



LEUPHANA
UNIVERSITY OF LÜNEBURG

**Otto Group Chair of Strategic Management
Institute of Corporate Development (ICD)**

Discussion Paper Series

**Uncertainty, Pluralism, and the Knowledge-based
Theory of the Firm: From J-C Spender's Contribution
to a Socio-Cognitive Approach**

Markus Reihlen, Torsten Ringberg

Discussion Paper # 10



Reference address:

Otto Group Chair of Strategic Management

Leuphana University of Lüneburg

Scharnhorststr. 1

D-21335 Lüneburg

Fon +49 (0)4131 677-2354

E-Mail: regina.mueller@uni.leuphana.de

<http://www.leuphana.de/en/markus-reihlen.html>

Authors:**Prof. Dr. Markus Reihlen**

Otto Group Chair of Strategic Management

Leuphana University of Lüneburg

Scharnhorststr. 1

D-21335 Lüneburg, Germany

Phone: +49 (0)4131-677-2350

Email: reihlen@leuphana.de

Prof. Torsten Ringberg, PhD

Department of Marketing

Copenhagen Business School

Solbjerg Plads 3, C 3.28

DK-2000 Frederiksberg, Denmark

Phone: +45 3815 2241

E-Mail: tri.marktg@cbs.dk

Uncertainty, Pluralism, and the Knowledge-based Theory of the Firm: From J-C Spender's Contribution to a Socio-Cognitive Approach

Markus Reihlen
Leuphana University of Lüneburg

Torsten Ringberg
Copenhagen Business School

July 17th, 2013

Abstract

J.-C. Spender's award-winning, knowledge-based theory of the firm is based on four premises: (1) The firm can be sufficiently understood as a system of knowledge, (2) explicit and implicit knowing can be clearly dissociated, (3) organizations are conceived as cognizing entities, and (4) intuition shaped by shared cultural practices is a superior source of managerial knowledge. This line of reasoning represents a social constructionist view of the enactment, transfer, and storage of knowledge according to which managerial knowledge is largely tacitly shaped by industry recipes and the firm's socio-cultural conventions and other social processes. Although comprehensive in scope, we argue that a knowledge-based theory of the firm needs to integrate a cognitivist approach that includes the synergetic production of tacit and explicit knowledge, the role of reflective thinking in resolving strategic uncertainties, and the interaction between the individual and the social. This socio-cognitive theory of the firm posits that sustained competitive advantage of a firm is founded on the ability to align knowledge internally within the firm as well as externally with its stakeholders through the individual sense-making of feedback from other individuals.

Paper accepted for publication by the *European Management Journal*

Acknowledgement: The authors contributed equally to this paper. The authors greatly appreciate comments from associate editor Thomas Wrona and two anonymous reviewers for their helpful comments and encouragement. We further thank Sascha Albers, Vince Barker, Timothy Clark, Alfred Kieser, Klaus Sikora, Haridimos Tsoukas, and Nelson Philips for the feedback on earlier versions of this paper. We are also grateful for initial feedback on our thoughts from J.-C. Spender.

Keywords: Knowledge-based approach, theory of the firm, knowledge transfer, social constructionism, tacit knowledge, socio-cognitive theory, intuition, mental models.

“Scholars do not write articles to agree with their colleagues. The best compliment that they pay them is to take their work seriously enough to react against it.”

Adapted from Nicholas Rescher, 1993: vi.

Introduction

In the spirit of Rescher’s (1993) quote we take issue with Spender’s knowledge-based theory of the firm. We do so because Spender is both a very influential and accomplished researcher. In recognition of his significant contribution, Spender received in 2006 the prestigious research award for the most influential research article (Spender, 1996b) of the last ten years from the *Strategic Management Society*. Vera and Crossan (2003, p. 130) describe Spender’s work as an “ambitious effort towards multilevel research” and Stimpert (1999, p. 361) believes that his research stream makes “important, perhaps fundamental contributions to our understanding of the relationship between individual and organizational cognition and learning.” Beside the prestigious *SMS* award an impressive citation index underlines Spender’s authority and success in establishing a social-constructionist camp in strategy research.¹

Almost two decades ago, in 1996, Robert Grant and J.-C. Spender started their journey into the knowledge-based field of the firm as editors for the special issue of *SMJ* (1996), titled “Knowledge and the Firm.” Here, they introduced two different conceptual directions; an economic and a social-constructionist one (e.g. Grant, 1996; Grant & Spender, 1996; 1996b). Grant’s interest came from industrial economics, inspired by positivist philosophy, which led him to work on an extension of the resource-based approach of the firm. In contrast, Spender called for a radical change “towards a social constructionist position which focuses on the dynamics of the individual’s institutional context” (Spender, 1996b, p. 53). The departure from the positivist paradigm was novel and daring at the time within strategic management although the movement was already well under way in other social science disciplines by then (e.g., see Berger and Luckmann 1967, Marcus and Clifford 1986). Spender suggested that knowledge should be regarded as embedded within socio-cultural conventions and conceptualizations and thus as socio-culturally construed (e.g., Astley, 1985; Mir & Watson, 2000; Scherer & Dowling, 1995). Consequently, within the strategy field, Spender emerged as one of the pioneers of the social constructionist position (Spender, 1989; 1993; 1994a; 1994b;

¹ According to the citation index from Google Scholar, Spender’s 1996 *SMJ* paper alone was cited 3,243 times (May 30 2013).

1995; 1996a; 1996b; 1996c; 1998a; 1998b; 2000a; 2000b; 2001). Arguably, the most influential aspect of Spender's work is his view of the firm as a congregation of pluralist knowledge systems in which practices and routines interact with tacit knowledge constructs (e.g., Inkpen & Dinur, 1998; Lam, 2000; Malan & Kriger, 1998; Robertson & Swan, 1998). Spender's conceptualization of a social-constructionist knowledge-based view of the firm includes the following core assumptions: (1) The firm can be understood as a system of knowledge, (2) explicit and implicit knowing are clearly dissociated, (3) firms are conceived as cognizing entities (i.e., having a collective consciousness), and (4) intuition, shaped by shared cultural practices, is a superior source of managerial knowledge.

Spender's social-constructionist perspective provided new and significant insights into a new understanding of the dynamics of organizations within strategy research. The exploration of the tacit and socially constructed dimensions of the firm advanced theory building by linking organizational practices with tacit knowledge. Unfortunately, in the effort to emphasize the social and tacit aspects, Spender underplayed the importance of individual cognition and reflective processing. It is this shortcoming that we ultimately deal with here and instead suggest a knowledge system that is produced and reproduced by the cognizing individual from a unique combination of shared (cultural) and private mental models (see Ringberg & Reihlen 2008).

This paper contributes at several levels. First, it provides a meta-perspective to the theory of the firm by showing the strengths and weaknesses of Spender's knowledge-based theory of the firm. In order to do so, our critical discussion of his work is conducted from a particular point of view, i.e., how one defines the "problem of knowledge." Our position follows the psychoneural identity hypothesis, which suggests that knowledge does not exist *in and of itself without a knowing subject* (Bunge, 1981; Rescher, 1997; Virues-Ortega, Hurtado-Parrado, Martin & Julio, 2012). The assumption is that while social relations pass through the heads of people, it is such heads, not immaterial social minds or disembodied practices, that do the feeling, perceiving, thinking, and the like (see Bunge, 1996, p. 303). Second, this paper extends our socio-cognitive approach (Reihlen & Ringberg, 2006; Reihlen, Klaas-Wissing, Ringberg, 2007; Ringberg & Reihlen, 2008) to the theory of the firm, which enables a new understanding of how unique individual knowledge is produced, recognized, and shared, thereby shaping organizational strategy and becoming institutionalized among colleagues and other employees as taken-for-granted assumptions.

This paper is organized as follows: First, we provide an overview of Spender's pluralist knowledge-based theory of the firm, then, we discuss inherent contradictions and other

issues with Spender's theoretical position, and finally, we introduce a more systemic and theoretically consistent socio-cognitive approach to the theory of the firm.

Spender's Knowledge-based Theory of the Firm

The Firm as a Knowledge System

In his doctoral dissertation on industry recipes, Spender (1989) started his inquiry into a knowledge-based view of the firm with a critical analysis of traditional management theory. He argues that traditional theory – taking the natural sciences as a reference point – treats the manager as “a decision-making ‘black-box’” (Spender, 1989, p. 4) incapable of dealing with the knowledge typically required for successful strategy-making. Basically, a knowledge-based theory of the firm is “more about managing the organization's responses to knowledge absences than about managing knowledge assets” (Spender & Scherer, 2007, p. 15, see also Spender, forthcoming). Inspired by Knight's (1933) treatment of uncertainty in economics, Spender suggests that the job of the strategist is to resolve uncertainty in his daily business practices by applying managerial judgment. These managerial judgments are guided by an “industry recipe” – the industry's tacit knowledge that evolves collectively from the joint practices and choices of firms over time and becomes tacitly internalized by managers (Spender, 1989). Spender suggests that managers draw on this disembodied tacit knowledge when resolving uncertainties while dealing with challenges.

Following his award-winning *SMJ* article in 2006, Spender develops this position further and argues that the firm is organized around a set of distinct knowledge types that interact to constitute a comprehensive knowledge system (Spender, 1996b; 1996c; 1998b). This pluralist view is best captured by Spender's knowledge-entity matrix which consists of two dimensions (see Table); one describing the “articulability of knowledge” (explicit versus implicit knowledge), and the other “the carrier of knowledge” (individual versus collective) (Spender, 1993; 1994a; 1994b; 1995; 1996a; 1996b; 1996c; 1998b).

