



Ricardo Chiva and
Joaquín Alegre
Jaume I Universitat, Castellón, Spain

Organizational Learning and Organizational Knowledge Towards the Integration of Two Approaches

Abstract *Organizational learning and organizational knowledge have seen important growth in both the academic and business worlds. However, both approaches face various problems, the most striking of which is their theoretical confusion and diversity. This is due to the great number of authors and publications on the theoretical concepts, which originate in different fields, and are dealt with from different perspectives. Despite their implicit links, the two areas of literature retain a relative distance. This article sets out to improve the situation by linking the two perspectives with the aim of providing an integrative approach. Furthermore, the analysis outlines some common unresolved issues in these debates: the epistemological and ontological principles that underpin our understanding of learning, knowledge, and the relationship between them, as well as the relationship between individual and organizational learning and knowing. **Key Words:** knowledge; learning; organizational knowledge; organizational knowledge perspectives; organizational learning; organizational learning perspectives*

The concept of organizational learning has experienced important growth over recent years, in both the academic and business worlds. Among the reasons behind this growth (Dodgson, 1993; Easterby-Smith et al., 1998), the new characteristics of the business world, together with the extensive analytical value of organizational learning in contributing to the improvement of the understanding of organizations and their activities, are both of great significance. However, organizational learning is currently facing a series of problems such as theoretical confusion and disorder (Easterby-Smith and Araujo, 1999), probably because it is a natural part of the maturation process in a dynamic intellectual field (Antal et al., 2001). Consequently, as these authors state (p. 191), it is symptomatic of the dynamics of the field that the one element on which there is no agreement is the definition of organizational learning itself.

Similarly, studies on organizational knowledge have taken on greater importance in management literature. Teece (1998: 76) considers knowledge and intangible assets to be key factors in achieving competitive advantages in developed countries, which is due to the rapid expansion of the product and factors markets. Brown and Duguid (1998: 90) however, go as far as to say that it is knowledge, and not transactional costs, that keeps an organization together, which implies that organizational knowledge provides the organization with a synergetic advantage impossible to achieve in the market.

Spender and Grant (1996) consider that interest in knowledge first arose as a result of Simon's (1947) criticism of rational economics, which together with work by Penrose (1959), Arrow (1962), Hayek (1945), Nelson and Winter (1982) and Polanyi (1966), formed the beginning of this line of theory. In contrast, Easterby-Smith et al. (2000) consider that the significance of knowledge has become apparent relatively recently, while the term organizational learning has been circulating for decades.

The line of theory on knowledge and the organization also shows a certain disorder, due to the many approaches and classifications (knowledge-based view, knowledge management, organizational knowledge, theory of organizational knowledge creation, etc.) associated with a plethora of sometimes contradictory perspectives and typologies on organizational knowledge (Brown and Duguid, 2001).

In spite of their implicit and logical relationship, and the fact that some authors have mentioned the importance of their being linked (Bertels and Savage, 1998; Spender, 1996c), the development of ideas on organizational knowledge and organizational learning has generally taken independent paths due to the different languages used (Easterby-Smith et al., 2000). Organizational knowledge management is chiefly studied by technologists and academics in the field of strategic management, and makes use of economic language, whereas organizational learning is dominated by academics from within the area of human resources.

Few studies simultaneously use both concepts (Andrews and Delahaye, 2000; Bierly et al., 2000; Gherardi and Nicolini, 2000; Huber, 1991), and there is also a scarcity of publications that in one way or another set out to link both lines of thought (Magalhaes, 1998; Sanchez and Heene, 1997; Spender, 1996c). This leads to a greater degree of theoretical disorder and confusion around the two concepts.

With the exception of work by Spender (1996c) and Magalhaes (1998), we are unaware of any other studies that have connected the ideas on organizational learning and organizational knowledge, starting from their theoretical perspectives. Our article links both lines of study, organizational learning and organizational knowledge, with the aim of providing an integrative approach.

First, we analyse organizational learning and organizational knowledge fields, through their respective perspectives or approaches, which share some common principles and challenges in the way learning and knowledge in organizations are being conceptualized and studied. This analysis takes into account the literature on individual learning and knowledge, which is then related to the organizational literature. We then present the integrative approach and outline the ontological and epistemological principles that underpin our understanding of organizational learning and organizational knowledge and the relationship between them. Finally,

we outline some directions for future research and the implications of our research.

Similarities and Differences in Organizational Learning and Organizational Knowledge Perspectives

This section illustrates the context and traditions in which perspectives in organizational learning and organizational knowledge are embedded. The literature on these perspectives has taken independent paths due to their different theoretical origins, academic areas involved, and languages used (Easterby-Smith et al., 2000). Organizational learning literature has mainly been studied by academics within the area of human resources, who drew on the psychological approaches to learning, although a new perspective based on other more social fields emerged later.

The literature of organizational learning has chiefly taken on two perspectives (Cook and Yanow, 1996; Easterby-Smith and Araujo, 1999; Easterby-Smith et al., 1998; Gherardi, 1999): one cognitive (Cyert and March, 1963; Levitt and March, 1988; March and Olsen, 1975; Simon, 1991), based on psychology and individual learning, with leanings tending towards rationalist; and the second, a social perspective, (Blackler, 1993; Brown and Duguid, 1991; Cook and Yanow, 1996; Gherardi et al., 1998; Lave and Wenger, 1991; Weick and Roberts, 1993; Weick and Westley, 1996), based on sociology and social learning with more relational leanings. According to Easterby-Smith and Araujo (1999: 7), there is a tendency towards the strengthening of the social perspective in organizational learning. Few researchers have addressed the 'psychosocial' view of learning (Antonacopoulou, 1998, 2000a, 2000b, 2001; Kayes, 2002). Essentially, the psychosocial view of learning is best demonstrated in the dynamic relationship between individual and organizational (collective) learning, which reveals the tension and dilemmas presented to individuals as they seek to balance personal (psychological) and organizational (social) priorities.

Organizational knowledge literature was originally based on certain economic sources (Hayek, 1989; Penrose, 1959; Simon, 1947), and was first studied by academics in the field of strategic management and by technologists, who tried to develop IT tools to improve the management of knowledge. Similarly, new more socially based approaches have emerged.

Taking Spender (1996a), as our starting point, we understand there to be four approaches to organizational knowledge. Nevertheless, three of them (Grant, 1996; Nelson and Winter, 1982; Nonaka, 1994) take the same idea of knowledge as perceptive and as a commodity, emphasizing knowledge as something people possess. The last approach, put forward by Spender (1996a), understands that organizational knowledge is socially constructed, and thus particular emphasis is placed on the process.

