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Organizational learning and capabilities : An integrative conceptual framework

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Organizational learning and capabilities: An integrative conceptual framework

ABSTRACT

Organizational learning (Bontis, Crossan and Hulland, 2002) and capabilities (Barney, 1991) have been argued to increase performance. Recently, connections have been established between organizational learning and capabilities. On the one hand, learning has been considered as a capability (Hult and Ketchen, 2001; Goh, 2003; Henri, 2006), leading to the idea of “learning capability”. On the other hand, Winter (2000) introduces the “capability learning” idea to emphasize that capabilities are to be learned or developed. This paper proposes an integrative capability-based learning framework aiming to better understand organizational learning, and shortly discusses its cultural implications and the role of belief.

Keywords: organizational learning, capability, review, conceptual framework

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INTRODUCTION

Organizational learning has been argued to improve performance. For Weick (1991), the traditional definition of learning is indeed linked to a shift in performance. Previous research has showed a positive relationship between the stock of learning at all levels and business performance (Bontis, Crossan and Hulland, 2002), or a positive association between learning organization with firms' financial performance (Ellinger, Ellinger, Yang and Howton, 2002). Learning has also been claimed to have a positive impact on product quality (Levin, 2000). More globally, organizational learning has also been considered as a means to reach the renewal of the overall enterprise (Crossan, Lane and White, 1999). At the same time, organizational capabilities have also been argued to increase performance (Barney, 1991). Schreyögg and Kliesh-Eberl (2007) argue that capabilities are indeed focused on problem-solving and bound to performance. Recently, some connections have been established between organizational learning and capabilities. On the one hand, learning has been considered as a capability (Hult and Ketchen, 2001; Goh, 2003; Henri, 2006), leading to the idea of “learning capability”. On the other hand, Winter (2000) introduces the “capability learning” idea to emphasize that capabilities are to be learned or developed. Aiming to build an integrative capability-based learning framework, this paper is structured as follows. First, a review about organizational learning is proposed. Second, organizational capabilities are reviewed. Third, a renewed conception of learning is developed that considers learning as a development cycle of capabilities. Fourth, a capability-based learning framework is built. Fifth, a cultural lens on the framework is proposed and explained. Finally, some research avenues are discussed.

ORGANIZATIONAL LEARNING

Despite the growing popularity of organizational learning (OL), the concept remains complex and fuzzy for researchers as well as managers. Since the seminal work of Argyris and Schön (1978), Bontis, Crossan and Hulland (2002) have found 21 different definitions of organizational learning. Moreover, Friedman, Lipshitz and Popper (2005) argue that a mystification about organizational learning has progressively emerged in the literature. According to Wang and Ahmed (2003), organizational learning tends to cover several management fields of research. In this context, different typologies of learning have been proposed as well as four main distinctions related to the learning idea in organization theory. The next lines describe these in more details.

Due to its complexity, several typologies of organizational learning have been suggested (Miller, 1996; Lähteenmäki, Toivonen and Mattila, 2001; Örtenblad, 2002; Shipton, 2006). Among these typologies, two dimensions seem to have received more attention. The first dimension is the level of analysis, which is the individual or organizational level (Lähteenmäki, Toivonen and Mattila, 2001, Shipton 2006). Learning at the individual level does not necessarily imply learning at the organizational level, and vice-versa. Several authors have tried to establish relationships between the two levels (Kim, 1993; Crossan, Lane and White, 1999; Huysman, 2000). The second dimension makes a distinction between a (set of) descriptive process(es) and a normative context of learning (Lähteenmäki, Toivonen and Mattila, 2001; Shipton 2006). Learning as a process has developed a descriptive stream – without much attention to its outcome – leading to the organizational learning (OL) literature, whereas learning as a context refers to a normative approach – linking learning to improvement – leading to the learning organization (LO) literature (Huysman, 2000; Sun and Scott 2003). The OL-LO debate appeared since the mid-1990s and

reflects also some broader academic-pragmatic debate in management research. Huysman (2000) provides a framework to analyze learning processes as ways to foster learning organizations. In summary, recent literature has come to increasingly view learning as involving both individual and organizational levels of analysis, as well as linked to both a learning process and an organizational context.