	Social	Individual
Explicit	Objectified	Conscious
Implicit	Collective	Automatic

Table 1. Types of organizational knowledge (Source: Spender 1996c, p. 70).

The significant aspect of Spender’s matrix is its categorical dimensions that are incommensurable. According to Spender (1998b, p. 240) “we see implicit knowledge as incommensurable with explicit knowledge, and individual knowledge as incommensurable with collective knowledge.” Thus, Spender regards the matrix as “a representation of the everyday epistemic incommensurability between different modes of human knowing” (Spender, 1998b, p. 240). Each of these four categories (implicit and explicit knowledge as well as individual and collective knowledge) exists as an independent knowledge system tacitly working within the mind as well as through organizational structures/practices. We briefly describe each of these categories.

Explicit versus Implicit Knowledge Categories

Spender distinguishes between explicit and tacit knowledge with the former exemplified in reasoning and the latter in practice. This distinction lies at the core of Spender’s knowledge-based theory of the firm (Spender, 2007). In Spender’s view explicit and implicit knowledge systems are analytically distinguishable and guided by unique and separate cognitive processes. As he writes, implicit knowledge comes “complete with its own manner and means of representation, learning, storage, retrieval, and computation” (Spender, 1995, p. 163-164). Spender substantiates this claim with the localization hypothesis from cognitive neuroscience in which neuroscientists show that implicit and explicit knowledge systems are created and stored in different subsystems of the brain (Spender, 1995, p. 163). Spender (1995) takes this to imply the presence of independent systems of cognition, i.e., that implicit learning processes exist apart from our conscious memory. Putting these thoughts into the organizational context, Spender (1995, p. 171) writes: “[we can] imagine an organization whose knowledge

is entirely implicit, embedded in activities and organizational routines without any explicit knowledge of relevant causal mechanism.” However, such implicitness assumes an extensive and a priori learning of thought processes as it would otherwise be impossible for the individual to decode the meaning, even at a tacit level, of what other people say and do (practice).

Social versus Individual Knowledge Categories

Spender emphasizes, in almost all of his work, the need for a socio-cultural approach to strategy research. He writes: “So long as we focus on a single person’s creative judgments, we are perilously close to destructive relativism and we have to find some method of controlling this” (Spender, 1989, p. 54). Spender’s discussion, as mentioned earlier, parallels the issues hotly debated at the time within the social sciences related to realism, relativism, determinism, constructionism and agency theories (e.g., Bunge, 1998; Giddens, 1979; Marcus & Clifford; 1986). Especially the relativist position was critiqued for elevating the individual above the socio-cultural influences. In echoing this critique Spender embraces a social constructionist perspective in which thoughts, practices, and knowledge are firmly situated (i.e., shaped, expressed, reproduced) within and created by the socio-cultural realm.

Spender’s prioritizing of social over individual knowledge is further reflected in his assertion that the former is an emergent property of the broader system of cultural transmission (Spender, 1995, p. 170; 2000a, p. 158). Indeed, Spender’s cultural deterministic orientation is illustrated in the following quote in which he portrays individual knowledge as “no more than an alternative expression of institutional theory, the assumption that a society’s or an organization’s behavior can be best understood in terms of the institutional structures that shape its choices and so constrain its actions” (Spender, 2000a, p. 158).

It follows from Spender’s position that practices (e.g., habituated and taken-for-granted behaviors) are responsible for transferring meaning by making employees tacit carriers of socio-cultural models of knowledge systems that remain outside any critical awareness or reflection on what and why individuals do what they do (Spender, 1998b, p. 243). Perhaps in an effort to make this position more embodied, that is to say, to explain the human role as (passive) knowledge carriers, Spender introduces intuition. Intuition becomes the workhorse that enables Spender to explain the process of knowledge transfer from socio-cultural processes to practices and to the individual’s tacit mind and back again. This intuitively governed process is used to explain how managers tacitly bring knowledge to work.

Intuitionism

In general, intuition can be defined as the extraction or creation of knowledge without reflection upon its epistemological status (Bunge, 1962). That is, intuition enables managers to deal with strategic uncertainties without having to invoke explicit reasoning (Spender, 1998b, p. 249; 2003, p. 274). Qua its location in the sub- or non-conscious strata intuition is a useful stand-in for explaining cognitive processing without implicating an explicit, deliberative and thoughtful mindset. It enables fast decision-making based on already internalized knowledge systems. In other words, the intuitive processes are used to explain how two otherwise incommensurable knowledge structures might tacitly interact and communicate; i.e., making the tacit explicit in skillful practice without invoking the reflective cognizing individual. This process is needed for Spender to explain knowledge transfer without jeopardizing his categorical matrix with incommensurable knowledge systems. Invoking intuition disregards the rational and self-reflective inquiry (Spender, 1996a, p. 60-63; 2003). With intuition (i.e., tacit knowledge) being shaped by sub- or non-conscious inputs from socio-cultural feedback Spender is able to sustain his socio-constructionist model with a knowledge transfer that mainly occurs tacitly.

Deconstructing Spender's Knowledge-based Theory of the Firm

Deconstructing the Firm as a Knowledge System

Our most fundamental point of criticism with Spender's knowledge-based approach is its idealist philosophy describing organizations (Adler & Borys, 1993) as socially, yet tacitly, constructed practices, ideas and discourses. Idealism puts priority of ideas over matter and even assigns them an autonomous existence (Bunge, 1996). The latter is apparent in Spender's system concept. Instead of choosing "flesh-and-blood" people endowed with cognitions, emotions, and volitions, he identifies abstract knowledge types – the conscious, objectified, automatic, and collective knowledge – in his pluralist epistemology as part of inherent components of the firm.

Although ideational (knowledge) activities such as communication, training, storytelling, conjecturing, testing, inventing, modeling problems, deriving conclusions, speculating, and arguing have some measure of autonomy, they are likewise constrained by political forces such as human cooperation, conflict, dependency, and influence. In addition, a firm's knowledge systems are affected (enabled and confined) by economic forces such as production frontiers, paths of technological developments, and efficiency challenges. Spender's

knowledge-based approach is silent on the interaction between the firm's knowledge system and its constraining or enabling political and economic forces.

The influence of political practices on knowledge is captured by Meindl et al. (1994) in their notion of interpretative dominance, where they illustrate the influence of interest groups on identifying preferred interpretations of issues and events. As political theories of the firm (March, 1962; Mintzberg, 1983; Pfeffer, 1981, 1992) suggest, the social construction of knowledge is infused with organizational politics and power games performed by individuals with intentional aims and interests. Similarly, firms' inquiring systems (Churchman, 1971) are significantly influenced by human resource scarcity like man and brain power. Moreover, capital directly influences a firm's ability to create and disseminate knowledge.

A knowledge-based approach, which overlooks aforementioned influences on a firm's practices fails to account for external constraints on a firm's knowledge system. Although it is conventional for knowledge-based researchers to identify their field only in terms of knowledge categories, we find this to be a myopic approach that likely "provide[s] strained and over-simplified characterizations of their object domains" (Adler et al., 1993, p. 664).

We suggest that a knowledge-based theory of the firm extends beyond a collection of ideas and multiple knowledge types. A comprehensive study of the firm requires a systemic approach (Bunge, 1979, 1996, 1998; Reihlen, Klaas-Wissing, & Ringberg, 2007) according to which knowledge communities include a consideration of how practices become confined and enabled by political and economic factors. These practices continually need to be enforced, repressed, and/or negotiated as they play out through individuals within as well as outside a firm. Investigating these constraints and interactions as well as integrating them into a broader theorizing would move us from a "thin" knowledge-based theory towards a "thick" *socio-cognitive* theory of the firm that takes into account both cognitive and socio-cultural/environmental feedback and influences on individual knowledge processes within a firm.

Deconstructing the Explicit-Implicit Knowledge Dichotomy

Spender (1995) assumes that explicit and implicit knowledge systems exist independently from one another in the brain, both literally and figuratively. This separation enables Spender to claim that organizations can be imagined as implicit knowledge systems (Spender, 1995, p. 171). Yet, this dichotomy between explicit and implicit knowledge is being critiqued in the cognitive sciences (see Kirsner, 1998; Sun, Slusarz, & Terry, 2005). Here, empirical findings point toward an interdependency between explicit and implicit knowing

rather than them being mutually independent. As Kirsner and Speelman (1998, p. 3) point out “... it is impossible to make sense of implicit processes without taking into account their explicit counterparts.”

In following this line of thinking, O’Brien-Malone and Maybery (1998) argue for a possible-access position based on empirical findings that shows how implicit and explicit learning work in tandem to produce a synergetic effect. O’Brien-Malone and Maybery’s (1998) findings are further supported by Sanderson (1989), who, in an earlier comprehensive analysis of the conditions under which task performance is associated with verbalized knowledge, found that subjects facing a complex problem (i.e., discouraging trial-and-error strategies) were able to formulate a correct verbal mental model of an implicit learning situation. Her results suggest that implicit learning performance correlates with verbal knowledge, which implies the presence of a co-production between implicit and explicit knowledge. Similarly, after a comprehensive analysis of empirical dissociations, Berry and Broadbent (1995, p. 132) conclude that recent studies “... provide evidence suggesting that the dissociation may not be as great as was originally thought.”

