowledge? What type of learning fosters knowledge creation? What type of knowledge is created during learning processes? Is it only theoretical knowledge? How do we know what we know? Where is knowledge located? Where does knowledge come from? Is it in individuals' heads and thus needs to be transmitted to others? Does it come from situated practices? Does knowledge come from activities people do in specific contexts? How does it happen? What enabling conditions are there to foster knowledge creation? What is the role of education and educators in knowledge creation in today's knowledge economy. These questions are not new but I argue that in KM they would need more understanding. I am not alone among those who think about these questions. The main theme of Professor Nonaka's presentation in a workshop (2009) was *The role of Education in Fostering Phronesis: Managing Flow for Continuous Value Creation in the Knowledge Economy*. Attending the workshop and listening to his presentation convinced me that the research topic of this study is a current issue in KM and the study could contribute to the understanding of becoming to know.

#### **4.3. Emerging Knowledge-Creation Spaces: Why should HR managers participate in knowledge creation?**

I discuss the findings of essay 3 by addressing its three research questions.

Q 3.1: Can a community have a learning style?

The findings showed that a community can develop a learning style, that is, learning preferences could emerge during the social learning processes that are based on interactions and exchanges among community members. In this essay I argued that individual and social knowledge are inseparable and they emerge at the same time in learning. During the knowledge-creation processes, as community members interact, they influence each other's preferences and they are being influenced by others at the same time. Consequently, their individual learning style could be altered and it could emerge toward social or community learning preferences. During the interactions the thinking and feelings of members could change (i.e., this is the process of emerging self, becoming of self). This finding confirmed what Mead (1967 [1934]) says that '*we are what we are through our relationship to others*' (ibid.: 379, emphasis added). Instead of believing in '*cogito ergo sum*' (i.e., I think, therefore, I am), it would be better to say '*sumus ergo sum*' (i.e., We are, therefore, I am). Common attitudes develop through interactions, participating, acting and interacting in a community context.

Q 3.2: What is a community learning style?

In essay 3, I argued that a community is not a sum of individuals. In a community, through common practices, people can develop patterns of interactions and common knowledge. If they are present, work, and practice together in situated contexts then, through perceptions, sensing, presencing (cf., Senge et al. 2005), dialoguing, interrelating to others, through knowing in action, they can develop patterns of activities, common knowledge. According to Weick and Roberts (1993, emphasis added) 'Collective mind is conceptualized as a pattern of heedful interrelations of actions in a social system', 'collective mind is distinct from an individual mind because it inheres in the *pattern of interrelated activities among many people*'. Collective minds develop through collective practices in organizations, 'mind begins with action'. They argue that 'Connections between behaviours, rather than people, may be the crucial "locus" for mind and that intelligence is to be found in patterns of behaviour rather than in individual knowledge' (ibid.). In our learning community patterns of interactions, common knowledge has developed regarding internal banding through several cycles of AR (essay 2). I concur with Weick and Roberts (1993: 359) that 'knowledge in very large networks of very simple processing units resides in patterns of connections, not in individuated local symbols'. In essay 3 by applying the SAFT (i.e., sensing-acting-feeling-thinking) model I sought to find out *how* these patterns of interactions emerge, *how* they change over time, and what dynamics they have.

Community learning style is not the sum of the individual members' learning styles, but it emerges during the interactions. Emerging knowledge-creation spaces indicated *how* this specific community learned and created knowledge. The learning style of the specific community in essay 3 has emerged and developed during the ten AR cycles. Therefore, I consider community learning style a dynamic, constantly changing phenomenon that emerges and forms a profile during the community life cycle (in this specific case it was 24 months). The findings showed that the learning style of this specific community was characterized by a pragmatic way of learning in which people were looking for practical applications of theories; enjoyed problem solving; liked to experiment with new things such as reformulate existing concepts; and liked to analyze data in order to develop new ideas and concepts. I argue that both individual and social knowledge are part of knowledge-creation because knowledge exists not only in

individuals' brains but rather, knowledge emerges from their practices, connections, exchanges, from their social relationships.

Q 3.3: How can the learning style of a community be determined?

The starting point in determining the learning style of a community is not the individuals' learning styles but the practices and interactions among members of the community. The learning style of a community could be identified first, by mapping the interactions (figure 4 in essay 3) and then, by locating them along the fifteen knowledge-creation spaces of the SAFT-model (figure 3 in essay 3).

In sum, essay 3 demonstrated that knowledge-creation processes cannot be understood and managed from outside. How knowledge is created in a community can be better understood by participating in the practices of the given community. I argued in this essay that HR managers (as a matter of fact, any manager) cannot be objective outside observers of the knowledge-creation process in a community but rather, they should become members of the community of practice (CoP) in order to identify and understand the community learning preferences. By being an insider, it would be possible for managers to facilitate and enable the development of knowledge. I concluded that if managers would participate and play active roles in knowledge-creation in a community - not just design or observe the process from outside - they would gain a better understanding of the process and they might better 'manage' the processes from inside. Knowledge is not a 'thing' rather, it is a 'process', therefore, it is not possible to 'manage' it as any other sources of competitive advantage. This is why the role of managers should change and they should actively participate in knowledge-creation by becoming members (or knowledge activists) of knowledge-creation communities.

#### **4.4. Enabling Knowledge Creation by Becoming Knowledge Activists**

The main research question of essay 4 was answered by focusing on two sub-questions. First, the knowledge activist's three roles were studied:

Q 4.1: Do teachers consider themselves 'institutional functionaries' who 'transmit' their knowledge or do they see themselves as fulfilling the catalyst, coordinator, and merchant of foresight roles of knowledge activists?

The role of education and educators in enabling knowledge creation processes, and in enabling the process of becoming to know remains a problematic and current issue (cf., Nonaka 2009). In this essay I sought to determine the roles that enable knowledge creation and the purposes of educational practitioners. Drawing on the knowledge activist concept of KM in an educational context, 22 face-to-face interviews, and on my own experiences as empirical materials, I proposed a number of special actions teachers could take to fulfill the three roles and the six purposes of knowledge activists to enable knowledge creation.

The findings showed that teachers, similar to business managers, could fulfill the three roles of knowledge activists in knowledge creation processes. Being a teacher is a complex, evolving, constantly changing and interdependent practice that require good

coordination of multilayered tasks, doing office work, and interacting with colleagues, students, and management. However, not all teachers performed all roles and all purposes of knowledge activists, but as von Krogh and Nonaka (2000: 173) said, 'it is very unlikely that any single person will be so talented' to be able to fulfill all roles and purposes of knowledge activists.

Secondly, the knowledge activists' six purposes were examined:

Q 4.2: How could teachers fulfill the six purposes of knowledge activists (i.e., initiating and engaging, rationalizing, communicating, integrating, educating, and representing the community members) in their practices and relationships?

The findings showed that teachers could have the same six purposes as knowledge activists in business. However, it does not mean that all teachers fulfilled all six purposes of knowledge activists. My initial goal was not to compare the teachers' practices from two business programmes of two Finnish business schools. However, when I analyzed the interviews, I found out that the PBL-teachers of one school have formed a micro-community of their own. They, more than others, initiated and developed together new transdisciplinary modules (i.e., initiating role); integrated new colleagues (i.e., engaging role); intensively shared not only their teaching materials but their experiences, too (i.e., rationalizing role); preferred intense interactions during the learning sessions with students instead of having the traditional lectures (teacher-centered education) and interacted with their colleagues (i.e., communicating role); focused on the learning processes instead of the content (learning-centered education); focused more on complex and authentic problem solving that involved more integration of subjects and integration of theory and practice (i.e., integrating role); they mentioned more often than others their mentoring and tutoring roles helping students to grow and develop skills (development-centered paradigm), not only subject related knowledge (i.e., educating role); and they proudly talked about their belonging to the PBL-community (i.e., representing the community members role). The essay shows that there are several challenges for this community. Will this community survive? Will it be able to connect their micro-community with other micro-communities of the organization?

The findings helped to answer the main research question of essay 4:

Q 4: Can international business teachers better enable knowledge creation processes of their students and colleagues by becoming knowledge activists?

Teachers are knowledge-workers but the question is whether they could become knowledge activists. The analysis of interviews showed that teachers could fulfill the roles and purposes of knowledge activists. These findings in essay 4 were verified by quotations from interviews. Additionally, after my 22 interviews in autumn 2006, a new qualitative study was recently conducted by two other teachers about tracing the roles of the PBL tutor (Helelä and Fagerholm 2008). They have conducted 11 interviews with students and teachers. I refer to these interviews in the updated version of essay 4 because they verify the findings of my essay, too. Therefore, there is recent evidence from other researchers confirming the changing roles of tutors and their impact on students' learning. The findings of essay 4 showed that because of the proliferation of knowledge, besides transferring existing knowledge (Berger and Luckmann

1991[1966]), the focus needs to be on developing knowledge creation abilities and skills of students (emancipatory or reflective learning, cf., Mezirow 1991).