At the same time, organizational learning has also developed four common distinctions: (1) single-loop and double-loop learning, (2) exploration and exploitation, (3) cognition and action, (4) learning stocks and learning flows. Each of these distinctions has emerged historically in the literature with different authors and at different periods. First, the pioneering work of Argyris and Schön (1978) is commonly quoted in most OL literature. According to these authors, the learning process can be broadly defined as single-loop and double-loop learning. Single-loop learning is limited to changes to reach the current norms and assumptions of the organization, whereas double-loop learning questions and changes these norms and assumptions. Single-loop and double-loop learning have also been called first-order and second-order learning (Arthur and Aiman-Smith, 2001). Second, March (1991) explores further organizational learning and distinguishes the exploitation of 'old certainties' (routines) from the exploration of new possibilities. He emphasizes complications in allocating resources between the two. He argues that adaptive processes, by refining exploitation more rapidly than exploration, are likely to become effective in the short run but self-destructive in the long run. Third, organizational learning has also been studied through a cognitive lens (Huber 1991) as well as through a behavioral approach (Cyert and March, 1963; Levitt and March, 1988; Weick, 1991). On the one hand, Huber (1991) introduces four cognitive constructs that are related to organizational learning, which are: knowledge acquisition, information distribution, information interpretation,

and organizational memory. Other researchers have established tight connections between organizational learning and knowledge (March, 1991; Huysman, 2000). On the other hand, Cyert and March (1963) suggest that OL is an adaptive process through which firms respond to environmental changes by readjusting their goals, attention rules and search rules. Weick (1991) considers learning as any answer to stimuli. Trying to articulate the two perspectives, Crossan, Lane and White (1999) have established a relation between cognition and action, assuming that the former affects the latter. Their integrative framework also assumes a tension between assimilating new knowledge (exploration) and using what has been learned (exploitation). Fourth, organizational learning has been viewed as a stock or a flow. For Bontis, Crossan and Hulland (2002), the “stock of learning” is a kind of knowledge asset or a specific learning outcome, whereas the “flow of learning” looks more like a knowledge transfer that is proper to a learning process. This stock-flow differentiation refers also to the relationship between organizational memory and organizational learning (Levitt and March, 1988). While organizational learning includes encoding inferences from history into routines that guide behavior, organizational memory is about how organizations encode, store and retrieve the lessons of history despite the turnover of personnel and the passage of time.

Based on these typologies and distinctions, there is a salient need for an articulation or an integrative framework, so as to avoid fragmentation in future research on organizational learning. I argue that one way to reach such an articulation may lie in establishing connections with the idea of organizational capability. As a matter of fact, learning has been recently considered itself as a capability (Hult and Ketchen, 2001; Goh, 2003; Henri, 2006), leading to the idea of “learning capability” (LC). In this line, Lane, Koka and Pathak (2006) suggest that an “absorptive capacity” includes three “learning processes” which are explorative, transformative and exploitative

learning processes. Winter (2000) introduces the “capability learning” idea (CL) to emphasize that capabilities are to be learned or developed. Hence, organizational learning and capabilities seem to have close connections, as this is reflected by the LC-CL ideas. The next part consists thus in a literature review about organizational capabilities.

ORGANIZATIONAL CAPABILITIES

Research on organizational capabilities started during the 1990’s (Cohen and Levinthal, 1990; Prahalad and Hamel, 1990; Leonard-Barton, 1992; Teece et al., 1997). Anchored in the resource-based theory of the firm (Wernerfelt, 1984), the notion of capability has been defined as a “*capacity for a team of resources to perform some task or activity*” (Grant, 1991:115). Amit and Schoemaker (1993:15) suggest that “*capabilities refer to a firm's capacity to deploy resources, usually in combination, using organizational processes, to effect a desired end. They are information-based tangible or intangible processes that are firm-specific and are developed over time through complex interactions among the firm's resources*”. For these authors, the notion of capability involves thus (1) a performance target, (2) a resources’ combination, (3) organizational processes, and (4) a development over time. Hereafter, I develop these four elements in details.

First, organizational capabilities are considered as a major source for the generation and development of sustainable competitive advantage (Barney, 1991). In strategic management literature, capabilities are depicted as critical success factors. Schreyögg and Kliesh-Eberl (2007) argue that capabilities are indeed focused on problem-solving and bound to performance. In line with the resource-based theory of the firm, performance relies on rare and valuable resources (Barney, 1991). More especially, organizational capabilities aim at performance outcomes by focusing on rare and valuable configurations of resources.