More recently, Sun, Slusarz & Terry (2005) found that implicit and explicit knowledge show synergies in their complementary representation as well as in their complementary learning processes. These findings are further supported by Haider and Frensch (2005), who found evidence that learning in the non-declarative memory system triggers learning in the declarative memory system. Similarly, Evans (2008, 2010) argues for an interaction between the tacit and explicit processing systems of the mind. Lewandowsky (1998) makes the following proposals: “Restating the conclusions concerning implicit learning within a Kuhnian framework, it appears that its defining feature – learning without awareness – has been eroded to the point where a completely new way of thinking about implicit learning may be imminent,” and that this new paradigm will “do away with the dichotomy between implicit and explicit cognition” (p. 386, 389). Based on these discussions, we suggest that any state of knowing is a result of complex and mostly highly constructive thought processes. As such, the knowledge construction process follows *the unity of the mind principle*, which proposes that the state of knowing is an emergent product of mental functions of the brain coupled to one another and working as a synergistic system (Bunge, 1981: 74). Although neurobiological research distinguishes between different, decentralized memory systems, the brain remains a tightly knit and complex system. As Bunge and Ardila (1987, p. 161) suggest: “We feel, think, and move as units, just as a car moves as a whole. But this only shows that, although brains and cars have many components, these are well coordinated.” In other words, cognitive

subsystems are supplementing and complementing each other (Kirsner, 1998; Roth, 2003; Sun, 2002; Sun, Slusarz and Terry, 2005). This unity of thought emerges from an interaction of processes that include the sub- or nonconscious and conscious processes, and in, at least, some cases reflective and introspective evaluation and justification for why an individual chooses one interpretation over another.

Another fundamental conceptual question associated with the tacit vis-à-vis explicit knowledge distinction is the following question: By what means do people produce, access, and operationalize knowledge resources if these remain tacit, unarticulated, and inaccessible? This conundrum, we surmise, is what compelled Spender to combine two very different theoretical propositions; social constructionism and intuitionism, which help him explain how knowledge might be transferred through practice and tacit cognition without engaging intentionality and agency.

Deconstructing the Social-Individual Knowledge Dichotomy

As already alluded to, the social-constructionist approach situates thoughts, practices, and knowledge within a disembodied social realm. The basic assumption is that knowledge structures exist apart from the individual. That is, the social reproduces itself independently of each single actor – the latter merely works in the service of reproducing or institutionalizing collective practices across contexts and time (Gergen, 1985). Spender (1995, p. 158) recognizes the incognito (nonexisting) individual facing the disembodied social-constructionist position when stating that “we understand that decision-making requires a mind, a cognizing entity. So we are in danger of reifying the organization when we speak of organizations as actors making decisions.” Nonetheless, Spender generally supports a disembodied social-constructionist position when pointing out “that the meaning of all individual knowledge is actually grounded in collective practice ...” (Spender, 2000a, p. 158).

Post-structuralist researchers argue for a more diversified reproduction of socio-cultural practices and knowledge along sub-cultural and discursive communities each of which uniformly reproduce and univocally interpret practices (Derrida, 1976). Even here, the very notion of a collective practice that carries univocal meaning illustrates a social determinist or constructionist orientation, an orientation that has undergone increasing scrutiny based on differing empirical findings. These findings suggest that even within the most homogeneous socio-cultural community individuals apply different interpretive frameworks or mental models leading to numerous and at times competing understandings of community practices (Clifford, 1988; Foucault, 1980).

In Bunge and Ardila's (1987) discussion of psychological streams of research, the authors found that most schools of thought within psychology agree that external stimuli are interpreted according to mental models that vary within a population. Similarly, research within mass communication (Fiske, 1989; Hall, 1980) illustrates epistemological pitfalls of dissociating the meaning of language (i.e., knowledge) and practices from cognition. Thus, if we wish to understand cognition at the collective level, we must identify the various mental models that influence individual sense-making (i.e., knowledge) and not assume practices carry easy-to-decode and univocal meaning.

Whereas tacit cognition may be relevant for routine judgment, i.e., when engaged with a previously (or very similar) experienced encounter (Levinthal & Rerup, 2006; Macrae & Bodenhausen, 2000), the literature on social cognition suggests that categorical (automatic) sense-making plays a secondary role when deliberate judgments are needed and individuals have the required cognitive capacity and time at their disposal. More specifically, reflective sense-making is often triggered when individuals are faced with category-inconsistent information (i.e., uncertainty) about situational action requirements. Here, individuals engage in *reflective sense-making*, i.e., the interpretation of events based on creative and cognizing thought-processing where existing mental frameworks are creatively recombined and deliberately customized to make sense of novel conditions in a given situation (Bodenhausen & Garst, 1998; Wegner & Pennebaker, 1993), in the process reframing the meaning of practices (Piaget, 1977).

Sociologists such as DiMaggio (1997) have rejected the view of culture as a coherent and integrated thought-collective in favor of a view that regards culture as a "toolkit" or "repertoire," subject to individual choice and discretion. In paraphrasing Swidler (1986) "all people know more culture than they use," meaning that people are partly (and at various individual levels) in control of manipulating their social-cultural heritage for personal benefits. In other words, our mind is equipped with multiple cognitive mental models, some being private (unique) and others social (shared) (see Ringberg & Reihlen 2008). In either case when these models are challenged by, for example, unexpected environmental inputs, individuals actively and intentionally invoke cognitive, volitional, and emotional resources.

In short, firms serve as a storage of information that only becomes knowledge when activated and interpreted by an individual mindset whose perception, in turn, is influenced by private and cultural mental models. As such, the study of knowledge needs to be based on the knowing individual-in-organizations (Bunge, 1983; Reihlen et al., 2007), and not on social practices apart from the cognizing individual as suggested by Spender.

Deconstructing Intuitionism

The emphasis of tacit (intuitive) over explicit (reflective) thinking of managers has been influential in strategy research (Agor, 1984; Cappon, 1994; Mintzberg, 1989; Quinn, 1989). In Spender's work intuition is used to link his implicit knowledge system with social practices and explain how tacit knowledge transfer can happen through practices. While we agree with Spender that intuition qua tacit processing is a "genus psychological ability" because it allows managers to quickly grasp a certain situation by tacitly processing large amounts of information for making quick judgments, his skeptical stance towards rationality and reasoning leads him to overlook the role of explicit reflection in improving the validity of intuitive inferences. We argue that intuition is always an integral part of human cognition (so it is not that we can simply escape our intuitions), but from an epistemological view intuition is only productive as long as it is refined by reflection. This is in line with Evans (2010, p. 323) when he writes: "The evidence suggests that intuition is the dominant basis for real world decision-making and is often effective; however, it also shows that reliance on intuition can be dangerous and that intervention with high-effort and explicit reasoning is often required, especially when problems have novel features."

Intuitionism as a doctrine constitutes a conservative understanding of management as it assumes knowledge is largely self-evident and tacit to the individual. An intuitive management style stands in contrast to a participatory leadership style because participation requires articulation, reflection, discussion, and negotiation. Moreover, intuitionists would have no way of comparing and contrasting contradictory positions (Bunge, 1962) as they remain unaware of their underlying justifications, and thus cannot address wicked strategic issues (Rittel, 1972) in a reflective and presumably rational way. For example, given a manager becomes confronted by two contrary intuitive claims. Without resorting to the principle of rational dialog, these claims do not undergo further substantiation and testing and their contradictions remain unresolved. It is only through a rational debate that underlying assumptions are exposed and differences in perspectives, approaches, and solutions become resolved (Habermas, 1984; Rescher, 1988).

For intuition to work in a fertile way it has to be articulated and worked out by reasoning (also see Bunge, 1962). For knowledge to be passed on and assumptions to be made transparent intuitive ideas have to be made explicit, analyzed, refined, discussed, and logically connected. Unaccompanied by substantive reflection, intuition loses its privileged position as an extraordinary mode of knowing in decision-making, and ironically may become a self-defeating practice in which new problems are treated as familiar ones despite the fact that a

successful resolution requires individuals to apply entirely new frameworks. Spender's position on intuitive managerial judgment is problematic because it liberates thinking from sensible standards and rationally defensible judgments.

The intuitionist position assumes that managerial choices are rationally indifferent and based on "self-evidence of experience," the "sympathetic sensibility," or the "vision of essences." The latter is only plausible, as Rescher (1993, p. 100) argues, "if we see rationality itself as a bogeyman – if we adopt a Feyerabendian 'anything goes' [or relativist] line." With the "anything goes" alternative – which rejects cogent grounds – we neglect the rational evaluation of problems and their solutions, propositions and proposals, theories and designs, methods and artifacts, and, consequently, run the risk of continuing to endorse substandard solutions.

Spender's reliance on the intuitive position and tacit knowledge are at odds with an organization being regarded as a learning community of individuals who foster a critical inquiry into established assumptions, strategies and practices (see especially, Bunge, 1962). We suggest that the task of strategic management is to stimulate a reflective mode of inquiry that emphasizes rationally justifiable propositions, and brings to light underlying interpretive strategies, positions, and assumptions. Such a path was taken early on in the strategy literature where argumentation theory and dialectical modes of inquiry were applied to strategic decision-making (Churchman, 1971; Mason, 1969; Mason & Mitroff, 1981). The rise of intuitionism, qua tacit knowledge, deemphasizes such reflective, mindful inquiries into managerial decision-making, and it seems to be time to find a new balance between intuition and reason, the tacit and the explicit. We explore such a balance next.