Therefore, there are apparently important connections between the approaches of both strands of literature, which allow us to determine two main integrative perspectives: cognitive-possession and social-process. The analysis developed in this section outlines some common unresolved issues in these debates: the epistemological and ontological principles that underpin our understanding of learning,

knowledge, and the relationship between them, as well as the relationship between individual and organizational learning and knowing. Concerning the ontological problem of organizational learning, Antal et al. (2001: 921) state:

The very definition of organizational learning is subject to controversy and flux. The discussion involved is no sterile academic debate but rather the logical consequence of the active participation by scholars from an increasing number of disciplinary and cultural backgrounds, and it is a testimony to the deepening understanding about the complexity of the topic. The inability to come to a consensus may also be a result of a heightened sensitivity to the importance of language.

The Cognitive-Possession Perspective

In this perspective, both literatures share a similar notion that implies the detachment of learning and knowledge, presuming that each can be treated independently (Spender, 1996c). Organizational knowledge is a key component of organizational learning, which is considered as a process specifically concerned with the growth of and changes in knowledge (Duncan and Weiss, 1979). An organization learns if any of its units acquires knowledge (Huber, 1991). Some recent papers on both concepts, Andrews and Delahaye (2000), Bierly et al. (2000) and Thomas et al. (2001), are based on this perspective. This detachment could explain why the literature has so far taken separate directions.

Organizational Learning

When it comes to studying organizational learning, most authors have looked at how individuals in organizations learn, or have analysed how individual learning theories could be applied to organizational learning.

Individual learning theories could be divided into three groups (Merriam and Caffarella, 1991: 138): behaviourist (Thorndike, Pavlov, Skinner, Guthrie); cognitivist (Köhler, Piaget); and humanist (Maslow, Rogers). All of them focus on the individual as self-directed and individually autonomous.

The cognitive perspective of organizational learning takes on two approaches (Cook and Yanow, 1996): the first focuses on individual learning as a model for organizational action, or what amounts to the same, on learning in organizations based on human learning processes (Cyert and March, 1963; Daft and Weick, 1984; Hedberg, 1981; Levitt and March, 1988; Weick, 1991). This approach assumes that organizations are able to learn, given that they have identical or similar capacities to those of individuals. The second approach understands organizational learning as individual learning in an organizational context (Dodgson, 1993; March and Olsen, 1975; Shrivastava, 1983; Simon, 1991). Through this approach, the theorists consider organizational learning to be a type of individual learning carried out in organizations by key individuals whose learning is linked to possible organizational change. Most authors, however, perceive organizational learning to be somewhat more than the sum of the individual learning of its members, although they do highlight the key role of the individual and his or her learning (Huysman, 1999: 59).

The cognitive perspective supposes organizational learning to be an efficient procedure to process, interpret and respond to both internal and external information of a predominantly explicit nature (Easterby-Smith and Araujo, 1999).

Authors who focus on learning as a cognitive process and extend the principles of individual-cognitive learning to the organizational context have tended to be universalist in the sense that they have tried to identify key learning processes and patterns without reference to the context in which they have been developed (Taylor and Easterby-Smith, 1999).

Sanchez and Heene (1997) suggest that knowledge and organizational learning cannot be adequately understood simply by projecting onto organizations concepts borrowed from studies on individual knowledge and learning. According to Cook and Yanow (1996), a series of problems comes into play when concepts inherent to individuals are transferred to organizations. First, this perspective raises doubts on the ontology of organizations and leads us to ask why they are like human beings. Second, the study of individual learning is in itself complex, which in turn creates problems when organizational learning is studied. Third, the proposition, at times implicit, that organizational learning is similar to that of the individual, has not been justified. Furthermore, Cook and Yanow (1996: 437) raise the question of why this has to be the case, when people and organizations are so different. Even if it were proved that individuals and organizations were ontologically similar or equal, it would still have to be proved that their learning processes were also similar. In fact, some research (Antonacopoulou, 1998, 2001) shows that individual and organizational goals are rarely the same.

Organizational Knowledge

The cognitive-possession perspective embraces the first three approaches to organizational knowledge: those of Grant (1996), Nelson and Winter (1982) and Nonaka (1994), which share the idea of knowledge as perceptive and as a commodity.

The view of knowledge as perceptive and as a commodity has its origins in cognitive science, particularly in cognitive psychology and artificial intelligence. Reality is taken as a fact, and consequently can be disclosed through attentive perception. It has been influenced by system theory, computer science, psychology and neurology, and by authors such as Herbert Simon or Allen Newell.

Followers of this view developed formal models for the cognitive system as though they were dealing with a machine to process information or apply logical reasoning. Knowledge was considered as a collection of representations of the world, made up of a number of objects and events. Knowledge is the result of a systematic analysis of our sensory experience of a knowable external reality. The brain's basic task, or that of any other cognitive system, is to represent this given world as accurately as possible. Knowledge is universal and, consequently, two cognitive systems should come up with the same representation of the same objects or situations. Knowledge is abstract, specific to one task or directed towards the solution of a problem. The world is a given entity, and the objective of a cognitive system is to generate the most accurate representation of this world. From this perspective, learning is therefore the improvement of these representations.

For the followers of this positivist theory, knowledge is capable of being codified and stored and, in the same way, of being transmitted to others. In this approach, emphasis is placed on the possession of knowledge, which is considered as a commodity or located in people's minds. As if it were food or money, this

perspective implies that knowledge exists prior to and independently from the knowing subject, who creates no knowledge in the act of appropriation. The production, circulation and consumption of knowledge are viewed as autonomous activities (Gherardi, 2000).

Based on the ideas of Kogut and Zander (1992), Venzin et al. (1998) consider another epistemology: the connectionist. This approach can be included in the cognitivist-possession approach. It propounds that representations of the environment arise as a result of information processing, in the same way as with cognitive epistemology. However, the process of representing this reality is different in that it believes knowledge to be generated through networks and relationships, and not by individuals. From this perspective, organizations are understood to be networks made up of relationships and managed by communication and, as such, they do not focus on the individual, but rather on his or her relationships. Knowledge, therefore, from this viewpoint, is found in the connections that exist between the expert and the organization.

The first approach of organizational knowledge defines it as individual knowledge shared by all the members of an organization. Management looks to this perspective to provide an ease of integration of knowledge within the organization while simultaneously preventing leaks or defections from the organization. Grant (1996) shares this view when stating that the creation of knowledge is merely individual, thereby affirming that the main aim of a company is the application of knowledge to the production of goods and services, and not the creation or acquisition of knowledge.

Grant (1996) suggests that the company is an institution for the integration of knowledge, and that the key to efficiency and competitive advantage is to efficiently integrate specialized knowledge, with the minimum transfer of knowledge between members. In other words, he believes that it is unnecessary for members of the organization to learn what other members know, but rather that they should simply bring together or integrate their knowledge, otherwise too much time is wasted.