To conclude, this qualitative study provided some empirical evidence about the complexity of learning and pedagogical practices and demonstrated that teachers, by having the same roles and purposes as knowledge activists, could better enable knowledge creation processes. Teachers, who would become knowledge activists, could become 'significant actors' in knowledge creation and could help the personal growth of their students, colleagues, and themselves. This higher level of engagement facilitates the processes of knowledge creation from inside. Instead of just being 'institutional functionaries' (Berger and Luckmann 1991[1966]: 162), the teachers' role is more complex. The findings revealed that teachers cannot ignore in their practices the complex reality of learning and knowledge creation. Consequently, knowledge activist teachers, through developing students' skills to create knowledge, could enable the future innovation of old managerial models (Hamel and Breen 2007). The findings showed that becoming knowledge activist requires reflective dialogues (interactive lectures), increased interactions, giving up full control and manipulation of the learning processes, and focus on the growth of the students (McCuddy and Reeb-Gruber 2008). Frequent interactions would strengthen the community feelings, but bridging micro-communities remains a challenge for knowledge activists.

## 5 DISCUSSION

First, I discuss how the four essays contribute to the main research question of the study (figure 3). Then, I propose and discuss the concept of ‘becoming epistemology’ and the framework of becoming to know (figure 4), which is the main contribution of the study. Further, as an example for the proposed framework, through my becoming to know I discuss the role of the researcher. Next, I indicate the possible theoretical implications of the proposed framework. Thereafter, in discussing ethical considerations I show how I sought to conform to good scientific practice during the research project. Finally, I discuss the quality and the limitations of the study, which leads to the next chapter where I indicate future research challenges and practical implications that emerged during the research project.

### 5.1. Contribution of essays

In figure 3 below, I show how the findings of essays contribute to the main research question of the study:

Q 0: How can the knowledge creation theory of KM benefit from social learning theories?

Exploring the knowledge landscape, exploring different views of knowledge, exploring *how* knowledge as a central concept of KM is presented and understood in a selected range of KM literature (essay 1) helped to identify emerging views, debates and critical voices against the mainstream KM. Therefore, it contributes to establishing the need for research; to finding the focus of the research study; and to identifying the research phenomenon (i.e., knowledge creation as a social phenomenon). The findings of the literature study are synthesized in a taxonomy (figure 1 in essay 1) that illustrates the existing, diverse views of knowledge and classifies them into four emerging categories. This taxonomy, as a map, could orientate other KM researchers in the confusing and ever-changing landscape of knowledge. Furthermore, realizing that the four emerging views of knowledge are not mutually exclusive views justifies the need for an extended epistemology, which is the research philosophy of this study.

Experiencing collaborative knowledge creation processes by being a member in a specific community and doing research *with* people contributes to a better understanding of how people interact, collaborate, work, learn and create knowledge together (essay 2). It contributes to better understanding of knowledge creation processes *in situ* from the inside. Here I draw on the collaborative learning approach. My focus is on the human-side of knowledge creation, which is quite neglected in KM literature (cf., Scarbrough, Robertson, and Swan 2005). I follow the collaborative action research strategy, which is the common tradition in educational research and today’s organization research, but it is rather exceptional in KM-research (cf., Avison, Myers, and Nielsen 1999). I apply the value mapping tool to understand and demonstrate in practice how people interacted and created knowledge in this specific community. The collaborative learning approach helped to switch the focus from conversions of knowledge forms (i.e., SECI) to people’s interactions, which is essential in knowledge creation.

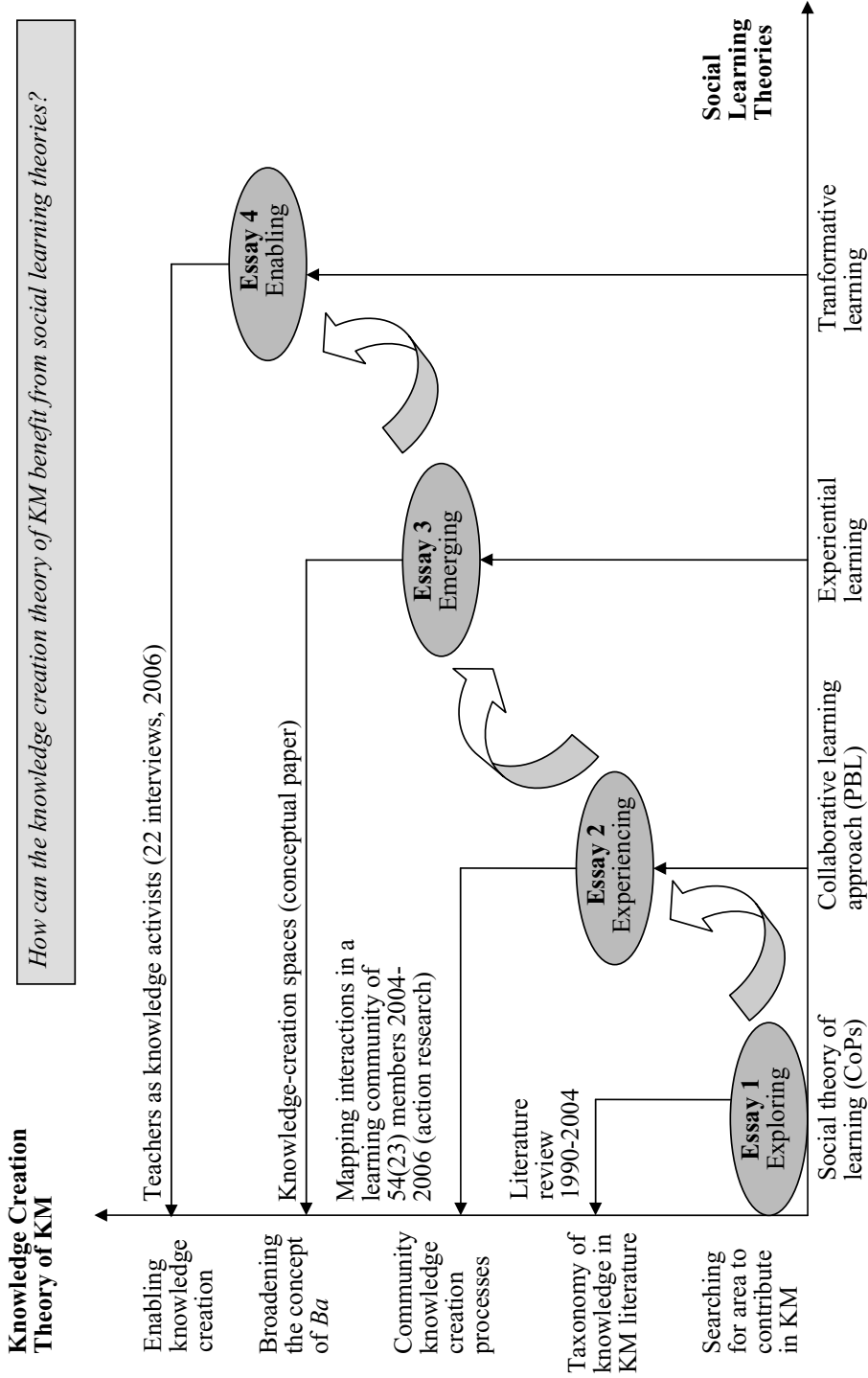


Figure 3 Contribution of essays

Emerging knowledge creation spaces in a community context contributes to understanding *ba* as a dynamic concept. It demonstrates *how* community learning preferences of a specific community have emerged through time, *how* people influenced others and had been influenced by others during their interactions (essay 3). I draw on experiential learning theory (ELT). However, my approach is different because I did not start the process by analyzing individual learning preferences. I argue that community learning preferences have a dynamic and emerging character and they are not the sum of individual learning preferences. I propose the concept of ‘knowledge-creation spaces’. The ELT helped to broaden the existing concept of *ba* (Nonaka and Konno 1998) and it demonstrated in practice how community-specific learning preferences had emerged.

The essay on enabling knowledge creation by becoming knowledge activists contributes to the leadership part of knowledge creation theory, which is an essential condition for successful knowledge creation. The focus here is on how education and educational practitioners could become knowledge activists and enable knowledge creation (essay 4). I draw on transformative learning and on the concept of the knowledge activist of KM. I illustrate the three roles and the six purposes of knowledge activists in an educational context. I propose specific actions to be taken to fulfill the roles and purposes of the knowledge activist. I showed that higher involvement in knowledge creation processes helps to enable learning and knowing. This essay contributes to the recent focus on enabling factors of knowledge creation theory of KM.

In brief, the interrelatedness of essays of the study (appendix 2) comes from their focus on the knowledge creation theory of KM and from drawing on social learning theories. The essays are connected as they follow the participative research paradigm, becoming ontology, extended epistemology and apply collaborative action research. The four essays together form a set of contributions to the main research question (figure 3). More specifically, the conceptual contributions of essays to the knowledge creation theory are: discovering and illustrating the four emerging views of knowledge in the selected KM literature; emphasizing ‘extended epistemology’ the multiple ways of knowing; experiencing and reporting how a specific social learning approach facilitates knowledge creation; identifying and describing the collective knowledge creation process in a community; proposing the concept of ‘knowledge creation spaces’ in the SAFT model that extends and illustrates the dynamic character of *Ba*; applying the concept of ‘knowledge activist’ in an authentic working environment (i.e., in education) to illustrate the increasing role of enabling conditions in knowledge creation. However, there is the limitation of drawing on only a few social learning approaches. How other social learning approaches contribute to the knowledge creation theory of KM would need further research.