Towards a Socio-Cognitive Theory of the Firm

We suggest that an alternative approach to understanding knowledge dynamics within a firm needs to account for knowledge as embedded in the mind or "embodied" and influenced by a person's categorical (automatic) and/or reflective application of internalized mental (private and cultural) models following our socio-cognitive model (see Ringberg & Reihlen, 2008). This model pays attention to and incorporates a "critical realist turn" (Bunge, 1996; Reed, 2005) that offers a middle ground between naive positivism and social constructionism. More specifically, it locates knowledge at the reciprocal interplay of cognitive and social factors effectuated by interpretive processes (also see Garud & Rappa, 1994; Ginsberg, 1994).

In applying the socio-cognitive model to knowledge production and transfer we rely on two assumptions: First, knowledge production is primarily an active, constructive, and generative meaning production shaped by the cognitive, emotive, and volitional processes of a person (Glaserfeld, 1995; Piaget, 1977). This implies that new information is processed both by private and shared mental models, and when necessary actively and critically scrutinized before being acted upon (also see Hodgkinson & Johnson, 1994; Hodgkinson, 1997). Furthermore, individual mental processes have cognitive as well as emotional roots that can mutually support each other. For instance, Hodgkinson (2011) suggests that “hot” cognitions enhance changing mental models because they are emotionally supported, while “cold” cognitions are more likely to facilitate stability and inertia because of an absence of supporting emotions. Second, knowledge is continuously negotiated between individuals who are engaged in different practices, beliefs, and values in order to create a common conceptual platform from which both knowledge production and transfer may occur (Lave & Wenger, 1991; Thompson & Fine, 1999). Consequently, knowledge emerges through co-evolutionary learning processes of interaction between individual sense-making, cultural resources, and environmental feedback. It follows that knowledge of the firm should neither be viewed as a superstructure of organizational routines and capabilities detached from introspection (e.g., Kogut & Zander, 1992; Nelson & Winter, 1982) nor as a single individual cognition detached from other individual cognitions, instructions and feedback mechanisms (i.e., rules, norms, practices) (Felin & Hesterly, 2007). An individual will both negotiate and react to exposure to other’s mental (private and cultural) models as they affect his/her personal beliefs, values, wishes and interpretive strategies of norms, rituals and practices.

Building upon the socio-cognitive model of knowledge, our central thesis is that sustained competitive advantage emerges from the creation of differentiation, i.e., a recombination of individuals’ existing knowledge structures or developing new knowledge structures, in short, unique knowledge which may enable firms to innovate. A socio-cognitive theory of the firm aims to explain how unique individual knowledge is produced, recognized, and shared, thereby shaping organizational strategy and becoming institutionalized among colleagues and other employees as taken-for-granted assumptions. While we argue that the knowledge-based sources of competitive advantage are individual knowledge uniqueness, its exploitation is strongly dependent on socio-cultural conditions within the firm and within the industry. A key task for managers is to explore how an employee’s existing knowledge structures may be recombined in such a way that it enables a differing view and understanding of a given situation.

From Uniqueness to Common Knowledge

The socio-cognitive approach locates sense-making in the mind of the manager — not in social practices or institutional structures. Of course, as already emphasized, managers do not operate in a social vacuum as social norms and values, through everyday shared experiential processes with other people, influence the individual production of mental models (DiMaggio, 1997). By experiential processes we refer to cognitive patterns of thoughts that result from all types of social inputs, such as instructions, communication, observation, practices, etc. which become part of a manager's cognitive resources. Yet, as managers are exposed to different experiences (e.g., industry recipes, company cultures, professional education) they internalize different parts of the socio-cultural fabric and end up as members of different thought communities (Shore, 1996), and even then, members of a thought community only are aligned along a subset of cultural models.

Although members of a thought community may use similar cultural models to categorize an event, such categorization is only one aspect of the cognitive processing. The other aspect consists of unique situations for which existing cultural models do not provide a manager with a relevant framework. In this case, the manager is forced to reframe existing cultural models to make sense of a situation and thereby create a unique mental model. This is referred to as a “private model.” Some private models continue to remain private, whereas others become shared and “objectified” through the interaction and negotiation with other managers, thereby entering into the broader social fabric of a company and the wider community. As such, the mindsets of managers contain both private and cultural models which may be applied reflectively and/or non-reflectively (categorically/automatically) across situations.

With the private/cultural model framework we are able to include Spender's four disparate and largely incommensurable knowledge processes into a coherent (internally consistent) framework (see Table 2).

	Cultural Models	Private Models
Categorical Thinking	<p>Common Knowledge</p> <p><i>Spender's traditional (repositioned in the mind) social constructionist position</i></p>	Myopic knowledge
Reflective Thinking	Negotiated Knowledge	Unique Knowledge

Table 2. Types of knowledge processes and outcomes.

Obviously, these knowledge outcomes and underlying processes may co-exist to various degrees within each individual and thus be applied variously by managers within a firm depending on circumstances. For example, a manager whose goal is to enforce standardized safety processes in the event of an emergency will emphasize the presence of cultural models, leading to shared, predictable and uniform behavior knowledge and behavior among his/her employees. Conversely, the same manager may try to encourage highly creative thought processes (private models) among a subset of employees (e.g., the “creatives” within a design department). We turn next to a brief exposition of the different strategic outcomes that may be explicated by relying on the socio-cognitive model to identify knowledge-building and transfer.

From a socio-cognitive point of view, strategic opportunities emerge from people endowed with *unique knowledge* structures upon which strategic issues are enacted. However, this enactment process is neither automatic nor takes place in a social vacuum, rather it emerges from the interplay between an entrepreneur’s unique knowledge and possible envisioning of a strategic situation based on the feedback he or she receives from others around him or her. Unique knowledge describes a knowledge outcome that ensues from a high degree of reflective thinking during which the person likely relies on both cultural and private models. Individuals become bricoleurs or builders of their own world (Baudrillard, 1985) as they create and reshape representations according to personal life-stories (Derrida, 1976). The strong emphasis on personal agency and self-determination in this quadrant of Table 2 also

follows findings in humanist research (e.g., Epting & Leitner, 1992) and constructivist psychology (e.g., Glaserfeld, 1995; Kelly, 1970) which suggest that every learner of a language must construct his or her meaning out of elements from individual experience. The adaptation of these subjective meanings likely gets honed and adjusted through social interactions – without which they would remain private models. Furthermore, unique knowledge may also be produced by exploring unique social interaction contexts. The reflective and socially reproductive subject interacts with his or her social habitat. As Vygotsky (1978) and Mead (1967) argued, social experience can shape the production of knowledge and the interpretative processes available to individuals. Individuals who “grow into” a new and unique social habitat, and become socialized with its convictions, communication styles and conventions of all kinds (Reinmann - Rothmeier & Mandl, 1998: 471; Siebert, 2003) are more likely to reflect on these novel sets of situational circumstances and produce new knowledge. This insight is well exemplified by research on the role of outside stakeholders such as clients (Nikolova, 2012), lead-users (von Hippel, 1986), suppliers or alliance partners as co-creators of innovations (Dussauge; Garrette; & Mitchell, 2000).

Innovative knowledge is usually at odds with more accepted industry recipes and cultural conventions. In his *Origin of Species* Darwin writes: “Although I am fully convinced of the truth of the views given in this volume ..., I by no means expect to convince experienced naturalists whose minds are stocked with a multitude of facts all viewed, during a long course of years, from a point of view directly opposite to mine” (cit. in Kuhn, 1962, p. 151). Echoing this experience is the growing research on entrepreneurial cognition. This research stream suggests that successful entrepreneurs develop unique knowledge structures (i.e., private models) that make them perceive emerging trends and interpret weak signals others do not recognize and consequently lack legitimacy in the early stages (Dougherty & Heller, 1994). Indeed, it may take years until an entrepreneurial idea becomes understood and accepted as it initially cannot be comprehended by others who rely on mainstream cultural models. If persistent and empirically convincing, such unique perspectives eventually enter into mainstream cultural models (Mitchell et al., 2007).

Unique knowledge teaches us that knowledge is always conjectural in the sense that it remains imperfect and always vulnerable to being reinterpreted, changed and improved by the individual (Bunge, 1983; Popper, 1962; Rescher, 2003). Spender’s traditional skepticism of reflective cognition and postmodern subjectivism prevents us from explaining these important aspects of business operations. Interestingly, Spender made attempts to incorporate the unique-knowledge phenomenon into his framework, within a new “entrepreneurial theory of

the firm” (Spender, 2006, 2007). Most recently, he writes “[u]nder uncertainty the situation ... shifts ... towards the actor – and towards her/his entrepreneurial and imaginative responses to knowledge-absence” (Spender, forthcoming, p. 8). Again, he ties entrepreneurial judgments to Polanyi’s notion of tacit knowing “rather than to explicit dimensions” (Spender, forthcoming, p. 9) of rationality, reflection, and reasoning. While we appreciate Spender’s move towards unique knowledge as a source of entrepreneurial opportunity, his traditional framework is not able to account for unique knowledge as it neither involves reflective thought processes nor private mental models.

Certain organizations, such as advertising agencies or R&D departments in high-tech and pharmaceutical companies, may value employees with unique knowledge. Unique knowledge may create unexpected opportunities, somewhat akin to basic research. This is so because unique insights are often obtained from unlikely combinations of accepted knowledge structures with a person’s unique framing. Of course, this still presupposes that such individuals are willing and able to question their own assumptions and engage in reflective and substantive reasoning in order to convince others about an idea’s potential contribution and strategic value.

Thus, a necessary prerequisite for extending mainstream knowledge is its ability to accommodate new unique knowledge, a process Piaget (1954) describes as the formation of new schemas through reflective abstraction. This process contrasts with assimilation in which new and unique knowledge is forged to comply with existing knowledge systems. The accommodation of new knowledge often involves prolonged cognitive and social processes when it competes with existing world views, including political interests and positions of power.