The second approach, put forward by Spender (1996a), refers to an organizational knowledge embedded in the organizational rules and routines, which exert a restriction on the members of the organization. According to this idea, the organization is the entity that creates, maintains and makes use of this knowledge. Grant (1996: 113) criticizes this perspective for personifying the organization, for forgetting its members and because, in his view, it offers few possibilities for company management to influence this aforementioned collective knowledge. Nelson and Winter (1982) are firm advocates of this viewpoint in which the individual is employed as an analogy of the organization.

In contrast to Nelson and Winter (1982), both Hedlund (1994) and Nonaka (1994) focus on the interaction between individual and organizational knowledge, particularly on how individual knowledge contributes to collective knowledge. Such ideas could be considered as the third approach.

Nonaka (1994) proposes a model for the management of the dynamic aspects in the organizational knowledge creative process. His central thesis comes from the idea that organizational knowledge is created through continuous dialogue between tacit and explicit knowledge. He examines the nature of this dialogue by putting forward four patterns of interaction between tacit and explicit knowledge.

With this as a starting point, he states that although organizational knowledge is created by individuals, organizations play a key role in articulating and expanding this knowledge.

Taking Polanyi's (1966) distinction between tacit and explicit knowledge as a base, Nonaka (1994: 15) puts forward the epistemological dimension of the creation of organizational knowledge. The continuous dialogue between both types of knowledge leads to the creation of new ideas and concepts. Although these ideas are formed in individual minds, the interaction between individuals plays a fundamental role in the development of these ideas.

Accordingly, a new dimension to the creation of collective knowledge arises: the ontological dimension (individual, group, organization). This dimension sets out various levels of social interaction in which individually created knowledge is transformed and 'legitimized'.

The Social-Process Perspective

In the social-process perspective, learning is no longer equated with the appropriation or acquisition of pieces of knowledge; instead it is viewed as the development of situated identities based on participation in a community of practice (Lave and Wenger, 1991). Learning is not conceived as a way of knowing the world, but as a way of being in the world (Gherardi, 1999).

Organizational Learning

Gherardi et al. (1998) state that learning is still mainly conceived in cognitive individual terms, although they stress the existence of a large body of work on the social dimensions of learning and of a social constructionist perspective. However, according to Fox (2000), one of the problems which has come out of this opening up of learning theory to social learning is that the latter is not in the least a unified field, not even in its fundamental assumptions. However, we can understand the existence of a socio-cultural learning approach. This view of learning has its origins in the social learning theory of Bandura (1977), who understood that learning can occur through the observation of other people's behaviour and its consequences.

A more radical model, situated learning, has been put forward by Lave and Wenger (1991). Rather than understanding learning as the acquisition of certain forms of knowledge, they place it in social relationships.

The publication of works by Lave and Wenger (1991) and Brown and Duguid (1991) saw the emergence of a new perspective on organizational learning (Huysman, 1999: 70). This perspective can be defined as social, as it is understood that organizational learning arises from social interactions, normally occurring in the workplace. Following on from this, organizational learning focuses on the way that individuals interpret, or make sense of their experiences at work.

This perspective provides an alternative to the dominant cognitive model, which understands the learning individual to be someone who processes information and modifies his or her mental structures. The social perspective implies that individuals are social beings who together construct an understanding of what they have around them, and learn from social interaction within social systems such as organizations (Gherardi et al., 1998: 274–6).

Learning can only be achieved through active participation (Blackler, 1993: 870), not based on the individual but on the social practice of organizational life, which is constantly being modified and, consequently, this perspective is based on change, not on order and regulation (Elkjaer, 1999: 80).

Easterby-Smith and Araujo (1999) believe there to be three viewpoints within this perspective: the idea of learning as a cultural process (Cook and Yanow, 1996; Lave and Wenger, 1991), as social construction (Brown and Duguid, 1991) and as a political process (Coopey, 1994).

According to Weick and Westley (1996: 442), learning is inherent in culture, and those who introduce knowledge into culture and its artefacts seem to be in a good position to obtain inferences on organizational learning. The consequence or intention of learning as a cultural process is assumed to be the change of organizational culture, in turn carried out through cultural instruments. Cook and Yanow (1996: 449) define organizational learning as the acquisition, sustenance or exchange of meanings shared by individuals through cultural artefacts and collective group actions. Dixon (1997: 25) believes that organizational learning involves the joint construction of new collective meanings, through dialogue, equality in participation, tolerance of different viewpoints, shared experiences and first-hand access to data. In these processes, dialogue is of vital importance.

Isaacs (1993) and Schein (1993) reject the idea that organizational learning can exist without dialogue. Although dialogue is often seen as the process through which the gap between individual and organizational learning is bridged, Oswick et al. (2000) demonstrate that it is dialogue which generates individual and organizational learning, creating meaning and understanding.

The view of organizational learning as social construction involves the construction of a common understanding, starting from a social setting, from the physical circumstances and from people's social relationships and backgrounds (Brown and Duguid, 1991: 47). What is learned is intricately connected to the conditions in which the learning takes place. In their opinion, learning involves becoming cultured (p. 48), and acquiring formal, non-explicit knowledge; in other words, acquiring the skills necessary to behave as members of what they refer to as communities of practice.

Lave and Wenger's (1991) situated learning theory has become a significant work and is a specific version of social learning theory (Fox, 2000). The principal element of this approach is the notion of community of practice. According to Wenger (2000), communities of practice are the basic building blocks of a social learning system since they are the social 'containers' of the competencies that make up such a system. These communities are a set of relationships between individuals, an informal aggregate not only defined by its members, but also by the shared way in which individuals act and interpret events, a group of people informally connected by their shared experiences. Wenger and Snyder (2000: 139) define these communities of practice as groups of people informally connected by a shared experience and the passion they hold for a common issue. These authors differentiate these communities from formal groups, project teams, or informal networks given that they do not place such great emphasis on the activity, and in some cases they are temporary. These communities highlight the fact that each practice depends on the social processes by which it is perpetuated. Brown and

Duguid (1991) believe that organizations are communities formed by communities of practice.

Situated learning theory was the basis of community of practice ideas. However, these ideas are now becoming enriched by Foucault's work (Law, 1986), through his view of power; by actor network theory (Callon, 1986; Latour, 1986), on analysing organizational learning process or emphasizing the importance of networks of human and non-human 'actants' (Fox, 2000); and also by activity theory (Vygotsky, 1962, 1978), by giving primacy to the outward-looking, transformational nature of collaborative endeavours (Blackler et al., 2000).

Many authors writing from the cognitive perspective deal with the political process in terms of organizational learning, but as a persistent problem which must be got over and removed if we want learning to take place (Argyris, 1986). From a social perspective, this is utopian, as politics is a characteristic of the social process. If knowledge is socially constructed by individuals and groups, it is inevitable that particular interpretations will be supported by some and rejected by others (Coopey, 1994). Thus the power relations in an organization will play a key role in the interpretation process. The psychosocial view of learning (Antonacopoulou, 1998, 2000a, 2000b, 2001; Kayes, 2002) also demonstrates the political nature of learning by the tensions and dilemmas presented to individuals as they seek to balance personal and organizational priorities. Nevertheless, as Coopey and Burgoyne (2000) observe, politics has not been fully explored in the literature on organizational learning.