## **5.2. Becoming to know framework**

While studying the literature, summarizing the findings and contributions of essays, four key words emerged: exploring, experiencing, emerging, and enabling (cf., figure 3). This outcome made me think about the whole phenomenon of social knowledge creation and it led me to develop and propose a framework for becoming to know. Proposing a framework was not my goal when I started this journey, but this could be typical for a qualitative, exploratory study. The proposed framework (figure 4)



illustrates something that could be called becoming to know or ‘becoming epistemology’, which could be considered the main contribution of the study. However, the claim of offering a contribution to the field is a challenging task and it required additional intellectual effort and a small scale investigation of the related literature on becoming.

The concept of becoming is not new and it could be viewed from different perspectives (cf., table 3). Because the focus of this study is KM, I refer to scholars of this field. Nonaka, Toyama and Hirata (2008: 14-15), who by drawing on Aristotle’s ideas, argue that becoming or *phronesis* is a creative capacity, practical wisdom, intellectual virtue, practical rationality, the ability to act, the synthesizing glue of know-how, know-why and know-what. One can argue that learning and knowing have never been apart. This is true. However, do we know *how* learning and knowing are united? How are *know-how* and *know-why* united? Where does knowledge come from? How do we know what we know? How does it happen? These questions are not new but they still demand deeper understanding.

I view becoming not only as evolution, change, a dynamic and emerging process, but as a dialectic and iterative process of continuous experiencing, learning and sense making. ‘Becoming epistemology’ is *both* an engagement (actions and interactions) with the real world in a living present *and* making sense of the experience. It is a movement or flow from the past towards toward the future through the living present. Because both reality and humans evolve (i.e., are being changed) and because the learner (subject) and what it is to learn (object) are in unity, there is a dynamic and dialectic interplay between learning and knowing. I argue that *‘becoming epistemology’ is a synthesis of learning and knowing processes of humans that drives toward new, different learning experiences and knowing.* In my view, a ‘becoming epistemology’

- is an evolutionary, transformative, iterative, interactive, dynamic, dialectic, and social process;
- unites pragmatic and theoretical, empirical and rational, direct and indirect knowing in synthesis (i.e., *phronesis*);
- is where new knowledge and knowing become to be through interlinked ontological and epistemic chains of situational justification of goals, beliefs, values, skills (i.e., learning happens in multiple ways through extended epistemology); and
- unites subject and object of knowledge, which are both changing as a result of interactions. Individual and social identities and knowledge are emerging at the same time.

The proposed framework (figure 4) of the study seeks to illustrate the aforementioned nature of becoming to know. Next, I discuss the need for a new framework, and how the proposed framework of this study links to, deviates from and develops Nonaka and his colleagues’ knowledge creation theory.

*Why is there a need for a new framework?*

Since 2008, the development of the knowledge creation theory shows the need for a paradigm shift in thinking about knowledge and the need for integrating philosophical

ideas and concepts in the theory. In this current phase of the theory, the emphasis is on the subjective, process-relational, practical, and aesthetic aspects of knowledge creation (Nonaka et al. 2008; Nonaka 2010). The current phase of theory development opens opportunities for this study to contribute.

The proposed model by KM scholars (Nonaka, Toyama, and Hirata 2008: 27) illustrates well the elements of knowledge creation theory. However, in my view, their model can not quite manage to open up and show the dynamic character of knowledge creation, *how* the flow of being and becoming evolves in time. Their model does not quite manage to show the social, human dimension of knowledge creation as it still considers the SECI knowledge conversion process and its knowledge spiral central to knowledge creation. Others argue as well that there is a need for a better model and for a better understanding of the social and evolutionary dimensions of knowledge development.

The assumptions about knowledge, its creation, and its management, the conceptual clarity of the knowledge creation theory, and the SECI framework of Nonaka have been criticized (cf., Cook and Brown 1999; Stacey 2004[2001]; Schultze and Stabell 2004; Gourlay 2006). However, it needs to be mentioned that Nonaka and his colleagues' views are changing too. They view their theory as evolving. They listen to the criticism and they adjust their assumptions. They state that:

The most prominent feature of knowledge, compared with physical resources and information, is that it is born of human interaction. ... Knowledge is created by people in their interactions with each other and the environment. Hence, to understand knowledge, we must first understand the human beings and the interactive processes from which knowledge emerges. (Nonaka, Toyama and Hirata 2008: 7)

Similarly, Nonaka (2010) defines knowledge as 'a dynamic human process of justifying personal belief towards the truth'. He underlines the four characteristics of knowledge as (1) subjective, based on belief and context specific; (2) process-relational, created in social interactions; (3) aesthetic, relentless pursuit of truth, goodness and beauty; (4) created through practice.

Regardless of changes and adjustments in assumptions about knowledge and its creation, Nonaka et al (2008) still consider the SECI process as the 'engine' of the knowledge creation and this brings conceptual difficulties, with Gourlay's (2006) words, "Nonaka's conceptual framework: cracks in the 'engine' (ibid.: 2006: 1421)". In this study I argue that there is a need to replace the SECI knowledge conversion process with a different framework that could better highlight the social, human, interactive, evolutionary, and dynamic nature of knowledge creation.

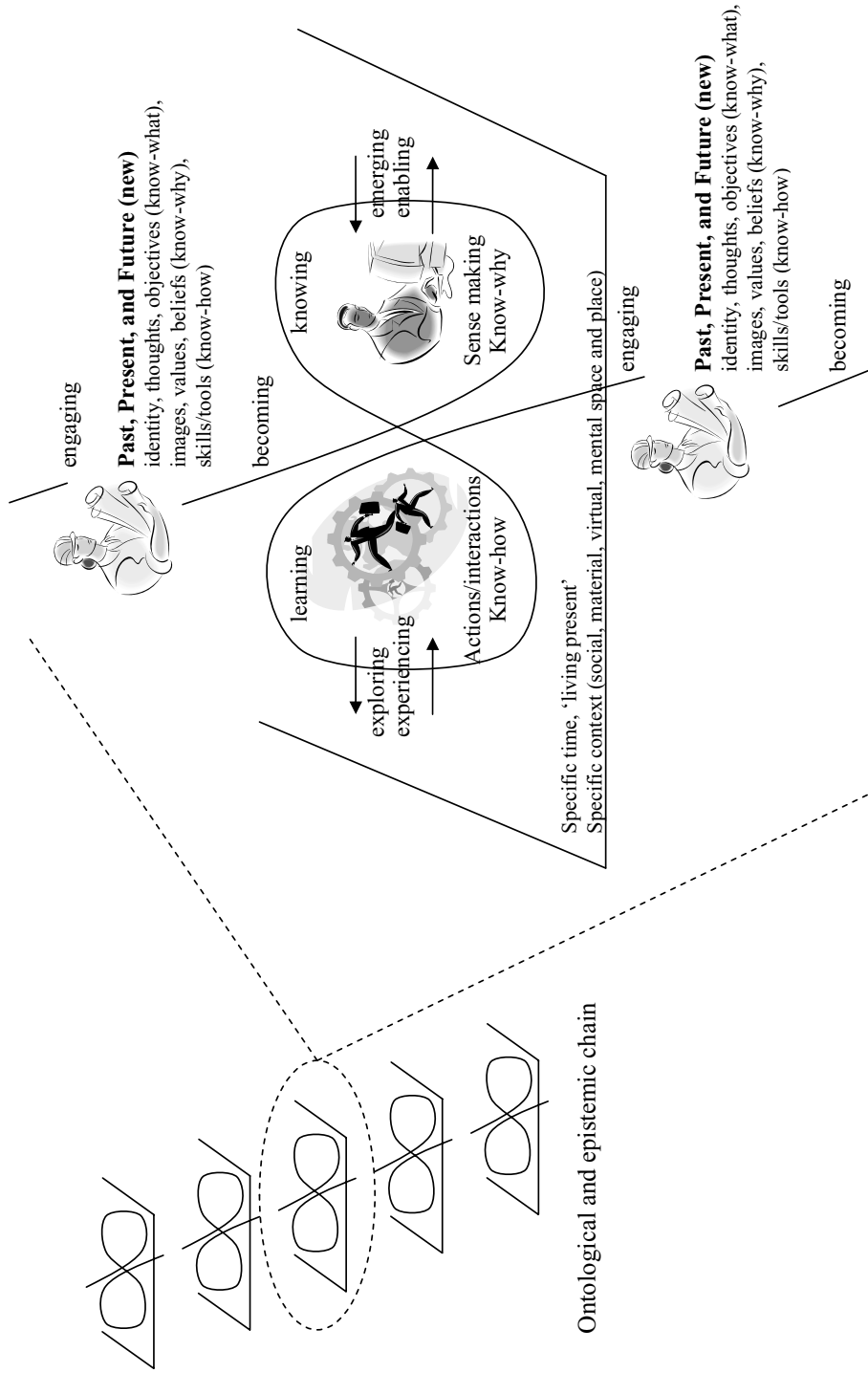


Figure 4 Becoming to know

*How does the proposed framework link to the current theory of knowledge creation?*

The proposed ‘becoming to know’ framework (figure 4) has several links with Nonaka’s knowledge creation theory. It embraces the seven components of the knowledge-based firm model suggested by KM scholars, Nonaka, Toyama, and Hirata (2008: 27):

1. Environment as an ecosystem of knowledge and multilayered *Ba*
2. Knowledge vision (know what)
3. Driving objectives (know what)
4. Practice (know-how)
5. Dialogue (sense making, know-why)
6. *Ba* as specific space-time nexus
7. Knowledge assets are the inputs and outputs of knowledge creation.