An active use, refinement, and recombination of existing cultural models into new ones suggest the involvement of rational and introspective processes. This is exemplified in DiMaggio’s (1997) notion of culture as serving as a toolkit, which suggests that individuals do not necessarily apply cultural models in a routine fashion. Rather, they may reflect upon different facets of the cultural fabric and apply cognitive discretion when using the existing cultural models as sources of reflection and for new applications. For example, the constructive and dialectical negotiation between rival interpretive positions may serve as a life-preserving knowledge-plurality element that creates useful knowledge-agility (Rescher, 1985) and allows sustained dynamic capabilities on the part of the firm (Schreyögg & Kliesch-Eberl, 2007).

In order to understand the production of negotiated knowledge, one may compare the process with the accommodation of mental models (Piaget 1954). The outcome of such nego-

tiation may rest on purely rationally justifiable premises. Yet, in many instances it involves forceful changes instead, as new cultural models threaten existing ones, and with them established power structures, be they within the society or the firm. The concept of interpretative dominance of Meindl et al. (1994) is particularly helpful in understanding how specific interpretative positions gain power, arguing that “the notion of interpretive dominance conceptualizes a belief system as an active arena, where interest groups ... compete to impose their preferred psychological order onto nonbelievers. ... What is important is who believes what and how much power believers can bring to bear to impose their assumptions on others” (Meindl et al., 1994, p. 291). From a theoretical perspective the notion of “imposing” can happen either as accommodation or assimilation, all depending on whether the new cultural models are understood or simply adhered to. A long-term strategy of the firm is to have its employees not simply adhere to a certain knowledge structure (which is more akin to subscribing passively to a belief system or categorical knowledge) but rather actively comprehend and recombine existing cultural models into new insights. It is the latter process that is of interest here, as it speaks to the active cognizing processes performed by individuals with personal aims and investment in the outcome of a social process.

Negotiating knowledge requires managers to make tacit cultural models explicit and creatively apply them as yardsticks or frames of reference, through which issues acquire meaning, significance, urgency, priority, plausibility and the like. In this regard, we echo Hedlund’s (1994, p. 76) early observation that “the current, and justified, fascination with the tacit component of knowledge ... must not cloud the fact that organizations to a large extent are ‘articulation machines’.” This also addresses Levinthal and Rerup’s (2006) observation that even the routine-based view of organizational behaviour often involves a cognitive or reflective component. That is, knowledge always remains embodied in differently situated minds, and can only to a limited extent (when cultural models are shared by everyone) be viewed as existing in a social context and practices, and communicated and consolidated in a decision hub (Becker, 2001). Although Spender’s concept of managerial judgment tangibly resembles the *negotiated knowledge* quadrant in Table 2, he does not explicate how this process is put into action in his social-constructionist position. More specifically, Spender’s privileging of intuitive (categorical) thinking over the reflective mind makes no commensurable framework possible for integrating these two positions.

The presence of unique knowledge systems among groups of individuals makes it challenging for management to create a similarly understood and accepted strategic position. Obviously, diversity in perspectives can be expected across functional departments (account-

ing, marketing, production), but the issue arises when this diversity becomes disadvantageous for an efficient coordination and execution of strategies, for example, when an issue at hand is framed in contradictory ways, as it prevents organizational members from aligning their efforts and pulling in the same direction. The strategy literature describes this situation as a “wicked” part of the strategy development (Mason & Mitroff, 1981; Rittel, 1972). As Camillus (2008, p. 100) points out: “The greater the disagreement among stakeholders, the more wicked the problem.” This important internal strategic challenge is impossible to identify or explain by Spender’s knowledge framework. Perhaps this is the reason why Spender concentrates on the problem of knowledge absence instead of knowledge ambiguity or “wickedness”. Yet, divergent perspectives across business units may also help prevent a firm from applying an oversimplified view of the competitive environment caused by exceeding knowledge homogenization (Miller, 1993; Miller & Chen, 1996).

Negotiated knowledge may turn into taken-for-granted *common knowledge* where managers rely on categorical cultural models (i.e., automated, tacit, stereotypical knowledge). On the surface, knowledge based on shared cultural models parallels Spender’s tacit knowledge structure because such cultural models can be enacted tacitly, thereby enabling people to interact as if knowledge indeed existed apart from the mind. Thus, in situations where everyone shares cultural models it makes sense for researchers to disregard the cognitive process and simply explain knowledge transfer as automated and tacit, residing in the realm of intuition, practice and social structures (e.g., Spender’s assumption). Such a scenario may exist in a highly structured organization, especially where it is essential that everyone interpret input and enact procedures similarly, such as among emergency personnel, flight traffickers, etc.

According to Cannon-Bowers et al. (1992) shared mental models are knowledge structures held by members who have been exposed to less-mindful stimulus-response learning processes leading to accurate explanations and expectations (Levinthal & Rerup, 2006). This follows Dougherty’s (1992) research that shows how communication flows are unencumbered as long as they happen among people within a single thought world or interpretative community. When people from across units try to communicate, the underlying assumption suddenly becomes apparent as they rely on very different sets of reflective thought processes. By over-emphasizing the tacit and intuitive dimension, Spender is unable to explain how firms overcome myopic vision and how employees dynamically adapt to new environmental inputs (also see Ashmos, Duchon, & McDaniel, 1998).

Firms dealing with lower-level knowledge tasks may favor (through training and selection) people who feel *compelled* to follow instructions and reapply them in an automatic and categorical fashion (e.g., assembly line workers, book keepers). However, as Alvesson and Spicer (2012) argue, an overemphasis of categorical thinking contributes to an organizational phenomenon that they call functional stupidity – an organization’s “lack of reflectivity, a disinclination to require or provide justification, and avoidance of substantive reasoning” (p. 1201).

Myopic knowledge refers to a knowledge outcome in which people are either isolated or somehow cognitively unable or unwilling to integrate and adjust social feedback into their cognitive structures, leading to poor social adjustment and an over-reliance on private models in an automatic and unreflective manner. Myopic knowledge is “stubborn” knowledge that breaks the ongoing adjustment of knowledge. This leads to an idiosyncratic and status-quo outlook on the world that is perceived as truth to the individuals (Welsch, 1988), yet, largely prevents knowledge transfer. More generally, an unreflective reliance on their own perspective of events may lead managers to misconceive the competitive landscape and develop “blind spots” that prevent them from realizing competitive actions (Zajac & Bazerman, 1991).

Studies on companies in crisis situations suggest that some managers, especially the ones with overconfidence and hubris (e.g., Hiller & Hambric, 2005) come to rely on and overemphasize their private models, leading them to inaccurate assessments of an issue even after being informed by subordinates of their inaccurate situational analysis (Mezias & Starbuck, 2003). Indeed, Cossette and Audet (1992) conclude, on the basis of an empirical study of a small business owner, that idiosyncratic schemas may emerge from unique personal development and situational interactions.

The identification and consequences of myopic knowledge and how to avoid it are not captured by Spender’s knowledge model. The influence of myopic knowledge on strategic orientation is probably more prevalent than recognized. Its presence among managers suggests that it is perhaps a natural side-product of the knowledge development process — but one that needs to be kept at bay by encouraging managers to continuously and reflectively question their own as well as others’ assumptions.

Managing Multiple Sense-making Processes

From a socio-cognitive perspective a key role of management is to actively enable and manage both categorical and reflective thinking to better deal with strategic certainties as well as uncertainties. This means that managers at times need to synchronize discordant perspec-

tives while at other times break up categorical thinking and encourage divergent perspectives. In contrast, strategists relying on a social constructionist perspective prioritize harmonized (categorical) practices and shared path-dependency of a firm's knowledge creation and exploitation. In line with these thoughts, Nooteboom (2009) argues that the essence of the firm is its functioning as a focusing device that deliberately limits cognitive variety for the purpose of knowledge exploitation and coordination. The presence of a leadership that encourages reflective sense-making processes and competing perspectives is not and cannot be captured by Spender's model and similarly is not reflected in Nooteboom's recent cognitive theory of the firm. In contrast to both these positions, we argue that the socio-cognitive model is able to account for both heterogeneous and homogenous knowledge development processes.

There exists substantive research suggesting that, at the more fundamental level, firms may benefit from keeping a free market of ideas alive among employees by establishing institutions that guarantee that each new perspective, including ones represented by less powerful groups, has a fair chance to gain influence over the organizational agenda (Reihlen & Mone, 2012). This capability often helps optimize a firm's strategic alignments (of its resources) with the dynamic demands of a competitive market place (Barnett & Burgelman, 1996; Farjoun, 2002; Lovas & Ghoshal, 2000).

At the operational level, all four outcomes of the socio-cognitive model demand attention as a firm otherwise risks overlooking essential dynamics in the market in its strategic pursuit of opportunities. All depending on the type, products, and environment the firm operates in, various combinations of reflective versus categorical reliance on mental models should be encouraged and managed throughout the life cycle of entrepreneurial opportunity creation and exploitation. Whereas Spender's model relies extensively on tacit knowledge and automated (categorical) processing of cultural models, the socio-cognitive model includes the latter as well as unique outcomes based on private models, reflective conversations (Schön, 1983) and rational dialogs (Habermas, 1984). We suggest that all four outcomes in the socio-cognitive model are already recognized in strategy research yet have remained isolated from one another along borders created by disparate epistemological alignments hindering a more integrative and mutually inspiring understanding of knowledge creation and transfer as well as strategic decision making.