Organizational Knowledge

Within the social-process perspective, we include Spender's (1996a) approach: knowledge as the basis for a dynamic theory in the company. This approach understands knowledge as socially constructed.

According to certain authors (Durand et al., 1996; Von Krogh, 1998) there are essentially two approaches to knowledge: the perceptive or cognitive approach, and the constructionist or social approach. Other authors (Blackler, 1995; Cook and Brown, 1999; Gherardi, 2000; Gherardi and Nicolini, 2000; Spender, 1996c) state that there are two approaches to the nature of knowledge: one that emphasizes knowledge as something people have or possess, and a second that emphasizes knowledge as something people create, in other words as a process. Both the cognitive and knowledge as a possession approach, and the constructionist and knowledge as a process approach, are related. We will therefore consider only two of these: the cognitive-possession and the social-process (Table 1).

The perspective of knowledge as socially constructed and as a process includes the socio-cognitive approaches put forward by Daft and Weick (1984) and Smircich and Stubbart (1985), social construction theory (Gergen, 1994), and the '*auto-poiesis*' or self-organizing presented by Von Krogh et al. (1994). This perspective of knowledge proposes the idea that reality is socially constructed or conceived and is based on social interaction and discursive behaviour, which give rise to social constructions. These social constructions involve plurality and diversity, and come about through communication. This approach understands knowledge as a constructing or creating act, and not as a representation. Reality is constructed socially.

Table 1 Types of knowledge

Type of knowledge		Characteristics
Cognitive-possession	Individual	Based on cognitive psychology. Knowledge is representations of the world. Reality is objective. Knowledge is universal, abstract, specific to one task or directed towards the solution of a problem. It deals with a close perception of the surroundings. Learning is the improvement of representations. Emphasis is placed on the possession of knowledge (knowledge as a commodity or in individuals' minds).
	Connectionist	The same as cognitive with the exception that the representational process of this reality is different, in that it considers knowledge as arising from networks and not individuals. Knowledge is found in connections.
	Social-process	Knowledge is an act of construction and creation. Reality is socially constructed. Knowledge is neither universal nor abstract (it depends on context). It is based on social interaction and discursive behaviour. Knowledge allows for the definition of a problem, not its solution. Emphasis is placed on the process or development of knowledge (knowing).

According to Spender (1996c), social construction theory is a contemporary form of Durkheim's conscience collective. This is not to say that collectives think, but to stress the social or collective nature of each socialized individual's thinking, learning and remembering processes.

This perspective understands knowledge as a process, and for this reason it is called 'knowing' (Cook and Brown, 1999; Gherardi and Nicolini, 2000). Cook and Brown (1999) use the term 'knowing' to refer to the epistemological dimension of action or practice as opposed to the epistemology of possession. Gherardi and Nicolini (2000) explain that in this approach, followed by different disciplinary backgrounds (social constructionism, activity theory or actor network theory), knowledge has the following characteristics: it is situated in the system of ongoing practices, it is relational and mediated by artefacts, it is dynamic and provisional, it is always rooted in a context of interaction and it is acquired through some form of participation.

Learning is no longer equated with the appropriation or acquisition of a piece of knowledge. If we focus on knowledge as a process (knowing), the supposed distinction between learning and knowledge disappears. In the cognitive-possession perspective, learning was seen as a process and knowledge as the result of that process (Bertels and Savage, 1998: 19).

Maturana and Varela (1980, 1992), Chilean biologists and the main exponents of 'auto-poiesis' theory, suggest that knowledge is the act of creating a world. Knowledge is bound to our senses and previous experiences, and as a consequence, this world is unique to each one of us. The social-process perspective does not therefore define the world as universal. The main thesis of auto-poiesis theory is that the components of a self-organizing system are those which re-create

their own system in an autonomous and closed way, from which the term 'auto-poiesis' arises: from the Greek '*auto*' meaning *self* and '*poiesis*' to *produce* or *make* (Von Krogh et al., 1994). Knowledge depends on context, and is closely linked to observation (it depends on the point of view), and is not abstract, but rather incarnate in the individual. Knowledge allows for the definition of a problem rather than a solution. Thus knowledge is found in the mind and body and in the social system. It depends on the past and on the observer, and is shared through communication.

Other approaches concerning knowledge, such as activity theory (Blackler et al., 2000), Foucault's ideas (Fox, 2000) or actor network theory (Gherardi and Nicolini, 2000) can be included within the social-process perspective because, among other things, they do not follow a positivist epistemology and consider knowledge as a process. Gherardi (2000) understands that they can be grouped under the heading of what she calls 'practice-based theorizing'.

Vygotsky's activity theory (1962) put forward the idea that it is not the human conscience that determines behaviour, but social experiences that determine the individual's conscience, and that psychological processes can only be understood from a cultural basis. The analysis of activity systems involves the identification of material, social and linguistic infrastructures that make knowledge possible. The main argument was that socially embedded activity preceded the development of an individual's consciousness (Spender, 1996c). According to this author, the Vygotskian model focuses on the flow of knowledge and consciousness from the explicit at the social level to the implicit at the individual level.

Activity theory holds that knowledge is constantly evolving and that in this evolution, language plays a key role. Instead of studying knowledge as something people or organizations are supposed to possess, activity theory studies knowledge as something people or organizations create. In order to do this, the dynamic of the systems through which knowledge takes place is analysed (Blackler, 1995: 1039). Knowledge is a phenomenon that: (1) is manifested in systems of language, technology, collaboration and control; (2) is found in time and space in specific, particular contexts (according to Engeström, 1993, the correct unit of analysis is neither the individual nor the organization, but the system of activity); (3) it is constantly being built and developed; and (4) it has a purpose or it is directed towards an objective.

According to Fox (2000), Foucault's ideas consider knowledge as indissociable from power (as with learning and working for Brown and Duguid, 1991). Moreover, it is Foucault's concern with concrete practices that is crucial, because he considers power and knowledge to be aspects of concrete practice. Foucault's idea of power is that it is not the possession of some people who wield it over others, in order to dominate and constrain, but that it is relational and productive (Fox, 2000).

Gherardi (2000) includes Wittgenstein's (1953) notion of a linguistic game under the heading of practice-based theorizing. In her view, language is a social fact, and linguistic terms arise within a social practice of meaning construction. Participation in practice entails taking part in a professional language game, mastering the rules and being able to use them. Language is not only the expression of social learning but also the medium for its creation. For Von Krogh

Table 2 Organizational knowledge perspectives

Type of organizational knowledge
Organizational knowledge: individual knowledge shared between all the members of a company. Grant (1996).
Organizational knowledge: knowledge embedded in rules and routines. Personifies the organization. Nelson and Winter (1982).
Organizational knowledge: individual knowledge brought into a social context. Nonaka (1994) or Hedlund (1994).
Organizational knowledge: implicit and social, beliefs developed by individuals in groups or through inter-personal relationships. Forms the base of a dynamic theory of the company (knowledge is a process). Spender (1996a,b).

and Roos (1996), knowing has the following meaning: languaging, distinction making, caring and shaping the future.