The proposed framework shows that interactions between learning and knowing within a person happen in a specific time and in a specific context (i.e., social, material, virtual, mental space and place) in the knowledge ecosystem. Knowledge is created by humans in the ‘living present’. Exploring and experiencing the knowledge ecosystem and then, thinking and making sense. They are dynamically related. Learning and knowing is social, context and time dependent.

Engaging a person to the process of learning and knowing will bring not only his or her existing identity, thoughts, values, beliefs, earlier acquired skills and practical knowledge, but also his or her vision and expectations of why and what he or she wants to learn and know in the future. Without this engagement there is no knowledge creation. What a person wants to achieve, personal goals (e.g., to solve a specific problem, to know more about a phenomenon, to understand something better, to perform tasks more efficiently) will energize, motivate and direct the person to engage in a specific context.

The framework illustrates that after engagement, practical knowledge develops through learning by exploration, experiencing, acting and interacting in the knowledge ecosystem. Theoretical knowledge is not separated from practical knowledge. There is continuous interplay between the two. Knowing develops through retrospective sense making of explorations and experiences.

The evolutionary and dynamic character of becoming to know is shown in this framework as a never-ending line, as iteration of engaging and becoming. Before the person engages in learning and knowing processes he or she has already formed identities, thoughts, images, values, beliefs, and skills that could be considered inputs for knowledge creation. As an interplay of learning and knowing, these inputs could change or become different. I argue that becoming happens by engaging in learning and knowing processes.

The proposed framework demonstrates the dynamic and dialectic interlink between experiencing and reflecting on the experiences. The dualistic nature (not as dichotomy but as dialectic interplay) of participations and reifications, perceptions and judgments,

learning and knowing was experienced during the research project (essay 2). This interplay between learning and knowing could be expressed as ‘ontologizing one’s epistemology’ and ‘epistemologizing one’s ontology’. At first, it looks like a play on words. However, it has a deeper meaning; namely, it shows the interwoven and dialectic character of the ontology and epistemology in knowledge creation.

As an example in the specific community context, presented in essay 2, ‘ontologizing one’s epistemology’ meant joining the community, participating in workshops, getting involved in activities, and contributing with specific knowledge to the community knowledge creation. ‘Epistemologizing one’s ontology’ happened by applying the value mapping tool. It helped to visualize and name what ideas, thoughts, assumptions each person or group of persons provided to others. I have named it as such because in this process it became visible - at least to a certain degree - how the person or the group sees the world (or the phenomenon, or the problem). Epistemologizing meant that by seeing the value exchanges received from others made the person or group to see the phenomenon with others’ eyes and minds. What do others know, think, and assume about the phenomenon? Seeing the world through the minds of others, seeing their attitude toward the phenomenon could change the person’s or group’s own thinking, thereby leading to becoming to know.

Similarly, Berger and Luckmann (1991[1966]: 78) argue that ‘the relationship between man (*sic*), the producer, and the social world, his product, is and remains a dialectic one’. They argue that the three dialectical moments in social reality are: (1) externalization (social interaction, experience, what I call ontologizing one’s epistemology); (2) objectivation (the results of human construction, e.g., institutionalized world, what I call epistemologizing one’s ontology); and (3) internalization (when the objectivated social world impacts back on the consciousness of its producer, what I call becoming to know).

*How does the proposed framework deviate from Nonaka’s theory?*

The fundamental difference between the proposed framework and the SECI model is in their different assumptions. The philosophical assumptions of this framework, as it was discussed earlier, are becoming ontology, extended epistemology, epistemology of practice approach, becoming epistemology as an evolutionary epistemology. The proposed framework moves away from functionalist paradigm based on epistemology of possession, dualism and on dichotomy thinking of knowledge. It moves toward constructivist, dialogic, participative paradigm where multiple types of knowledge exist and complement each other, and where knowledge and knowing are inseparable parts of practices.

Knowledge develops not as conversion between explicit and tacit knowledge, as the SECI model proposes, but as an interaction between people as the ‘becoming to know’ framework suggests. By illustrating the move from engagement to becoming to know through exploration, experiencing and emerging sense making and enabling, the proposed framework better demonstrates the evolutionary and social character of knowledge development than the latest model of knowledge creation.

Another difference is that instead of relating *Bas* to the SECI process the proposed framework shows the dynamic character of *Bas* as ‘knowledge creation spaces’ (SAFT model essay 3) related to different learning styles.

I argue that the framework proposed in this study demonstrates the human, social dimension and it shows *how* learning and knowing come together and *how* becoming to know happens through time. It illustrates *how* phronesis unites *techne* (i.e., skills, craft, practical knowledge, know what and know how) and *episteme* (i.e., theoretical, scientific knowledge, know why) in a specific time and context.

*What are the potential contributions of the proposed framework?*

The proposed framework develops Nonaka’s theory of knowledge creation in several ways. *Firstly*, the concept of knowledge is understood here differently. The framework denies the dichotomies of knowledge and favors the co-existence, complementary character of different types of knowledge. Knowledge here is not separated from action. Concurring with Sveiby (1997), who defines knowledge in a practical manner as ‘*a capacity to act*’ (ibid.: 37, emphasis original) and believes that knowledge is tacit, action-oriented, supported by rules, and it is constantly changing, I argue that the proposed framework incorporates these characteristics of knowledge.

*Secondly*, the framework proposed in this study expands the concept of *Ba* by integrating experiential learning theory and developing and demonstrating the dynamic character of ‘knowledge creation spaces’ in the SAFT model (essay 3). The framework illustrates *how* becoming to know evolves as interaction between concrete experience and logical thinking in a ‘living present’ and in a living context. It argues that people become to know through learning by doing, through the social learning process in their practices, where they interact with each other and their environment.

*Thirdly*, figure 4 shows how individuals are influencing and being influenced by the context (i.e., ecosystem) of knowledge. In every ‘living present’ forming and being formed is happening. Becoming happens during these reciprocal interactions through time. A person’s identity, values, thinking, skills are formed by others and environment while at the same time they are forming the social and non-social contexts. I argue that the transformative teleology perspective on becoming is relevant to this framework for two reasons: (1) because transformative teleology can explain how *new* knowledge is created and (2) because, based on transformative teleology, there is an inseparable relationship between a person (e.g., researcher), his or her knowing and actions, and the world, the researched phenomenon. Transformative teleology helps to see the dynamic, iterative, continuous creation of knowledge, the becoming to know.

*Fourthly*, the proposed framework illustrates the evolutionary process of becoming to know. It shows the dialectic, iterative, interactive, social and dynamic character of ‘becoming epistemology’. I emphasize that during the knowledge creation processes there is an iterative and interactive relationship (i.e., epistemic chain) between the *prior* knowledge, intent, values, beliefs of the knower and the new knowledge acquired from the real world (in a living context and living moment of time) through justification of the beliefs. To achieve this close relationship *the knower needs to be involved, engaged, become an active participant in knowledge creation processes* (cf., essays 2, 3 and 4). In

other words, without engaging, exploring and experiencing the living environment or context, knowledge cannot emerge.

*Lastly*, the proposed framework is based on concepts of learning, knowing and becoming. The proposed framework demonstrates how the knowledge creation theory could benefit from building on these well-established concepts of learning theories. Nonaka and Takeuchi (1995: 56-94) argue that ‘The transformation process within these two (i.e., epistemological and ontological, added by recent author) knowledge spirals is the key to understand’ (ibid.: 90) their theory. I argue that the framework proposed in this study demonstrates, better than the SECI framework, *how* the ontological and epistemic spirals are interwoven and *how* they together form a chain or flow of becoming to know. Therefore, this proposed framework could help to better understand the essence of the knowledge creation theory of Nonaka and his colleagues.

To conclude, I argue that the proposed becoming to know framework is the main theoretical contribution of the study to the knowledge creation theory. However, there are other contributions of this summary text and the four essays.

1. The study contributes to the emerging constructivist discourse in KM research (cf., Schultze and Stabell 2004) by taking the ‘epistemology of practice’ approach, by assuming the co-existence of different types of knowledge (i.e., extended epistemology) and their emerging and social character.
2. It contributes to the current phase of KM where harmonization and consolidation of concepts is required and where the human-oriented factors (culture, people, leadership) are the leading critical success factor in KM (cf., Heisig 2009).
3. Conducting an action research contributes to better understanding of a still underdeveloped field of knowledge creation in communities (cf., Gherardi 2000; Zboralski 2009; Serenko et al. 2010; Sun 2010).
4. Reporting the experiences of collaborative knowledge creation in a community contributes toward closing the communication gap between researchers and practitioners because there is a danger that KM is losing its practical side and will become a pure scholarly discipline (cf., Serenko et al. 2010).
5. The study demonstrates, through an example from education (essay 4), the difficulties of enabling and leading the knowledge creation by becoming knowledge activists. Enabling conditions of organizational and individual learning are crucial for becoming to know.
6. By seeking to combine the social learning and knowledge creation processes, the study contributes to the increased popularity of organizational learning theme in KM studies during 2003-2007 (cf., Ma and Yu 2010).