From a managerial perspective, a company may benefit from training its managers in reflecting not only on their own assumptions but also on those of others (i.e., making them explicit). This heightened introspection parallels the state of mind achieved by "heavyweight" product managers in Clark and Fujimoto's (1991, p. 259) research, who were able to go back

and forth between perspectives of customers, marketers, engineers, and designers. While Spender's tacit model of knowledge makes it necessary for him to suggest that "wicked" strategic issues are to be resolved through skillful practices, we argue that such practices remain largely meaningless outside the reflective involvements of managers, especially when the latter are faced with dynamic challenges in which they have little experience. As such, we suggest, based on the insights garnered from our socio-cognitive approach, that instead of aiming at developing a strategic leadership style that relies on tacit knowledge transfer through intuition, harmonized social structures, and practices as emphasized by Spender in his knowledge-based model of firms, firms would benefit from acknowledging and actively embracing explicit reasoning among managers that may stimulate inter-community learning processes.

Conclusion

When exploring the extremes of the tacit social-constructionist perspective, Spender ends up overlooking important mitigating factors that influence knowledge location, creation and transfer. Tellingly, in several social science research areas new sensibilities are emerging in the dynamic interaction between social (e.g., cultural, political, and economic) and mental processes (e.g., reasoning, intuition, emotions) (e.g., Bunge, 1962, 1996, 1998; DiMaggio, 1997; Ibarra, Kilduff, & Tsai, 2005; Kirsner, 1998). We suggest that the understanding of a knowledge-based theory of the firm will benefit from a socio-cognitive theory (Reihlen, Klaas-Wissing, & Ringberg, 2007; Ringberg & Reihlen, 2008) that is, based on the dialectics between the mental workings of the intentional subject (Glaserfeld, 1995; Piaget, 1971, 1977) and internalized feedback from the socio-cultural environment (Mead, 1967; Vygotsky, 1962). Whereas social structures provide the context and social feedback mechanisms, the mind, cognition, volition, emotion, and the senses (including neurological factors and faculties) remain indispensable for creating, challenging, questioning, conjecturing, categorizing, inferring, problem-solving, criticizing, and negotiating the meaning of environmental inputs (Maturana & Varela, 1980).

Socio-cognitive processes occur in an iterative fashion during an individual's interaction with the environment as well as during explicit and implicit mental contemplation. It is during these processes that assumptions are either confirmed or disconfirmed and adjusted. The socio-cognitive model dismisses knowledge as being anchored in practices. Practices only gain meaning through contemplation – without it they are merely mimicry with little if any effect (Ringberg & Reihlen, 2008).

Spender (2006; 2007; forthcoming) seems to recognize some of these limits in his more recent exposition of entrepreneurialism and radical constructivism. Here, he introduces agency and creative imagination as the foundation of an entrepreneurial theory of the firm (see also Spender, 2007). This is a radical departure from Spender's own earlier social-constructionist position. Although laudable, Spender does not integrate this latter position into his earlier work. Nonetheless, it ought to inspire other researchers to look for a more sensitive concept to cope with the fundamental issues of a knowledge-based theory of the firm where "people are neither entirely driven by inner forces nor automatically shaped and controlled by external stimuli" (Bandura, 1986, p. 18). Spender has been successful in anchoring one end of the spectrum and recently decided to explore the limits of the other extreme as well. Yet, we are still in need of a model that can encompass activities at both ends of the spectrum as well as in the middle, within a coherent epistemological framework. We hope our socio-cognitive framework opens an avenue for future research that will stimulate further discussions.

References

- Adler, P. S., & Borys, B. 1993. Materialism and idealism in organizational research. *Organization Studies*, 14(5), 657-679.
- Agor, W. H. 1984. *Intuitive management*. Englewood Cliffs, N.J.: Prentice-Hall.
- Alvesson, M. & Spicer, A. (2012). A stupidity-based theory of organizations. *Journal of Management Studies*, 49, 1194-1220.
- Ashmos, D. P., Duchon, D., & McDaniel, R. R. (1998). Participation in strategic decision making: The role of organizational predisposition and issue interpretation. *Decision Sciences*, 29, 25-51.
- Astley, W. G. 1985. Administrative science as socially constructed truth. *Administrative Science Quarterly*, 30, 497-513.
- Bandura, A. 1986. *Social foundations of thought and action: A social cognitive theory*. Englewood Cliffs, N.J.: Prentice-Hall.
- Baudrillard, J. (1985). The ecstasy of communication. In H. Foster (Ed.), *Postmodern Culture*. London: Pluto Press.
- Barnett, W. P. & Burgelman, R. A. (1996). Evolutionary perspectives on strategy. *Strategic Management Journal*, 17, 5-19.
- Barratt, I. 2003. Is there a case for regulating management consultants? In B. Curnow, & J. Reuvid (Eds.), *The international guide to management consultancy: The evolution, practice and structure of management consultancy worldwide*, Vol. 2 (pp.113-120). London: Sterling: Kogan Page.
- Becker, M. C. 2001. Managing dispersed knowledge: Organizational problems, managerial strategies, and their effectiveness. *Journal of Management Studies*, 38(7), 1037-1045.
- Berger, P. L. & Luckmann, T. 1967. *The social construction of reality: A treatise in the sociology of knowledge*. Garden City, N. Y.: Doubleday.

- Berry, D. C., & Broadbent, D. E. 1995. Implicit learning in the control of complex systems. In P. A. Frensch, & J. Funke (Eds.), *Complex problem solving: The European perspective* (pp.131-150). Hillsdale, NJ: Erlbaum.
- Bodenhausen, G. V., & Garst, J. 1998. Stereotypes in thought and deed: Social-cognitive origins of intergroup discrimination. In C. Sedikides, J. Schopler, & C. A. Insko (Eds.), *Intergroup cognition and intergroup behavior* (pp.311–336). Mahwah, NJ: Erlbaum.
- Bunge, M. 1962. *Intuition and science*. Englewood Cliffs, N.J.: Prentice-Hall.
- Bunge, M. 1979. *Treatise on basic philosophy, vol. 4, ontology II: A world of systems*. Dordrecht: Reidel.
- Bunge, M. 1981. *Scientific materialism*. Dordrecht et al.: D. Reidel.
- Bunge, M. 1983. *Treatise on basic philosophy, vol. 5, epistemology & methodology I: Exploring the world*. Dordrecht: Reidel.
- Bunge, M. 1996. *Finding philosophy in social science*. New Haven, London: Yale University Press.
- Bunge, M. 1998. *Social science under debate*. Toronto, Buffalo, London: University of Toronto Press.
- Bunge, M., & Ardila, R. 1987. *Philosophy of psychology*. New York: Springer.
- Camillus, J. C. (2008). Strategy as a wicked problem. *Harvard Business Review*, 86, 98-106.
- Cannon-Bowers, J. A., Salas, E., & Converse, S. (1992). Shared mental models in expert team decision making. In N. J. Castellan (Ed.), *Individual and group decision making* (pp. 221-246). Hillsdale, NJ: Lawrence Earlbaum Assoc. Inc.
- Cappon, D. 1994. *Intuition and management*. London: Quorum Books.
- Churchman, C. W. 1971. *The design of inquiring systems: Basic concepts of systems and organization*. New York: Basic Books.
- Clark, K. B. & Fujimoto, T. (1991). *Product development performance: Strategy, organization, and management in the world auto industry*. Boston, Mass.: Harvard Business School Press.
- Clifford, J. 1988. *The predicament of culture: Twentieth-century ethnography, literature, and art*. Boston: Harvard University Press.
- Cole, M., & Wertsch, J. V. 2002. Beyond the individual-social antimony in discussions of Piaget and Vygotsky:
<http://www.prometheus.org.uk/Publishing/Files/ColeAndWertschOnPiagetAndVygotsky.pdf>.
- Cossette, P. & Audet, M. (1992). Mapping of an idiosyncratic schema. *Journal of Management Studies*, 29, 325-347.
- Derrida, J. 1976. *Of grammatology* (1st American ed.). Baltimore: Johns Hopkins University Press.
- DiMaggio, P. 1997. Culture and cognition. *Annual Review of Sociology*, 23, 263-287.
- Dougherty, D. (1992). Interpretive barriers to successful product innovation in large firms. *Organization Science*, 3, 179-202.
- Dougherty, D. & Heller, T. (1994). The illegitimacy of successful product innovation in established firms. *Organization Science*, 5, 200-218.
- Dussauge, P., Garrette, B., & Mitchell, W. (2000). Learning from competing partners: Outcomes and durations of scale and link alliances in Europe, North America and Asia. *Strategic Management Journal*, 21, 99-126.
- Epting, F. R. & Leitner, L. M. (1992). Humanistic psychology and personal construct theory. *Humanistic Psychologist*, 20, 243-259.
- Evans, J. S. B. T. (2008). Dual-processing accounts of reasoning, judgment, and social cognition. *Annual Review of Psychology*, 59, 255-278.
- Evans, J. S. B. T. (2010). Intuition and reasoning: A Dual-Process Perspective. *Psychological Inquiry*, 21, 313-326.
- Farjoun, M. (2002). Towards an organic perspective on strategy. *Strategic Management Journal*, 23, 561-594.
- Felin, T. & Hesterly, W. S. (2007). The knowledge-based view, nested heterogeneity, and new value creation: Philosophical considerations on the locus of knowledge. *Academy of Management Review*, 32, 195-218.