Spender's (1996a) approach to organizational knowledge begins by setting out the meaning of collective knowledge as opposed to individual knowledge. Collective knowledge, implicit and social, is also dealt with by Nonaka and Takeuchi (1995) and Nelson and Winter (1982). The former focus on how individual creativity contributes to the generation of collective knowledge, while the latter examine the learning processes which lead the group as a whole to come up with routines and therefore to learn as though it were a cognitive entity (see Table 2).

In order to go into the reasons for its existence and analyse its success, Spender (1996a) looks at the actor network literature (Callon, 1986; Latour, 1986), taking knowledge itself as dynamic and as contained within actors networks, not only made up of individuals, but also of social entities, cultural artefacts, infrastructures, and so on. Spender (1996a) considers knowledge as a process rather than as a resource. Spender (1996b: 62) differentiates between the knowledge developed by individuals and shared with others, whose chief exponent is Nonaka (1994), and the knowledge that forms a part of the social system.

Likewise, Von Krogh et al. (1994: 60–1) state that organizational knowledge is shared by members of the group or organization and that its creation is based on language and its development. They propose a key concept to understanding the development of organizational knowledge is 'languaging', which refers to the process in which language is not only maintained, but is constantly being developed, based on previous language. These authors argue that organizational knowledge is very dynamic and fragile, and that it develops through a simultaneously open and closed self-referencing process.

In the same perspective, Tsoukas (1996: 22) understands that a firm's knowledge is continually (re)constituted through the activities undertaken within a firm, and hence that knowledge cannot be self-contained.

Similarly, the development of knowledge management has taken two approaches: first, perspectives that emphasize knowledge capture and codification through the introduction of information technology (IT) tools; and second, perspectives that emphasize knowledge creating and sharing through essentially social means (Swan and Scarbrough, 2001), and also through technological innovations such as the internet, intranets and e-mail. These authors stress that

there is a shift in emphasis from the former to the latter. Alvesson and Kärreman (2001) argue that there is a contradiction between knowledge and management, with knowledge being an ambiguous, unspecific and dynamic phenomenon, intrinsically related to meaning, understanding and process, and therefore difficult to manage. Tsoukas and Vladimirou (2001) do not deny that organizational knowledge can be managed. Indeed they observe that, since all organizational work involves drawing on knowledge, then knowledge management must be a time-hallowed activity. Based on all this, some authors (Lueg, 2002; Riedl, 2002) from the IT community consider that IT tools may have a limited applicability to the management of knowledge.

The Integrative Approach

Literature on both organizational learning and organizational knowledge has grown considerably over recent years in academic as well as business worlds. However, these concepts face certain theoretical confusion arising from the ongoing theoretical debate, enhanced by the existence of different perspectives and the independent paths taken by both groups of literature, in spite of their implicit links.

As mentioned earlier, this article addresses two unresolved issues: the epistemological and ontological principles that underpin our understanding of learning, knowledge and the relationship between them; and the relationship between individual and organizational learning and knowing.

In Table 3 we show the links between the perspectives of both lines of study: organizational knowledge and organizational learning. The cognitive perspective of organizational learning connects with the ideas of organizational knowledge as individual knowledge shared among all the members of the organization (Grant, 1996), as knowledge embedded in rules and routines (Nelson and Winter, 1982), and as individual knowledge brought into a social context (Nonaka, 1994). All of them take an idea of knowledge as perceptive and as a commodity.

Table 3 Organizational learning and organizational knowledge perspectives

Learning	Organizational learning	Knowledge	Organizational knowledge
Individual learning	Cognitive	Cognitive-possession	Individual knowledge shared between all the members of a company. Knowledge embedded in rules and routines. Personifies the organization. Individual knowledge generates and contributes to the development of organizational or collective knowledge.
Social learning	Social	Social-process	Implicit and social, beliefs developed by individuals in groups or through interpersonal relationships. Forms the base of a dynamic theory of the company (knowledge is a process).

According to this unified cognitive-possession perspective of organizational learning and organizational knowledge, organizational learning is the efficient procedure for the processing, interpretation and improvement of representations of reality, which is knowledge. This process takes place through the members of the organization, or by supposing that the organization has the same cognitive processes as its members. Knowledge is codified, stored and easily transmitted. When this transmission of knowledge occurs, or it is embedded in rules or routines, or brought into a social context, then organizational knowledge is created. Learning and knowledge are separate, which allows them to be dealt with independently.

This conceptualization of learning and knowledge, and their relationship within organizations, is based on a positivist epistemology. The cognitive perspective of organizational learning is linked to psychological individual learning theories (behaviourist, cognitivist, humanist).

Spender (1996c) presages a paradigm shift away from positivist epistemologies to those which focus directly on the social nature of meaning and practice. The firm itself is conceptualized as a community of practice, with institutional dimensions that give these practices meaning, rather than as a system of tradable resources under the explicit control of senior managers. These epistemologies are termed by Yanow (2000) as 'interpretive', as opposed to 'functionalist', which indicates a focus on collectives and their interaction.

In Table 3 we show that the social perspective of organizational learning is linked to the ideas of knowledge as a basis for a dynamic theory in the company (Spender, 1996a). According to the ideas put forward by Spender (1996a, 1996b) or Blackler (1995), organizational knowledge is socially constructed, and thus particular emphasis is placed on the process, moving closer to the concept of organizational learning. Within this perspective we include the theory of activity proposed by Vygotsky (1962), the actor network theory (Callon, 1986; Latour, 1986), the social constructionist perspective (Gergen, 1994), and the '*auto-poiesis*' approach (Von Krogh and Roos, 1996; Von Krogh et al., 1994). The social-process perspective is based on social activity and discursive behaviour, both of which give rise to social constructions: reality is socially constructed (Berger and Luckmann, 1967).

From the social-process perspective, organizational learning and organizational knowledge are similar (given that the latter is a process, and not a resource), and signify the social construction of beliefs and shared meanings, where social context, cultural artefacts, collective group actions and participation play an essential role. Learning is not understood as a way of knowing the world, but as a way of being in the world (Gherardi, 1999). This unified social-process perspective of organizational learning and organizational knowledge has similar sources and, consequently, languages, which seems to improve the chances of integration of both literatures.