In brief, above I introduced the concept of ‘becoming epistemology’, I described the ‘becoming to know’ framework, I discussed why we need a new model, how the proposed framework links to, differs from, and contribute to the knowledge creation theory, and I summarized the main contributions of the study. Next, as an example for the proposed model, I discuss my engagement and becoming to know during the study.

### **5.3. Role of the researcher**

To illustrate the proposed framework I discuss the process of my becoming to know. This study is not value-free research. Obviously, my impact on the outcomes of this study and their impacts on me cannot be ignored (e.g., Ruby 1980; Saunders, Lewis and Thornhill 2007[1997]; Shacklock and Smyth 1998; Guba and Lincoln 2005).

In the evolutionary, participatory worldview, when the knower and known are in unity (e.g., in collaborative action research), different types of knowing develop (i.e., extended epistemology). During the collaborative action research process there is a change in the researcher's knowledge as he or she is an active member of the community. This strong engagement during the AR cycles results in a change of knowledge in the researcher. He or she is becoming more knowledgeable about the phenomenon and about doing research with people. During this social engagement and participation in the constant flow of events, the researcher, together with others, becomes to know, he or she might start thinking, feeling, and acting differently than earlier.

My becoming happened by building new relationships with colleagues, students, and managers, by meeting and discussing issues with leading scientists and other researchers in conferences (appendix 1), by developing a sense of belonging, by stimulating myself intellectually through reading, by engaging and investigating exciting topics, by creating new meanings and contributions together with others, and by integrating these research projects into one, more or less, consistent whole. In this study during the AR process I learned about internal branding, but I also developed my communication, listening, questioning, organization, and reporting skills. The intentions, values, and assumptions of others and my own have influenced the research topic selection, the research objectives, the formulation of the research questions, the choice of methodologies and methods, and the basic philosophical assumptions. Most importantly, my values impacted the interpretations of the findings. Therefore, it is crucial to discuss my journey and to make explicit the emerging and evolving nature of this exploratory study.

My passion for exploring new ideas, investigating, researching, experiencing new things, getting involved and engaged, and learning from others have motivated me. As a result, I started to challenge myself, re-examine my existing competences and question my professional identity. My interest in KM and knowledge creation has emerged from the interactions with people I met during the research project (appendix 1). My source of motivation was the challenging goal to write an essay thesis instead of a monograph. It was a natural and easy choice for me because as a part-time doctoral student I could not focus on one large empirical study. Conducting several empirical research projects related to my research phenomenon and then writing essays about their findings was an appropriate choice because it kept my motivation level high. I enjoyed discussing the essays with my tutors, receiving feedback from reviewers, re-writing the essays, and corresponding with the editors of different journals. Taken together, these formats were all very valuable learning. Publishing essays one by one helped me to move forward. My personal intentions, goal and objectives with this research were to become engaged and involved in a meaningful and interesting study that will challenge my own capacities and will put me into a flow of continuous intellectual development.

My purpose has been to develop an insightful understanding and to learn about the very complex phenomenon of knowledge creation. As stated earlier, my exploration started with curiosity that was aroused by attending conferences and listening and meeting prominent and appreciated scholars of KM (appendix 1). Thereafter, this curiosity and desire to learn more led to the action of critically reviewing KM literature. Exploring the complexity of 'the knowledge landscape' resulted in approaching this phenomenon from a new, participative perspective and by taking an action research strategy, which



although quite common in organization studies, is not very prevalent in KM research. Therefore, I became actively involved in the social processes of knowledge creation, wherein I experienced the processes as an insider. This process, as Senge and Scharmer (2001: 247) argue, is ‘an intensely human, messy process of imagination, invention and learning from mistakes, embedded in a web of human relationships’.

My objectives were to find a critical issue in a newly evolving science (i.e., KM) and then to offer a contribution to its evolution by systematically reviewing the related literature and consolidating an understanding of the main emerging views and themes, by combining my pedagogical knowing with evolving KM theories, and by broadening some of the existing concepts. My objectives were very ambitious and my findings may seem modest to an external evaluator. However, this journey was very fruitful for my own personal growth and becoming. I believe that my study could inspire other researchers in the same field so that they will continue to explore the treasures of the knowledge landscape. My exploration of knowledge creation processes will not end with this study. Because learning, knowing, and becoming continues throughout life, I consider this study to be one step in a long, difficult but intellectually challenging journey of becoming to know.

During the research process I encountered several difficulties as presumably all explorers do. *First*, it was difficult to present in a clear and understandable way the emerging experiences and complex processes taking place in our community. *Second*, the richness of the data, information, and knowledge made me (and my tutors) confused. However, by taking action and simply starting to write and constantly re-write my experiences based on critical, constructive, and supportive feedback from several people (managers, colleagues, students, tutors, editors, reviewers), the processes began to make sense to me, and hopefully, it became clearer to others as well. By thinking through and better understanding my research journey as retrospective sense making has led to my proposal for a framework of becoming to know and its theoretical implications.

#### **5.4. Theoretical implications**

The contributions of essays (appendix 2) and the proposed framework of becoming to know (figure 4) anticipate several theoretical implications.

The organizational knowledge creation theory of knowledge management could be further developed by realizing the potential contributions of social learning theories to knowledge creation. The essays of the study are one attempt to move toward this direction. They could increase awareness and create debates, discussions around the social knowledge creation phenomenon in KM. Researchers will likely start debating, criticizing, questioning, and developing some of the proposed frameworks (e.g., SAFT model) or some of the proposed concepts (e.g., knowledge creation spaces) in essays. This academic debate could lead to new theoretical contributions in KM.

Based on experiences gained during the study, I see several theoretical implications of the proposed framework of becoming to know (figure 4) and the concept of ‘becoming epistemology’:

1. Academics and researchers in the field of KM could give more attention to the role of history, past experiences through which existing values, beliefs, skills, tools and prior knowing emerged in the process of becoming to know. This could lead to multidisciplinary research in KM where culture, religion, anthropology, language theories, learning theories, political sciences and other disciplines could enrich further the knowledge creation theory.
2. Learning and knowing could be seen not only as a cumulative process but more as dynamic change process (i.e., as becoming to know) that includes unlearning, and questioning the old and existing ways of sensing, acting, feeling, and thinking (cf., SAFT model in essay 3).
3. Knowledge management scholars could see the process of becoming to know not only as combination of behavioral and cognitive learning but more as social learning.
4. Scholars of the field could consider becoming to know more as dynamic, dialectic, and social process where others (e.g., members of the networks and communities of practice) play role in the becoming to know of individuals and organizations. This would increase the human focus in KM research and shift the attention from information technology discourses in KM research.
5. There could be more attention given to social construction of knowing, engaging, participating, observing, practicing together with others, and reflecting on the practices and feelings. This could lead to gaining both tacit and explicit knowing. This could have an impact on the research paradigm, philosophies, and research strategy decisions and could lead to an increase of action research in KM.

Nonaka and Takeuchi (1995: 57) argue that the core of their theory of organizational knowledge creation lies in describing how the knowledge-creation spiral emerges ‘when the interaction between the tacit and explicit knowledge is elevated dynamically from lower ontological level to higher levels’. The most important theoretical implication of this study could be if the *knowledge-creation spiral* thinking in KM could be replaced by the *becoming to know* thinking. This would require a paradigm shift in knowledge creation theory. It would be an important and necessary step because becoming to know happens not in the SECI process as a conversion between explicit and tacit knowledge, but it happens as human practice of engaging, working, learning, doing, exploring, feeling, experiencing, interacting, changing, reflecting, sense making, and enabling the social processes of knowledge creation. These processes are always time, history and context (physical, social, emotional, virtual, mental) specific. The proposed framework of this study – that emphasizes engaging, exploring, experiencing, emerging, enabling as essential activities in becoming to know - could be one step to move toward this direction.

Knowledge management scholars are open to criticism and new ideas (cf., Nonaka, Toyama and Konno 2000; Nonaka and Toyama 2002, 2005, 2007; Nonaka, Toyama and Hirata 2008). Therefore, the theoretical implications of this study are to demonstrate that KM and its knowledge creation theory is not a dogma and it is capable of evolving. Another theoretical implication is that researchers would become encouraged and bravely start looking outside of the box; they would ‘escape from the caves’ of their own fields, they will start ‘moving out of the comfort zone’ (Dierkes et al. (eds.) 2003[2001]: 933) and with new eyes they would see things differently. They would become *homo ludens* trying to combine concepts from different theories. I strongly believe that this kind of combination of different theories and concepts is the source of new contributions and discoveries. I argue that new contributions to the knowledge

creation theory of KM could come from several disciplines, from psychology, philosophy, biology, language theories, political sciences, and so on. There is a need for research and development of the knowledge creation theory of KM.

To conclude, I greatly acknowledge the growing interest, extensive work, and research contributions carried out by researchers, academics, managers, consultants, and teachers in the field of knowledge management. However, my argument here is that in KM research enough attention has not been paid to the participative processes of knowledge creation, action research, becoming ontology, extended epistemology, and transformative teleology. The human-focused approach to KM seeks to find out how people become to know, how knowledge is created in social interactions. To better understand these processes, the social theory of learning could provide contributions. I argue that KM should not always re-invent the wheel and create its own theories, concepts, and vocabularies, but rather it should benefit, as much as possible, from existing and well-established disciplines such as learning theories, the social theory of learning and others (e.g., sociology, social psychology, language theories, social semiotics, and so on). This study attempts to move toward this direction, but it includes only four essays, thus it is a very modest contribution.