- Fiske, J. 1989. *Understanding popular culture*. Boston, Mass: Unwin Hyman.
- Foucault, M. 1980. *Power/knowledge: Selected interviews and other writings 1972-1977*. New York: Pantheon.
- Garud, R., & Rappa, M. A. 1994. A sociocognitive model of technology evolution - the case of cochlear implants. *Organization Science*, 5(3), 344-362.
- Gergen, K. J. 1985. The social constructionist movement in modern psychology. *American Psychologist*, 40(3), 266-275.
- Ginsberg, A. (1994). Minding the competition: From mapping to mastery. *Strategic Management Journal*, 15, 153-174.
- Glaserfeld, E. v. 1995. *Radical constructivism: A way of knowing and learning*. London: Falmer Press.
- Grant, R. M. 1996. Toward a knowledge-based theory of the firm. *Strategic Management Journal*, 17, 109-122.
- Grant, R. M., & Spender, J.-C. 1996. Knowledge and the firm: Overview. *Strategic Management Journal*, 17 (Winter special issue), 5-9.
- Habermas, J. 1984. *The theory of communicative action*. Boston: Beacon Press.
- Haider, H., & Frensch, P. A. (Eds.). 2005. *The generation of conscious awareness in an incidental learning situation*.
- Hall, S. 1980. Cultural studies and the center: Some problematics and problems. In D. H. S. Hall, A. Love and P. Willis (Ed.), *Culture, media, language: Working papers in cultural studies 1972-1979* (pp.15-48). London: Hutchinson.
- Hedlund, G. (1994). A model of knowledge management and the N-form corporation. *Strategic Management Journal*, 15, 73-90.
- Hiller, N. J. & Hambrick, D. C. (2005). Conceptualizing executive hubris: The role of (hyper-) core self-evaluations in strategic decision-making. *Strategic Management Journal*, 26, 297-319.
- Hodgkinson, G. P. (1997). Cognitive inertia in a turbulent market: The case of UK residential estate agents. *Journal of Management Studies*, 34, 921-945.
- Hodgkinson, G. P. & Healey, M. P. (2011). Psychological foundations of dynamic capabilities: Reflection and reflection in strategic management. *Strategic Management Journal*, 32, 1500-1516.
- Hodgkinson, G. P. & Johnson, G. J. (1994). Exploring the mental models of competitive strategies: The case for a processual approach. *Journal of Management Studies*, 31, 525-551.
- Ibarra, H., Kilduff, M., & Tsai, W. 2005. Zooming in and out: Connecting individuals and collectivities at the frontiers of organizational network research. *Organization Science*, 16(4), 359-371.
- Inkpen, A. C., & Dinur, A. 1998. Knowledge management processes and international joint ventures. *Organization Science*, 9(4), 454-466.
- Kelly, G. A. (1970). A brief introduction to personal construct psychology. In D. Bannister (Ed.), *Perspectives in personal construct psychology* (pp. 1-30). San Diego: Academic Press.
- Kilduff, M., & Tsai, W. 2003. *Social networks and organizations*. Thousand Oaks: Sage.
- Kirsner, K. (Ed.). 1998. *Implicit and explicit mental processes*. Mahwah, New Jersey, London: Lawrence Erlbaum Associates.
- Kirsner, K., & Speelman, C. 1998. Introduction and overview. In K. Kirsner (Ed.), *Implicit and explicit mental processes* (pp.3-12). Mahwah, New Jersey, London: Lawrence Erlbaum Associates.
- Knight, F. H. 1933. *Risk, uncertainty and profit*. Boston: Houghton Mifflin company.
- Kogut, B. 2000. The network as knowledge: Generative rules and the emergence of structure. *Strategic Management Journal*, 21(3), 405-425.
- Kogut, B. & Zander, U. (1992). Knowledge of the firm, combinative capabilities, and the replication of technology. *Organization Science*, 3, 383-405.
- Kuhn, T. S. (1962). *The structure of scientific revolutions*. Chicago: University of Chicago Press.
- Lam, A. 2000. Tacit knowledge, organizational learning and societal institutions: An integrated framework. *Organization Studies*, 21(3), 487-513.

- Lave, J. & Wenger, E. (1991). *Situated learning: Legitimate peripheral participation*. Cambridge: Cambridge University Press.
- Levinthal, D., & Rerup, C. 2006. Crossing an apparent chasm: Bridging mindful and less-mindful perspectives on organizational learning. *Organization Science*, 17(4), 502-513.
- Lewandowsky, S. 1998. Implicit learning and memory: Science, fiction, and a prospectus. In K. Kirsner (Ed.), *Implicit and explicit mental processes* (pp.373-391). Mahwah, New Jersey, London: Lawrence Erlbaum Associates.
- Lovas, B. & Ghoshal, S. (2000). Strategy as guided evolution. *Strategic Management Journal*, 21, 875-896.
- Macrae, C. N., & Bodenhausen, G. V. 2000. Social cognition: Thinking categorically about others. *Annual Review of Psychology*, 51, 93-120.
- Malan, L.-C., & Kriger, M. P. 1998. Making sense of managerial wisdom. *Journal of Management Inquiry*, 7(3), 242-252.
- March, J. G. 1962. The business firm as a political coalition. *The Journal of Politics*, 24(4), 662-678.
- Marcus, G. E. & Clifford, J. (1986). *Writing culture: The poetics and politics of ethnography*. Berkeley: University of California Press.
- Mason, R., O. 1969. A dialectical approach to strategic planning. *Management Science*, 15(8), B-403-B-414.
- Mason, R., O., & Mitroff, I. I. 1981. *Challenging strategic planning assumptions: Theory, cases and techniques*. New York: Wiley.
- Maturana, H. R., & Varela, F. G. (Eds.). 1980. *Autopoiesis and cognition: The realization of the living*. Dordrecht: Reidel.
- Mead, G. H. 1967. *Mind, self and society. From the standpoint of a social behaviorist*. Chicago: University of Chicago Press.
- Meindl, J. R., Stubbart, C., & Porac, J. F. 1994. Cognition within and between organizations: Five key questions. *Organization Science*, 5(3), 289-305.
- Mezias, J. M. & Starbuck, W. H. (2003). Studying the accuracy of managers' perceptions: A research odyssey. *British Journal of Management*, 14, 3-17.
- Miller, D. (1993). The architecture of simplicity. *Academy of Management Review*, 18, 116-138.
- Miller, D. & Chen, M.-J. (1996). The simplicity of competitive repertoire: An empirical analysis. *Strategic Management Journal*, 17, 419-439.
- Mintzberg, H. 1983. *Power in and around organizations*. Englewood Cliffs, N.J.: Prentice-Hall.
- Mintzberg, H. 1989. *Mintzberg on management: Inside our strange world of organizations*. New York: Free Press.
- Mitchell, R. K., Busenitz, L. W., Bird, B., Gaglio, C. M., McMullen, J. S., Morse, E. A., & Smith, J. B. (2007). The central question in entrepreneurial cognition research 2007. *Entrepreneurship Theory and Practice*, 31, 1-27.
- Mir, R., & Watson, A. 2000. Strategic management and the philosophy of science: The case for a constructivist methodology. *Strategic Management Journal*, 21(9), 941-953.
- Morris, T., & Empson, L. 1998. Organisation and expertise: An exploration of knowledge bases and the management of accounting and consulting firms. *Accounting Organizations & Society*, 23(5/6), 609-626.
- Nelson, R. R. & Winter, S. G. (1982). *An evolutionary theory of economic change*. Cambridge, Mass.: Belknap Press of Harvard University Press.
- Nikolova, N. (2012). Innovating through clients. In M. Reihlen & A. Werr (Eds.), *Handbook of research on entrepreneurship in professional services* (pp. 86-103). Cheltenham: Edward Elgar.
- Nooteboom, B. (2009). *A cognitive theory of the firm: Learning, governance and dynamic capabilities*. Cheltenham: Edward Elgar.
- O'Brian-Malone, A., & Maybery, M. 1998. Implicit learning. In K. Kirsner (Ed.), *Implicit and explicit mental processes* (pp.37-55). Mahwah, New Jersey, London: Lawrence Erlbaum Associates.
- Pfeffer, J. 1981. *Power in organizations*. Marshfield, Mass.: Pitman Pub.