Most of the contemporary organizational learning literature is narrowly positivistic (Spender, 1996c: 63). Gherardi (2000: 212) states that organizational learning is the main catch-phrase of the discourse which states that knowledge resides in the minds of individuals, and that it is appropriated, transmitted and stored by means of mental processes. Magalhaes (1998) linked organizational learning and organizational knowledge, and stated that organizational learning represented the

individual and cognitive viewpoint, while organizational knowledge represented the social and system based viewpoint, and as a result, proposed the idea of 'auto-poiesis' put forward by Maturana and Varela (1980, 1992) to integrate the two approaches. However, our study shows how the cognitive and social perspectives coexist in both lines of theory, although so far the cognitive perspective seems to have dominated the literature, especially that of organizational learning.

On the other hand, the literature on individual knowledge and learning is closely associated with that on organizational learning and organizational knowledge. Our analysis showed that individual and organizational learning and knowledge are closely linked in both perspectives. Concerning organizational learning, individual learning theories (behaviourist, cognitivist, humanist) are associated with the cognitive perspective; and the social learning theories (Bandura, 1977; Lave and Weger, 1991) are related to the social perspective. Concerning organizational knowledge, the view of knowledge as perceptive and as a commodity is associated with the approaches of Grant (1996), Nelson and Winter (1982) and Nonaka (1994); and the view of knowledge as a process is connected to Spender's (1996a) dynamic theory.

As shown in this article, there are two common perspectives in both literatures. However, the hypotheses implied in the first or cognitive-possession perspective and their different sources have made integration more difficult. This integration is easier in the second perspective (social-process) as it has similar sources and establishes assumptions of similarity between both concepts: organizational learning and organizational knowledge. Furthermore, the academic community working in this field is starting to study both concepts (Brown and Duguid, 1991; Cook and Brown, 1999; Cook and Yanow, 1996) or to use both concepts in its studies (Gherardi and Nicolini, 2000). The social-process perspective is increasing in importance, which will facilitate the integration of both literatures.

Gherardi (2000) understands that traditions of research into our social-process perspective can be grouped under the heading of what she calls 'practice-based theorizing'. As Fox (2000) argues, the new emphasis on work and organizational practices provides a focus for many of the emerging approaches to the study of learning and knowing. Consequently, supporting the social-process perspective to facilitate integration implies focusing on working practices, which is very attractive, according to Easterby-Smith et al. (2000), because it offers future operational consequences such as devising new ways of sustaining and fostering learning processes. Future research directions in exploring learning and knowing in relation to working practices (Chiva, 2003) will be determined by the factors emphasized in the social-process perspective, such as participation, power, politics, conflict, collaboration, dialogue or cultural artefacts, that had been avoided or neglected by the empirical works within the cognitive approach. All of these play an essential role in the social construction of beliefs and shared meanings, which imply learning and knowing.

The implications of the integrative model set out in this section are: (1) the blending of the different approaches and works that are carried out in both literatures and their integration in the two perspectives; (2) the link between the two perspectives found in both literatures, as they showed common assumptions; and (3) the explanation of the reasons why both literatures took independent paths and why the social-process perspective could help in the blending process.

Conclusion

This article aimed to provide an integrative approach to the research into knowledge and learning in organizational contexts, through their perspectives. Furthermore, our analysis outlined some common unresolved issues in these debates: the epistemological and ontological principles that underpin our understanding of learning, knowing and the relationship between them, and the relationship between individual and organizational learning and knowing.

The analysis carried out illustrates how the lines of theory on organizational learning and organizational knowledge have taken independent but closely connected paths. This is shown by the coexistence of the two perspectives in both literatures. In addition, organizational literature on learning and knowing is closely linked to the individual literature.

The study also explains why both literatures have so far remained separate, by analysing the characteristics of the first or longer established perspective (cognitive-possession): different theoretical sources (psychology and economy), different academic areas involved (human resources and strategic management), different languages used, and its common theoretical assumptions that underline that organizational learning and organizational knowledge are separate concepts. This perspective understands that each concept can be treated independently: organizational knowledge is a key component of organizational learning, considered as a process specifically concerned with the growth of and changes in knowledge.

However, the more recent social-process perspective seems to have similar sources, a similar academic community, and a common theoretical assumption that understands organizational learning and organizational knowledge as similar concepts. A paradigm shift away from the first perspective to the second would facilitate integration.

This theoretical article opens up the field of organizational analysis to more fully embrace the debates in organizational learning and organizational knowledge by integrating and clarifying the common and distinctive perspectives, which clarifies and links the concepts and sources of organizational learning and organizational knowledge.

The integrative model presented here should encourage future studies to take into account both connected theoretical frameworks, with the aim of avoiding the confusion we have attempted to emend through this theoretical study.

References

- Alvesson, M. and Kärreman, D. (2001) 'Odd Couple: Making Sense of the Curious Concept of Knowledge Management', *Journal of Management Studies* 38(7): 995–1018.
- Andrews, K. M. and Delahaye, B. L. (2000) 'Influences on Knowledge Processes in Organizational Learning: The Psychological Filter', *Journal of Management Studies* 37(6): 797–810.
- Antal, A. B., Dierkes, M., Child, J. and Nonaka, I. (2001) 'Organizational Learning and Knowledge: Reflections on the Dynamics of the Field and Challenges for the Future', in M. Dierkes, B. A. Ariane, J. Child and I. Nonaka (eds) *Handbook of Organizational Learning and Knowledge*. New York: Oxford University Press.