### **5.5. Ethical considerations**

Ethical considerations should be part of the research discussion. Based on guidelines on research ethics provided by the Academy of Finland (2003: 21-22) and other authors (e.g., Miles and Huberman 1994; Fisher et al. 2007[2004]) first, I briefly present what good scientific practice means and then, I discuss how I conform to it in this study.

‘For scientific research to be ethically acceptable and reliable and its findings credible, the conduct of research must conform to good scientific practice’ (Academy of Finland 2003: 21). Good scientific practice among other things (e.g., co-authorships, financing) means (ibid.: 21-22) if the researchers:

- follow modes of action endorsed by the research community, that is, integrity, meticulousness and accuracy in conducting research, in recording and presenting results, and in judging research and its results;
- apply ethically sustainable data collection, research and evaluation methods conforming to scientific criteria, and practise openness intrinsic to scientific knowledge in publishing their findings;
- take due account of other researchers’ work and achievements, respecting their work and giving due credit and weight to their achievements in carrying out their own research and publishing its results; and
- plan, conduct and report the research in detail and according to the standards set for scientific knowledge;

During the study I followed these ethical guidelines. I treated people involved in the research fairly, which means that the findings of this study should not harm or favor people, for example, by disclosing confidential or sensitive information or by referring to them by names when discussing good or bad practices. I gave due credit to achievements and contributions of other researchers in the field by referring to their contributions accurately. Next, I discuss the ethical considerations of this study related

to three practical areas (e.g., Miles and Huberman 1994: 288-297; Fisher et al. 2007[2004]: 63-65): (1) gaining access to organizations to conduct the research; (2) ethics during the data collection; and (3) ethics in reporting the findings.

First, gaining *access to organizations* in AR was easy because organizations joined voluntarily. When the research was initiated several company managers and students were invited to a meeting where the research objectives, process, approach and potential benefits were clearly explained. It was revealed who the researchers were and what their roles were in the process. To conduct the interviews, permission was requested and received from the two rectors and two programme managers before the teachers were asked to voluntarily come to the interviews.

Second, ethics during the *data collection* concerns how accurately the data were collected, recorded (video-recorded, audio-recorded, memo writing, feedback forms, observation forms), and stored. Permission was requested for recording data, confidentiality was stated, and memos were sent to all participants for feedback and comments. The collected data are stored and available to all participants. There were several situations during the interviews when the interviewees' requested a special place for the interview. For example, one teacher who was on a sick leave because of burnout requested that we meet and conduct the interview in the cafeteria of an art museum instead in the school premises. I considered these requests and I understood the reasons behind them. In the essays, individual interviewees could not be identified. The first draft was sent to all participants for feedback. I received only a little feedback from teachers.

Third, ethical considerations during the *reporting phase* were important. Permission was requested whether the names of organizations could be used in the action research. Organizations preferred not to be named, which was taken into consideration in the research report. Similarly, in reporting the results of the interviews individual teachers are not identified.

Following good scientific practices contributes to acceptable, reliable, accurate, and credible findings and therefore, it has an impact on the quality of the study.

## **5.6. Quality of the study**

I will discuss the quality of the study by referring to criteria suggested by several authors (e.g., Miles and Huberman 1994; Mason 1996; Silverman 2000; Reason and Bradbury 2002[2001]; McKelvey 2003; Fisher et al. 2007[2004]).

Miles and Huberman (1994: 245-287) offer a long list of criteria that could be categorized into four groups: (1) assessing data quality, (2) looking for 'unpatterns' or exceptions, (3) testing explanations, and (4) receiving feedback. To have a better understanding of the phenomenon I collected data from a variety of sources: KM literature, PBL sessions, workshops, observations, memorandum, feedback, and value maps. I checked the interview data for representativeness and concluded that they are only representative of the degree programmes and not of the two institutions as a whole.

Receiving feedback from members of the community, interviewees, editors, reviewers, and tutors helped me to improve the quality of the essays.

Criteria for assessing different forms of convincing social explanations suggested by Mason (1996: 135-163) are: comparative (comparing), developmental (developing and tracing), descriptive (describing), predictive (predicting), and theoretical explanations (theorizing). To cite an example, in essay 4 of the study I sought to produce an explanation that combines some comparative, developmental and predictive features. The comparative character of my explanation came from applying the *knowledge activists* business concept in education, by comparing the practices of teachers from two international business programmes, and by comparing the PBL and non-PBL teachers' practices. The developmental feature of my explanation was that I sought to illustrate the process of how teachers could become 'knowledge activists'. I suggested specific actions teachers could take to become knowledge activists and enable knowledge creation. My explanation was predictive because I argued that the role of teachers would change in the future from being the source of knowledge and from transmitting existing knowledge to becoming actively involved in knowledge creation processes in close interdependence with students and colleagues.

Silverman (2000: 251-252) suggests that research is considered to be valid when several examples are reported, when the criteria of including them and not others are provided, and when the original forms of the materials are available. In searching for answers to the main research question of the study, I draw on several ways of knowledge creation. I apply a literature review, a collaborative learning approach, experiential learning, transformative learning, and several concepts from the knowledge creation theory of KM. For instance, in one of the essays I applied the roles and purposes of knowledge activists (cf., von Krogh et al. 2000) as criteria when I decided to include or exclude quotations from interviews. Research materials of essays are systematically recorded (phases of AR in our specific community were videotaped, memorandums were written of all sessions, feedback was collected from participants). In another essay the interviews were audio taped and transcribed. All research materials are carefully documented and they are publicly accessible.

This study follows the AR strategy. I discuss the quality of the study by referring to the five criteria suggested by Reason and Bradbury (2002[2001]: 447-455):

*First*, maximal and democratic participation in the research group was achieved by voluntary participation of managers, consultants, students, and teachers. They joined the community voluntarily. Teachers were not forced to give an interview. During the research we maintained a continuous dialogue and we shared all materials and ideas. In order to share knowledge, we established a virtual platform, but e-mailing, phoning, handouts were used quite frequently, too.

*Second*, validity of the results is ensured by the participants' new way of acting and thinking; they use what they learned. The collaborative learning approach was new for managers. Based on their feedback, it was a new and effective way to have lively discussions and sharing ideas. For example, one company redesigned their communication materials as an impact of the AR.

*Third*, plurality of knowing (i.e., extended epistemology), new theory helps to see the world differently in conceptual and theoretical integrity, quality through extending our ways of knowing, quality through methodological appropriateness, intentionally choosing appropriate research methods. The community context was a good social environment to combine practice with theory. Collaborative AR strategy allowed the members to learn in various ways. Experiential, presentational, propositional and practical knowing was combined and they developed during the AR cycles. Students and teachers learned about business problems *in situ*, in an authentic business context. They observed how business people discuss and practice. Business people learned about new methods, theories, concepts, views, new literature.

The *fourth* criterion addresses the quality of engagement in work that is considered relevant and important. The study focuses on the knowledge creation phenomenon and explores how to contribute to the current phase of knowledge creation theory of KM. In AR, the problems and topics were significant, relevant and current for businesses as they came from managers participating in the community.

The *fifth* criterion is in assessing AR quality, which involves emergent inquiry, and evolutionary, holistic activity. As there were several cycles in AR, the evolutionary character was obvious. The applied form of collaborative learning approach itself has an evolutionary process that starts with problem finding and ends with solution and new problem finding.

Silverman (2000: 251-252) suggests answering the following questions: what is good and not so good in the study? One of the strengths of this study is that it was conducted with people and as a member of the community, therefore I gained better, insightful and context-rich knowledge about human interactions during the knowledge creation processes. I carefully studied the KM literature and theories. I argued about the research philosophies, strategy and methods of the study.

The strengths of this study could be assessed by applying the dimensions suggested by McKelvey (2003: 61 and 64). He developed a topology that indicates three critical dimension of effective science: (1) the user value, (2) the scientific quality dimension (i.e., criteria of effective science as a Guttman scale from a minimal scientific standard such as the avoidance of metaphysical terms to highest scientific standards e.g., instrumental reliability), and (3) dynamics (i.e., the efficiency dimension).

In positioning this study along these three dimensions of effective science, I can conclude that it has high user value because it is based on authentic, practical problem with high involvement of the problem owners and the researcher as AR aims to improve and change everyday practices of managers, teachers. The strengths of the study is 'in its ability to focus on actual practice *in situ*, looking at how social interactions are routinely enacted (Silverman 2000: 283, emphasis original). I argue that a study is 'good' when it has practical value, when it contributes to the participants' practices and helps them not only to see, feel and think but to *do* their practices differently, in a new way. This study probably has medium scientific quality as it could be positioned in the middle of the suggested Guttman scale (i.e., level 4 as 'experiments', 'explorations'). The study stands on the medium or low level of the efficiency dimension because it is quite a time-consuming and 'messy' process during which improvements and changes

are taking place continuously in an evolutionary, not episodic manner. Thus, the study has several strengths, but it is not free from weaknesses either.