- Pfeffer, J. 1992. *Managing with power: Politics and influence in organizations*. Boston, Mass.: Harvard Business School Press.
- Piaget, J. 1954. *The construction of reality in the child*. Translated by M. Cook. New York: Basic Books
- Piaget, J. 1971. *Genetic epistemology*. New York: W. W. Norton & Co.
- Piaget, J. 1977. *The development of thought: Equilibration and cognitive structures*. New York: The Viking Press.
- Popper, K. R. (1962). *Conjectures and refutations: The growth of scientific knowledge*. New York: Basic Books.
- Powell, W. W., Koput, K. W., & Smith-Doerr, L. 1996. Interorganizational collaboration and the locus of innovation: Networks of learning in biotechnology. *Administrative Science Quarterly*, 41, 116-145.
- Quinn, R. E. 1989. *Beyond rational management*. San Francisco: Jossey-Bass.
- Reed, M. 2005. Reflections on the 'realist turn' in organization and management studies. *Journal of Management Studies*, 42(8), 1621-1644.
- Reihlen, M. & Ringberg, T. (2006). Computer-mediated knowledge systems in consultancy firms: Do they work? *Research in the Sociology of Organizations*, 24, 307-336.
- Reihlen, M., Klaas-Wissing, T., & Ringberg, T. 2007. Metatheories in management studies: Reflections upon individualism, holism, and systemism. *M@n@gement*, 10(3), 49-69.
- Reihlen, M. & Mone, M. (2012). Professional service firms, knowledge-based competition, and the heterarchical organization form. In M. Reihlen & A. Werr (Eds.), *Handbook of research on entrepreneurship in professional services* (pp. 107-126). Cheltenham: Edward Elgar.
- Reinmann - Rothmeier, G. & Mandl, H. (1998). Wissensvermittlung: Ansätze zur Förderung des Wissenserwerbs. In F. Klix & H. Spada (Eds.), *Wissen, Enzyklopädie der Psychologie* (pp. 457-500). Göttingen: Hogrefe.
- Rescher, N. (1985). *The strife of systems: An essay on the grounds and implications of philosophical diversity*. Pittsburgh, PA: University of Pittsburgh Press.
- Rescher, N. 1988. *Rationality: A philosophical inquiry into the nature and the rationale of reason*. Oxford: Oxford University Press.
- Rescher, N. 1993. *Pluralism: Against the demand for consensus*. Oxford, New York: Clarendon Press; Oxford University Press.
- Rescher, N. (1997). *Objectivity: The obligations of impersonal reason*. Notre Dame, Ind.: University of Notre Dame Press.
- Rescher, N. (2003). *Epistemology: An introduction to the theory of knowledge*. Albany: State University of New York Press.
- Ringberg, T., & Reihlen, M. 2008. Toward a socio-cognitive approach to knowledge transfer. *Journal of Management Studies*, 45(5), 912-935.
- Rittel, H. W. J. 1972. On the planning crisis: Systems analysis of the 'first and second generation'. *Bedriftsøkonomien*, 8, 390-396.
- Robertson, M., & Swan, J. 1998. Modes of organizing in an expert consultancy: A case study of knowledge, power and egos. *Organization*, 5(4), 543-564.
- Roth, G. (2003). *Aus Sicht des Gehirns*. Frankfurt/Main: Suhrkamp.
- Sanderson, P. M. 1989. Verbalized knowledge and skilled task performance: Association, dissociation, and mental models. *Journal of Experimental Psychology: Learning, Memory, and Cognition*, 15, 729-747.
- Scherer, A. G., & Dowling, M. J. 1995. Toward a reconciliation of the theory-pluralism in strategic management, incommensurability and the constructionist approach of the Erlangen School. In P. Shrivistava, & C. Stubbart (Eds.), *Advances in Strategic Management* (pp.195-248). Greenwich, CT: JAI Press.
- Schön, D. A. (1983). *The reflective practitioner: How professionals think in action*. New York: Basic Books.

- Schreyögg, G. & Kliesch-Eberl, M. (2007). How dynamic can organizational capabilities be? Towards a dual process model of capability dynamization. *Strategic Management Journal*, 28, 913–933.
- Siebert, H. (2003). Das Anregungspotenzial der Neurowissenschaften. *Report - Literatur- und Forschungsreport Weiterbildung*, 26, 9-13.
- Shore, B. (1996). *Culture in mind: Cognition, culture, and the problem of meaning*. New York: Oxford University Press.
- Spender, J.-C. 1989. *Industry recipes: an enquiry into the nature and sources of managerial judgement*. Oxford: Blackwell.
- Spender, J.-C. 1993. Competitive advantage from tacit knowledge? Unpacking the concept and its strategic implications. *Academy of Management Best Papers Proceedings, August 8-11*, 37-41.
- Spender, J.-C. 1994a. Knowing, managing and learning: A dynamic managerial epistemology. *Management Learning*, 25(3), 387-412.
- Spender, J.-C. 1994b. Organizational knowledge, collective practice and Penrose rents. *International Business Review*, 3(4), 353-367.
- Spender, J.-C. 1995. Organizations are activity systems, not merely systems of thought. *Advances in Strategic Management*, 12B., 153-174.
- Spender, J.-C. 1996a. Competitive advantage from tacit knowledge? Unpacking the concept and its strategic implications. In B. Moingeon, & A. Edmondson (Eds.), *Organizational learning and competitive advantage* (pp.56-73). Thousand Oaks, CA: Sage.
- Spender, J.-C. 1996b. Making knowledge the basis of a dynamic theory of the firm. *Strategic Management Journal*, 17, 45-62.
- Spender, J.-C. 1996c. Organizational knowledge, learning and memory: Three concepts in search of a theory. *Journal of Organizational Change Management*, 9(1), 63-78.
- Spender, J.-C. 1998a. The dynamics of individual and organizational knowledge. In C. Eden, & J. C. Spender (Eds.), *Managerial and organizational cognition: Theory, methods and research* (pp.13-39). London et al.: Sage.
- Spender, J.-C. 1998b. Pluralist epistemology and the knowledge-based theory of the firm. *Organization*, 5(2), 233-256.
- Spender, J.-C. 2000a. Managing knowledge systems. In C. Despres, & D. Chauvel (Eds.), *Knowledge horizons: The present and the promise of knowledge management* (pp.149-167). Boston et al.: Butterworth Heinemann.
- Spender, J.-C. 2000b. Tacit knowledge in organizations. *Academy of Management Review*, 25(2), 443-446.
- Spender, J.-C. 2001. Business policy and strategy as a professional field. In H. W. Volberda, & T. Elfring (Eds.), *Rethinking Strategy* (pp.26-40). London et al.: Sage.
- Spender, J.-C. 2003. Exploring uncertainty and emotion in the knowledge-based theory of the firm. *Information Technology & People*, 16(3), 266-288.
- Spender, J.-C. 2006. Managerial practice: Shaping the reasoning and imagining of others, *Working paper*.
- Spender, J.-C. 2007. A knowledge perspective. In M. Jenkins, & V. Ambrosini (Eds.), *Strategic management: A multi-perspective approach*, 2 ed. (pp.173-184). Basingstoke: Palgrave-Macmillian.
- Spender, J.-C., & Scherer, A. G. 2007. The philosophical foundations of knowledge management: Editors' introduction. *Organization*, 14(1), 3-26.
- Spender, J. C. (forthcoming). Strategizing. In J. D. Wright (Ed.), *International encyclopedia social and behavioral sciences* (2 ed.): Elsevier.
- Stimpert, J. L. 1999. Book review of: Managerial and organizational cognition: Theory, methods and research. In C. Eden, & J.-C. Spender (Eds.), *Academy of Management Review*, Vol. 24 (pp.360-362). London: Sage 1998.

- Sun, R., Slusarz, P., & Terry, C. 2005. The interaction of the explicit and the implicit in skill learning: A dual-process approach. *Psychological Review*, 112(2), 159-192.
- Swidler, A. 1986. Culture in action - Symbols and strategies. *American Sociological Review*, 51(2), 273-286.
- Vera, D., & Crossan, M. 2003. Organizational learning and knowledge management: Toward an integrative framework. In M. Easterby-Smith, & M. A. Lyles (Eds.), *The Blackwell handbook of organizational learning and knowledge management* (pp.122-141). Malden, MA, Oxford: Blackwell.
- Virues-Ortega, J., Hurtado-Parrado, C., Martin, T. L., & Julio, F. 2012. Psycho-neural identity as the basis for empirical research and theorization in psychology: An interview with Mario A. Bunge, *Science & Education*, 21, 1527–1534.
- von Hippel, E. (1986). Lead users: A source of novel product concepts. *Management Science*, 32, 791-805.
- Vygotsky, L. S. 1962. *Thought and language* (2nd print ed.). Cambridge: MIT Press.
- Vygotsky, L. S. (1978). *Mind in society*. Cambridge, MA: Harvard University Press.
- Wegner, D. M., & Pennebaker, J. W. 1993. *Handbook of mental control*. Englewood Cliffs, NJ: Prentice Hall.
- Zajac, E. J. & Bazerman, M. H. (1991). Blind spots in industry and competitor analysis - Implications of interfirm (mis)perceptions for strategic decisions. *Academy of Management Review*, 16, 37-56.

List of previously published Discussion Papers

- # 1 Reihlen, Markus; Smets, Michael; Veit, Andreas (2010) Management Consulting Firms as Institutional Agents: Strategies for Creating and Sustaining Institutional Capital.
- # 2 Reihlen, Markus; Nikolova, Natalia (2010) Knowledge Production in Consulting Teams: A Self-Organization Approach.
- # 3 Reihlen, Markus; Lesner, Monika (2011) Führungssysteme: Eine machtpolitische Analyse.
- # 4 Reihlen, Markus; Werr, Andreas (2012) Towards a Multi-level Approach to Studying Entrepreneurship in Professional Services.
- # 5 Reihlen, Markus; Mone, Mark (2012) Professional Service Firms, Knowledge-based Competition, and the Heterarchical Organization Form.
- # 6 Smets, Michael; Reihlen, Markus (2012) Institutional Entrepreneurship: A Literature Review and Analysis of the Maturing Consulting Field.
- # 7 Klimkeit, Dirk (2012) Organizational Context and Collaboration on International Projects: The Case of a Professional Service Firm.
- # 8 Klimkeit, Dirk (2012) Global Integration and Management of Professional Service Firms: A Review of the Literature and Suggestions for Future Research.
- # 9 Reihlen, Markus; Wenzlaff, Ferdinand (2013) Institutional Change of the German Higher Education System: From Professional Dominance to Managed Education.
- # 10 Reihlen, Markus; Ringberg, Torsten (2013) Uncertainty, Pluralism, and the Knowledge-based Theory of the Firm: From J-C Spender's Contribution to a Socio-Cognitive Approach.