- Antonacopoulou, E. P. (1998) 'Developing Learning Managers within Learning Organizations', in M. Easterby-Smith, L. Araujo and J. Burgoyne (eds) *Organizational Learning: Developments in Theory and Practice*. London: Sage.
- Antonacopoulou, E. P. (2000a) 'Employee Development through Self-development in Three Retail Banks', *Personnel Review* 29(4: Special Issue on New Employee Development: Successful Innovations or Token Gestures?): 491–508.
- Antonacopoulou, E. P. (2000b) 'Reconciling Individual and Organisation Development: Issues in the Retail Banking Sector', in H. Rainbird (ed.) *Training in the Workplace*, pp. 39–57. Basingstoke: Macmillan.
- Antonacopoulou, E. P. (2001) 'The Paradoxical Nature of the Relationship between Training and Learning', *Journal of Management Studies* 38(3): 327–50.
- Argyris, C. (1986) 'Reinforcing Organizational Defensive Routines: An Unintended Human Resources Activity', *Human Resource Management* 25(4): 541–55.
- Arrow, K. (1962) 'The Economic Implications of Learning by Doing', *Review of Economic Studies* 29: 155–73.
- Bandura, A. (1977) *Social Learning Theory*. Englewood Cliffs, NJ: Prentice Hall.
- Berger, P. L. and Luckmann, T. (1967) *The Social Construction of Reality*. London: Penguin.
- Bertels, T. and Savage, C. M. (1998) 'Tough Questions on Knowledge Management', in G. Von Krogh, J. Roos and D. Kleine (eds) *Knowing Firms. Understanding, Managing and Measuring Knowledge*, pp. 7–25. London: Sage Publications.
- Bierly, P. E., Kessler, E. H. and Christensen, E. W. (2000) 'Organizational Learning, Knowledge and Wisdom', *Journal of Organizational Change Management* 13(6): 595–618.
- Blackler, F. (1993). 'Knowledge and the Theory of Organizations—Organizations as Activity Systems and the Reframing of Management', *Journal of Management Studies* 30(6): 863–84.
- Blackler, F. (1995) 'Knowledge, Knowledge Work and Organizations: An Overview and Interpretation', *Organization Studies* 16(6): 1021–46.
- Blackler, F., Crump, N. and McDonald, S. (2000) 'Organizing Processes in Complex Activity Networks', *Organization* 7(2): 277–300.
- Brown, J. S. and Duguid, P. (1991) 'Organizational Learning and Communities-of-Practice: Toward a Unified View of Working, Learning, and Innovation', *Organization Science* 2(1): 40–57.
- Brown, J. S. and Duguid, P. (1998) 'Organizing Knowledge', *California Management Review* 40(3): 90–111.
- Brown, J. S. and Duguid, P. (2001) 'Knowledge and Organization: A Social-practice Perspective', *Organization Science* 12(2): 198–213.
- Callon, M. (1986) 'Some Elements of a Sociology of Translation: Domestication of the Scallops and the Fishermen of St Brieuc Bay', in J. Law (ed.) *Power, Action and Belief: A New Sociology of Knowledge*. London: Routledge and Kegan Paul.
- Chiva, R. (2003) 'The Facilitating Factors for Organizational Learning: Bringing Ideas from Complex Adaptive Systems', *Knowledge and Process Management* 10(2): 99–114.
- Cook, S. and Brown, J. S. (1999) 'Bridging Epistemologies: The Generative Dance between Organizational Knowledge and Organizational Knowing', *Organization Science* 10(4): 381–400.
- Cook, S. and Yanow, D. (1996) 'Culture and Organizational Learning', in M. Cohen and L. Sproull (eds) *Organizational Learning*, pp. 430–59. Thousand Oaks, CA: Sage Publications.
- Coopey, J. (1994) 'Power, Politics and Ideology', in J. Burgoyne, M. Pedler and T. Boydell (eds) *Towards the Learning Company*, pp. 42–51. London: McGraw-Hill Book Company.
- Coopey, J. and Burgoyne, J. (2000) 'Politics and Organizational Learning', *Journal of Management Studies* 37(6): 869–85.
- Daft, R. L. and Weick, K. E. (1984) 'Toward a Model of Organizations as Interpretation Systems', *Academy of Management Review* 9(2): 284–95.

- Dixon, N. (1997) 'The Hallways of Learning', *Organizational Dynamics* 25(4): 23–34.
- Dodgson, M. (1993) 'Organizational Learning: Review of Some Literatures', *Organization Science* 14: 375–94.
- Duncan, R. B. and Weiss, A. (1979) 'Organizational Investigations: Implications for Organizational Design', in B. Staw (ed.) *Research in Organizational Behavior*, pp. 75–123. Greenwich, CT: JAI Press.
- Durand, T., Mounoud, E. and Ramanantsoa, B. (1996) 'Uncovering Strategic Assumptions: Understanding Managers' Ability to Build Representations', *European Management Journal* 14(4): 389–97.
- Easterby-Smith, M. and Araujo, L. (1999) 'Organizational Learning: Current Debates and Opportunities', in M. Easterby-Smith, J. Burgoyne and L. Araujo (eds) *Organizational Learning and the Learning Organization*, pp. 1–21. London: Sage Publications.
- Easterby-Smith M., Crossan, M. and Nicolini, D. (2000) 'Organizational Learning: Debates Past, Present and Future', *Journal of Management Studies* 37(6): 783–96.
- Easterby-Smith, M., Snell, R. and Gherardi, S. (1998) 'Organizational Learning: Diverging Communities of Practice?', *Management Learning* 29: 259–72.
- Elkjaer, B. (1999) 'In Search of a Social Learning Theory', in M. Easterby-Smith, J. Burgoyne, J. and L. Araujo (eds) *Organizational Learning and the Learning Organization*, pp. 75–91. London: Sage Publications.
- Engeström, Y. (1993) 'Work as a Testbed of Activity Theory', in S. Chaiklin and J. Lave (eds) *Understanding Practice: Perspectives on Activity and Context*, pp. 65–103. Cambridge: Cambridge University Press.
- Fox, S. (2000) 'Communities of Practice, Foucault and Actor-Network Theory', *Journal of Management Studies* 37(6): 853–67.
- Gergen, K. J. (1994) *Toward Transformation in Social Knowledge*. New York: Sage Publications.
- Gherardi, S. (1999) 'Learning as Problem-driven or Learning in the Face of Mystery?', *Organization Studies* 20(1): 101–24.
- Gherardi, S. (2000) 'Practice-based Theorizing on Learning and Knowing in Organizations', *Organization* 7(2): 211–23.
- Gherardi, S. and Nicolini, D. (2000) 'To Transfer is to Transform: The Circulation of Safety Knowledge', *Organization* 7(2): 329–48.
- Gherardi, S., Nicolini, D. and Odella, F. (1998) 'Toward a Social Understanding of How People Learn in Organizations', *Management Learning* 29(3): 273–97.
- Grant, R. M. (1996) 'Toward a Knowledge-based Theory of the Firm', *Strategic Management Journal* 17: 109–22.
- Hayek, F. A. (1945) 'The Use of Knowledge in Society', *American Economic Review* 35(4): 519–30.
- Hayek, F. A. (1989) 'The Pretense of Knowledge', *American Economic Review* 79: 3–7.
- Hedlund, G. (1994) 'A Model of Knowledge Management and the N-form Corporation', *Strategic Management Journal* 15: 73–90.
- Huber, G. (1991) 'Organizational Learning: The Contributing Processes and the Literature', *Organization Science* 2(1): 88–115.
- Huysman, M. (1999) 'Balancing Biases: A Critical Review of the Literature on Organizational Learning', in M. Easterby-Smith, J. Burgoyne and L. Araujo (eds) *Organizational Learning and the Learning Organization*, pp. 59–74. London: Sage Publications.
- Kayes, D. C. (2002) 'Experiential Learning and Its Critics: Preserving the Role of Experience in Management Learning and Education', *Academy of Management Learning and Education* 1(2): 137–49.
- Latour, B. (1986) 'The Power of Association', in J. Law (ed.) *Power, Action and Belief: A New Sociology of Knowledge*. London: Routledge and Kegan Paul.
- Lave, J. and Wenger, E. (1991). *Situated Learning: Legitimate Peripheral Participation*. New York: Cambridge University Press.