### 5.7. Limitations of the study

The study has several weaknesses. During the research project, many concepts (perhaps too many) were discussed and examined, sometimes making it confusing. This point could be considered a weakness of this study. On the other hand, the nature of the exploratory research requires this requisite variety. I strongly believe that limiting my attention to a few specific concepts at the beginning of the research project would have made the study easier, but it would not give the same excitement, intellectual richness, and opportunities to discover some ‘treasures’ during the journey.

Another weakness was being an insider. This position might have influenced the informants’ attitudes. I tried to avoid the ‘going native’ bias and stayed objective during the interviews and strictly followed the same procedure. Furthermore, my conclusions could be biased by my own views and values as a teacher. This is probably the hardest bias to overcome.

Because of my high involvement in the research, it is important to discuss how I dealt with biases. Miles and Huberman (1994: 263) argue that ‘we need to be watchful in qualitative research about the multiple sources of analytic bias and think how to avoid them. The three main sources are: the holistic fallacy, the elite and the going native bias. The holistic fallacy bias means ‘interpreting events as more patterned and congruent than they really are’. Elite bias is when ‘overweighting data from articulate, well-informed, usually high-status informants and under representing data from less articulate, lower-status ones’. The going native bias is when the researcher loses perspective, or becomes ‘co-opted into the perceptions and explanations of local informants’ (ibid.).

I tried to avoid the *bias of holistic fallacy* by drawing the value exchanges and value maps together with participants, sending them back the value maps and asking them for comments, asking observers to attend and make notes in workshops, writing the first draft of interview analysis and asking for feedback from informants.

I avoided the *bias of elite* by treating all participants in the same way, equally weighting the students’, consultants’, managers’ or teachers’ contributions. Students performed the role of researchers as they worked on their thesis. The atmosphere was democratic and relaxed. In workshops and PBL sessions students took the leading role, they led the discussions; teachers were not dominating. Participation in interviews was voluntary. Teachers were not forced by their managers to participate in the research.

I avoided the *going native bias* by treating teachers from both schools equally, by not giving more value for teachers’ contributions or ideas from one or the other schools. All teachers were interviewed in the same manner. My colleagues’ voices had no more weight in the data analysis than the others’, even though one finding was the differences in their practices. To maintain objectivity in data analysis, I numbered the interviews so that the names were not visible to me when I analyzed the data.

In conclusion, I refer to Russell (1954: 847-856) when writing about John Dewey; he notes that *'the faults of what is new are so much more easily seen than those of what is traditional'*. This statement could be valid for this study as well, yet it does have several weaknesses. However, I argue that if a study demonstrates that the researcher is aware of what is happening (e.g., debates, discourses, critical voices) in the field of research - in this case, in the field of KM - and capable of realistically and logically assessing the contribution and impacts of the study and future research, then the study could be considered to be good research. In brief, I believe that this study demonstrates some professional competences such as the ability to display independent and critical thinking, the development of concepts, the ability to draw on existing theories and studies, creativity in forecasting the next research areas, and self-reflection.



## 6 FUTURE RESEARCH

Because this study is related to organizational learning and knowledge creation first, I refer to Dierkes, Berthoin Antal, Child and Nonaka (eds.) (2003[2001]: 926-927) who indicate eight emerging challenges of organizational learning and knowledge creation for 2000s. They predict that the field will move toward:

- internationally comparative research and the inclusion of other regions (e.g., knowledge cities);
- transdisciplinary building on a broadened base of disciplinary knowledge, including rediscovery of precursors, learning from other disciplines (e.g., in this study the aim was to learn from social learning theories);
- knowledge creation through closer cooperation between scholars and practitioners (e.g., enabling knowledge creation by becoming knowledge activists in essay 4);
- networks of organizations, communities and environments of learning (e.g., essays 2, 3, and 4);
- learning and knowledge creation as embedded processes (i.e., embedded in actions and interaction between people, cf., essay 1);
- communities of practice crossing organizational boundaries (e.g., the community of managers, students, teachers and experts in essays 2 and 3);
- political, emotional processes, conflicts in organizational learning and knowledge creation; and
- learning as strategic intent, knowledge management, institutionalization of roles (e.g., knowledge activists' purposes and roles in essay 4), experiments, open-space technology.

I indicated above how this study seeks to meet some of the challenges of 2000s. However, there are other related specific areas that would need more attention in KM research.

Concurring with Dierkes et al. (eds.) (2003[2001]: 922-939), I suggest that because of the role of experience in knowledge creation is still not well understood, 'the connection between knowledge creation and experience needs further study' (ibid.: 936). 'There is a need to expand knowledge about which type and quality experience can provide a significant input into the learning process' (ibid.). There is a need for applying a more action-oriented approach (e.g., various forms of action research) in KM research as it could lead to better understanding of becoming to know, and the role of experience in knowledge creation. Experiencing is one element in the proposed framework of this study. Collaborative action research strategy proved to be the right decision in this study for experiencing the processes of knowledge creation. Even though it is time-consuming and messy, it gives a deeper understanding of knowledge-creation as a social phenomenon by 'presencing' and by acting *in* the world (i.e., by developing an 'inner knowing', cf., Senge et al. 2005: 91) instead of acting *on* the world.

Because knowledge and becoming to know are complex phenomena, there would be a need for applying multimethods and mixed research teams with multidisciplinary knowledge to achieve multiple perspectives and better understanding of the phenomena (cf., Allee 2003; Dierkes et al. (eds.) 2003[2001]; Tsoukas 2006[2005]). There is a need

for applying the participative research paradigm, research methodologies based on becoming ontology and extended epistemology in KM research because ‘learning and knowledge will become even more important in future than they are today’ and ‘the need of organizations to learn and to create and use knowledge will continue to grow’ (Dierkes et al. (eds.) 2003[2001]: 937). Additionally, I argue that extended epistemology and ‘becoming epistemology’ needs further attention in KM research because the ‘questions of epistemology ... are no longer the prerogative of philosophers and social scientists alone but of organizations too’ (Tsoukas 2006[2005]: 3).

The role of knowledge activists in organizations and communities is controversial because they need to find the balance between controlling and allowing more freedom (cf., essay 4). Therefore, more attention would be needed to the roles and purposes of knowledge activists, chief knowledge officers, chief learning officers, knowledge managers, and knowledge workers in situated practices, in the contexts of their work. There is a need for empirical research to find out more about the problems of becoming and being a knowledge activist, such as, what factors explain the lack of identification with the role of knowledge activist and how these hindering factors could be overcome. The integration of new members to the community would need more research, too. Future research could explore other knowledge creation enablers like inspiring a knowledge vision, managing conversations, and creating the right context. Another interesting research area could be to find out more about the challenges and ways of bridging micro-communities and diffusing the local knowledge inside and outside the organization to a wider community of businesses.

Because of the emerging new forms of organization (e.g., networks, virtual organizations, communities of practice), there will be new ways of learning and knowing emerging. How becoming to know happens in these new forms of organizations would be an interesting research area as well. The KM theory could not quite explain *how* knowledge is created in communities. Therefore, further research could be done in community knowledge creation. Further research could address the role of social context in knowledge creation and in the formation of a community identity. One could examine in more detail the dynamism, the development of the community identity, and its impact on knowledge creation. Furthermore, researchers could examine the impacts of the diversity of community members on knowledge creation. They could investigate how and what kind of diversity enhances knowledge creation. Hackman (2004) argues that diversity in knowledge base, skills, different perspectives, experiences, views, and having the ‘*right mix*’ of personalities are important in collaborative knowledge creation. What the ‘*right mix*’ is could be researched as well.

Not only new forms of organizations but new forms of learning and knowing will emerge. I would argue that there is a need for empirical research on the applicability of the proposed SAFT model in several, different communities and for a longer time period in order to prove the usefulness of the proposed model. One route could be to explore how individual learning preferences emerge because of interactions in the community. What does it mean for individual learning preferences when someone is a member of several communities? How do people develop their identities when they adjust their individual preferences to community preferences? What determines the learning preference changes when moving from one community of practice to another

or from one problem to another? These areas demand more research. Because this study is limited to only three social learning approaches, I suggest that researchers would continue to explore how other social learning approaches can contribute to the knowledge creation theory of KM.

I suggest revising the one-sided assumption that social knowledge creation has only positive impacts (i.e., leads to new knowledge, innovative tools, innovations, knowledgeable people, and better society). Unfortunately, the becoming to know could lead to undesirable impacts as well such as stress, burnout (e.g., it was experienced in essay 2), jealousy, exclusion, gender discrimination, misuse of power and so on. Further research could scrutinize the institutional unintended consequences of micro-level interactions. Therefore, I would suggest that researchers study the dark-sides, the unintended and undesirable outcomes of becoming to know as well.

Next, I discuss some practical implications of the study. Knowledge management literature review (essay 1) could help other researchers to orientate themselves in KM. The collaborative learning approach helped members (i.e., managers, teachers, students, and experts) of the specific community (essay 2) to realize the importance of interactions, exchanges, and collective experiences in a community. It helped me as a teacher to realize that 'there is a need to step out of formal classrooms into the world that is messy and in a constant flux' because it will create different types of knowledge (i.e., extended epistemology). More empirical research that focuses on micro-level interactions between individuals, on value exchanges during these interactions is needed.