- Law, J. (1986) 'Editor's Introduction: Power/Knowledge and the Dissolution of the Sociology of Knowledge', in J. Law (ed.) *Power, Action and Belief: A New Sociology of Knowledge*. London: Routledge and Kegan Paul.
- Levitt, B. and March, J. G. (1988) 'Organizational Learning', *Annual Review of Sociology* 14: 319–40.
- Lueg, C. (2002) 'Knowledge Management and Information Technology: Relationship and Perspectives', *Upgrade* 3(1): 4–7.
- Magalhaes, R. (1998) 'Organizational Knowledge and Learning', in G. Von Krogh, J. Roos and D. Kleine (eds) *Knowing Firms. Understanding, Managing and Measuring Knowledge*, pp. 87–122. London: Sage Publications.
- March, J. and Olsen, J. (1975) 'The Uncertainty of the Past: Organizational Learning under Ambiguity', *European Journal of Political Research* 3: 147–71.
- Maturana, H. and Varela, F. (1980) *Autopoiesis and Cognition: The Realization of the Living*. London: Reidl.
- Maturana, H. and Varela, F. (1992) *The Tree of Knowledge*. Boston: Shambhala.
- Merriam, S. and Caffarella, R. (1991) *Learning in Adulthood. A Comprehensive Guide*. San Francisco: Jossey-Bass.
- Nelson, R. R. and Winter, S. G. (1982) *An Evolutionary Theory of Economic Change*. Cambridge, MA: Harvard University Press.
- Nonaka, I. (1994) 'A Dynamic Theory of Organizational Knowledge Creation', *Organization Science* 5: 14–37.
- Nonaka, I. and Takeuchi, H. (1995) *The Knowledge-creating Company*. Oxford: Oxford University Press.
- Oswick, C., Anthony, P., Keenoy, T. and Mangham, I. L. (2000) 'A Dialogic Analysis of Organizational Learning', *Journal of Management Studies* 37(6): 887–901.
- Penrose, E. T. (1959) *The Theory of the Growth of the Firm*. New York: John Wiley.
- Polanyi, M. (1966) *The Tacit Dimension*. London: Routledge and Kegan Paul.
- Riedl, R. (2002) 'Some Critical Remarks in Favour of IT-based Knowledge Management', *Upgrade* 3(1): 45–50.
- Sanchez, R. and Heene, A. (1997) 'A Competence Perspective on Strategic Learning and Knowledge Management', in R. Sanchez and A. Heene (eds) *Strategic Learning and Knowledge Management*, pp. 3–18. Chichester: John Wiley & Sons Ltd.
- Schein, E. H. (1993) 'On Dialogue, Culture, and Organizational Learning', *Organizational Dynamics* 22(2): 40–51.
- Shrivastava, P. (1983) 'A Typology of Organizational Learning Systems', *Journal of Management Studies* 20: 7–28.
- Simon, H. A. (1947) *Administrative Behaviour*. New York: Macmillan.
- Simon, H. A. (1991) 'Bounded Rationality and Organizational Learning', *Organization Science* 2(1): 125–34.
- Smircich, L. and Stubbart, C. (1985) 'Strategic Management in an Enacted World', *Academy of Management Review* 10(4): 724–36.
- Spender, J. C. (1996a) 'Making Knowledge the Basis of a Dynamic Theory of the Firm', *Strategic Management Journal* 17: 45–62.
- Spender, J. C. (1996b) 'Competitive Advantage from Tacit Knowledge? Unpacking the Concept and Its Strategic Implications', in B. Moingeon and A. Edmondson (eds) *Organizational Learning Competitive Advantage*, pp. 56–73. London: Sage Publications.
- 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. and Grant, R. M. (1996) 'Knowledge and the Firm: Overview', *Strategic Management Journal* 17: 5–9.
- Swan, J. and Scarbrough, H. (2001) 'Knowledge Management: Concepts and Controversies', *Journal of Management Studies* 38(7): 913–22.

- Taylor, S. and Easterby-Smith, M. (1999) 'Culture and Organizational Learning: Toward Pluralism', in M. Easterby-Smith, L. Araujo and J. Burgoyne (eds) *Organizational Learning. 3rd International Conference*, pp. 1039–59. Lancaster: Lancaster University.
- Teece, D. T. (1998) 'Capturing Value from Knowledge Assets: The New Economy, Markets for Know-how, and Intangible Assets', *California Management Review* 40(3): 55–79.
- Thomas, J. B., Sussman, S. W. and Henderson, J. C. (2001) 'Understanding "Strategic Learning": Linking Organizational Learning, Knowledge Management and Sensemaking', *Organization Science* 12(3): 331–45.
- Tsoukas, H. (1996) 'The Firm as a Distributed Knowledge System: A Constructionist Approach', *Strategic Management Journal* 17: 11–25.
- Tsoukas, H. and Vladimirou, E. (2001) 'What Is Organizational Knowledge', *Journal of Management Studies* 38(7): 973–93.
- Von Krogh, G. (1998) 'Care in Knowledge Creation', *California Management Review* 40(3): 133–53.
- Von Krogh, G. and Roos, J. (1996) 'Five Claims on Knowing', *European Management Journal* 14(4): 423–6.
- Von Krogh, G., Roos, J. and Slocum, K. (1994) 'An Essay on Corporate Epistemology', *Strategic Management Journal* 15: 53–71.
- Vygotsky, L. S. (1962) *Thought and Language*. Cambridge, MA: MIT Press.
- Vygotsky, L. S. (1978) *Mind in Society*. Cambridge, MA: Harvard University Press.
- Weick, K. E. (1991) 'The Nontraditional Quality of Organizational Learning', *Organization Science* 2(1): 116–23.
- Weick, K. E. and Roberts, K. H. (1993) 'Collective Mind in Organizations: Heeding Interrelating on Flight Decks', *Administrative Science Quarterly* 38: 330–58.
- Weick, K. E. and Westley, F. (1996) 'Organizational Learning: Affirming an Oxymoron', in S. R. Clegg, C. Hardy and W. R. Nord (eds) *Handbook of Organizational Studies*, pp. 440–58. London, Sage.
- Wenger, E. (2000) 'Communities of Practice and Social Learning Systems', *Organization* 7(2): 225–46.
- Wenger, E. and Snyder, W. M. (2000) 'Communities of Practice: The Organizational Frontier', *Harvard Business Review* (January–February): 139–45.
- Wittgenstein, L. (1953) *Philosophical Investigations*. Oxford: Basil Blackwell.
- Yanow, D. (2000) 'Seeing Organizational Learning: A "Cultural" View', *Organization* 7(2): 247–68.

Contact Addresses

Ricardo Chiva-Gómez is Assistant Professor of Management, Universitat Jaume I, Campus Riu Sec, 12071 Castellón, Spain.

[email: rchiva@emp.uji.es]

Joaquín Alegre is Assistant Professor of Management, Universitat Jaume I, Campus Riu Sec, 12071 Castellón, Spain.

[email: alegrev@emp.uji.es]