Additionally, there could be practical implications for HR managers. Essay 3 could help them to see that they cannot be objective observers if they want to enhance the intellectual capital of their organizations. They need to take an active role. They need to become members of the community if they want to better enable community knowledge creation. Additionally, they could already take a more active role in strategy formulation. The practical implications of essay 4 are that teachers could realize their changing role in learning processes and some of them could even become knowledge activists. The teachers' role is important with regard to the future innovation of old managerial models (cf., Hamel 2007). Teachers, through students, could enable future changes. Additionally, becoming a knowledge activist requires reflective dialogues (interactive lectures), increased interactions, giving up full control and manipulation of the learning processes, and focus on the growth of the students (cf., McCuddy and Reeb-Gruber 2008). These are the most important practical implications for teachers. Teachers could realize that because of the proliferation of knowledge, besides transferring existing knowledge (cf., Berger and Luckmann 1991[1966]), the focus needs to be on developing knowledge creation abilities and the skills of students. Therefore, there is need for emancipatory or reflective learning (cf., Mezirow 1991).

In brief, essays 2, 3, and 4 have more practical and empirical research implications, while essay 1, the proposed framework of becoming to know, and the concept of 'becoming epistemology' have more theoretical and future research implications.

## 7 REFLECTIONS

In this last chapter, citing Plato's cave allegory, I shall re-address my initial concerns presented in the introduction. Then, I briefly reflect if and how I would do this research differently, and finally, I conclude with thoughts about the novelty and possible contribution of the study.

Deciding on the research phenomenon - what needs to be researched and where a contribution could be delivered - are probably the concerns of every researcher. My first concern, when I started this journey, was whether I wanted to research the 'shadows on the wall' or the 'real things in the sunlight'. The 'real' processes, that is, when people create knowledge by interacting with each other, do not seem to be a fully explored and understood phenomenon (cf., Tsoukas 2000). Therefore, I decided to find out how the knowledge creation theory of KM can benefit from social learning theories. On the one hand, my decisions were driven by my personal passion toward learning (table 2) and by the findings of the KM literature review (essay 1). On the other hand, it was influenced by people I met during this journey (appendix 1).

My other concerns were related to the philosophical assumptions, research strategy, and methods of the research: Do I want to do research *on* people or *with* people? Do I want to 'escape from the cave?' These concerns are related to my first concern about researching the 'shadows on the wall of the cave' or researching 'the real things in the sunlight' with freedom of mind, looking into different directions without physical and mental boundaries of the 'cave' (i.e., traditional, widely accepted research paradigms). I decided to follow the assumptions of the participative paradigm, becoming ontology, and extended epistemology (cf., Senge, Scharmer, Jaworski, and Flowers 2005; Stacey 2004[2001]). By showing the main characteristics of the participative paradigm, its main differences from the social constructionist research paradigm, by arguing why becoming ontology and extended epistemology are appropriate for this exploratory research, I justified my decisions in the research design and implementation part of this study.

Then, I asked myself if I can escape from the 'cave' (i.e., the traditional mindset) and approach the phenomenon with new eyes, somehow differently than it has been studied earlier. I decided to engage, become involved in the processes of knowledge creation. It means exploring and experiencing and gaining an internal understanding of how people act and interact, co-create knowledge and become to know (essays 2 and 3). I had to decide how to implement the research. I selected collaborative AR because it suits the selected research paradigm and philosophies and because it is not yet a very common way of researching in KM. This research strategy decision had its advantages (i.e., rich variety of data, usefulness for participants) and its disadvantages (i.e., 'messiness', difficult to report, difficult to publish, difficult to clearly present the process to others, stressful). Escaping from the 'cave' means escaping from the positivist mindset that seeks to find objective, explicit knowledge, that is reliable, value-free, generalizable, and valid for different contexts. Because the human focus and the participative research approach are rather neglected in KM research (cf., Avison, Lau, Myers, and Nielsen 1999; Tuomi 2002; Scarbrough, Robertson, and Swan 2005) as well as being dominated by an information systems approach that focuses on explicit knowledge that could be

captured and stored in databases, I decided to escape from this ‘cave’ and to take a new, participative worldview research and human focused approach on knowledge creation. This seemed to be the most appropriate approach regarding the focus of the study, that is, knowledge creation as social phenomenon. Engaging, being in the real world, sensing, acting together with others in a community, is necessary because, as I see it, theory has no meaning without action and action is meaningless without reflection and understanding. These decisions meant high risk and uncertainty regarding the quality of the study and its acceptance by the academic community. However, the participative paradigm and collaborative AR showed me the way to escape from the ‘cave’ because they seek knowledge in practices and actions by which people create their reality. The reality, to understand knowledge creation, has to be seen through human interactions and thoughts. Here knower-known-context is in unity. Here the individual and the social are united. They form reality and at the same time they are being formed (figure 4) by interacting in the knowledge ecosystem (i.e., social, physical, mental, virtual contexts).

Finally, my concern was if I could ‘become a guardian’ and face all the difficulties of persuading others. For me, becoming a guardian means becoming and fulfilling the roles of a knowledge activist by becoming a catalyst, coordinator, and a merchant of foresight (essay 4). Becoming a guardian would enable knowledge creation processes and it could lead to new knowledge and innovations. Becoming a knowledge activist is similar to taking the leadership role in knowledge creation. It depends on the person’s motivation, passion and leadership skills if he or she will be capable of becoming a guardian. Nevertheless, the knowledge activist needs to be credible and needs to be accepted by others. Being an example in everyday practices, helping others to see different approaches, guiding people, encouraging them to be brave and deal with the challenges are what is required of a guardian. Enabling knowledge creation by leading people in these processes is necessary because only explicit knowledge can be managed, and knowledge is mostly in human actions and interaction and it is tacit and explicit at the same time.

*What would I do in this research project differently now?* There are several things I would do differently. I would start writing essays earlier in the research process (appendix 1). I consider writing as a sense making process and I believe that starting it earlier would have speeded up the process of my study. I would make more notes and observations during the interviews about the interviewees’ behavior, reflections, to obtain more context-rich data. Unfortunately, these methods were not carried out sufficiently in this study, thus when I started to re-write essay 4, I realized that they would have been extremely useful. I would not only attend conferences and seminars, but I would become more active in them. I understood quite late that dialogue, feedback received in conferences from other participants, from my tutors, and feedback from reviewers and publishers are the most valuable sources to develop the study.

*What is new and original in this study?* Novelty means that there is something new and creative in the study. Originality is what has not been done before, something that is not copied or translated from existing works. In addition, I believe that the novelty and originality of a study means that the author is able to critically explore the relevant literature; demonstrate his or her understanding of the field; find unexplored territories and new research problems; establish the need for research; approach critically and compare the research paradigms, philosophies and methods; justify his or her research

decisions; provide an original interpretation of an existing theory or concept; bring new empirical evidences about the phenomenon; and finally, the study is new and original if the author is able to enrich the existing knowledge of the field. In this study, I tried to follow these principles.

After exploring the KM literature I encountered several challenges (cf., table 1) and problems. For instance, the concept of KM seemed to be rather limited; discourses in KM were still colonized by information technology; there was a need for more people focus in KM; it was not quite understood how knowledge was created in communities; the participative research paradigm was not common in KM research; becoming ontology and transformative change were largely unexplored; and ontological and epistemological issues of knowledge creation would have needed more attention.

Therefore, in addressing some of these problems I decided to focus on knowledge creation as a social phenomenon. My selected research philosophies and strategy are well applied in organization studies, but they are not common in KM research. Positioning the study in the participative paradigm was a challenging decision. It takes a departure from prior, mainly IT-based, practices dominating the field of KM (cf., Scarbrough, Robertson, and Swan 2005). As exemplified in this study, I have escaped from the ‘cave’ by getting involved bodily and mentally in human experience. Escaping from the information systems mindset in KM and becoming engaged in the ‘messy’ processes of knowledge creation, presencing (cf., Senge, Scharmer, Jaworski, Flowers 2005: 219), and becoming a ‘knowledge activist’ (cf., von Krogh, Ichijo and Nonaka 2000) are not easy. However, it needs to be done if we want to understand the interwoven character of learning and knowing. How they come together in phronesis needs more understanding. Therefore, I explored the concept of ‘becoming’ from different views (table 3) because it could help in understanding how the interplay between learning and knowing leads to becoming to know. The findings of the essays contributed to the main research question of the study, which is how knowledge creation theory of KM could benefit from social learning theories (figure 3). With this study, I make a contribution to the knowledge creation theory of KM by proposing the concept of ‘becoming epistemology’ and the framework of becoming to know (figure 4).

This qualitative, exploratory study, as a collection of four essays (appendix 2), seeks to show how social learning theories, their three different approaches (i.e., collaborative, experiential and transformative learning) and concepts could be useful for the knowledge creation theory of KM. In this sense, it is a very modest input to the body of theory. However, concurring with Weed (2003: 133), this study as “most intellectual work consists of ‘small’ extensions of knowledge, achieved with great labor, through pushing the border of knowledge a little further in some direction in which it was already moving, anyway”.\*

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\* Drawing on this summary text of the study a manuscript entitled ‘**Becoming to know. Shifting the knowledge creation paradigm**’ was accepted for publication in December 2010 by the *Journal of Knowledge Management*.

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**APPENDIX 2 ESSAYS 1-4****Essay 1**

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**Essay 2**

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**Essay 3**

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**Essay 4**

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