Second, organizational capabilities are linked to a combination of resources. Miller (2003) even defines a capability as a bundle of complementary resources. Although the possession of resources is a binary issue, the ownership of a capability is a matter of degree (Winter, 2000). Indeed, a combination of resources can be good enough or not, whereas the ownership of the resources exists or not. Hence, a combination is also a matter of degree. Kogut and Zander (1992) have stressed the importance of combination by introducing the idea of “combinative capability”. Insisting on the combination aspect, Jansen, Van den Bosch and Volberda (2005) have suggested that “coordination capabilities” are an antecedent to absorptive capacity.

Third, organizational capabilities are based upon organizational processes and routines. Haas and Hansen (2005) have suggested that competitive performance depends not on how much firms know but on how they use what they know. By introducing the idea of a “knowledge utilization capability”, they highlight the importance of organizational processes more than resources or assets. Organizational processes encompass also routines, which Nelson and Winter (1982:97) define as an “*abstract way of doing things*” or as the “*skills of an organisation*”. Interestingly, Grant (1991:122) states that “*a capability is, in essence, a routine, or a number of interacting routines. The organization itself is a huge network of routines*”, which emphasizes the importance of usual activities and processes to grasp what a capability is. However, the repeated aspect of routines may also represent a threat to flexibility and innovation. The dark side of routine-based capabilities has been called “competency trap” (Levin and March, 1988) or “core rigidities” (Leonard-Barton, 1992) in the literature. Schreyögg and Kliesch-Eberl (2007) consider it as a capability paradox that has been salient in the learning literature as well. As such, it

reflects a need for a trade-off between exploitation and exploration processes in organizational learning (March, 1991), or a need for a dynamic view of capabilities.

Fourth, organizational capabilities result from a development over time. As for some critical resources that are accumulated rather than acquired (Dierickx and Cool, 1989), organizational capabilities are supported and constrained by path dependencies (Teece, Pisano and Shuen, 1997). This idea has involved research developments in two directions: a quest for stable core-capabilities (or core-competences), and an interest for second-order or dynamic capabilities. The first stream focuses on core-capabilities, which are viewed as combinations of capabilities that lead to a competitive advantage (Prahalad and Hamel, 1990; Leonard-Barton, 1992; Javidan, 1998; Miller, 2003). The second stream focuses on dynamic capabilities, defined either as an ability to reconfigure capabilities (Teece, Pisano and Shuen, 1997; Helfat, 1997; Lavie, 2006; Teece, 2007), or as a set of hyper-adaptive capabilities (Eisenhardt and Martin, 2000), or as supra-routines aiming at develop operating routines (Zollo and Winter, 2002). Analysing the different approaches of capabilities' dynamization, Schreyögg and Kliesch-Eberl (2007) propose an alternative approach to the dynamic aspects of capabilities, which consists in the creation of a separate function called "capability monitoring" that would ensure capabilities' development.

These four characteristics – performance, resources' combination, processes, development – are at the heart of organizational capabilities. Interestingly, Teece, Pisano and Shuen (1997) argue that dynamic capabilities are conceptualised by three dimensions: positions, processes and paths. Except for the performance target that is assumed, these latter dimensions correspond respectively to three characteristics of organizational capabilities that are developed in this paper: resources' combination, processes, and development. Reviewing the empirical literature, a great

diversity of capabilities can be observed, which may lead to some confusion as capabilities can be inferred from many situations. Some authors (Sanchez, 2004; Camison, 2004; Escrig-Tena and Bou-Llusar, 2005) have developed typologies of capabilities, which have classified capabilities according to their level of analysis. Some authors indeed differentiate individual “skills”, group “capabilities” and organizational “competences” (Sanchez and Heene, 2004). However, different authors may use the “capability” or “capacity” term for different levels. For instance, Camison (2004) uses the same “capability” term for the managerial (group) and organizational levels. Foss (1998) rather considers capacities and competences as synonymous when he insists on clustering and interplay of resources. In line with these authors, I consider capabilities, capacities and competences as synonyms at the organizational level. Moreover, an empirical review suggests that organizational capabilities can also be classified according to different sources of inference. More precisely, my analysis suggests three main sources of inference for capabilities: activity, culture and resources. The next lines describe these further.

(1) Activity-based capabilities are basically inferred from management usual activities and functions like marketing, finance, R&D, etc. For instance, Javidan (1998) argues that capabilities are functionally-based, such as marketing capabilities, production capabilities, distribution and logistics capabilities, human resource management capabilities. Dutta, Narasimhan and Rajiv (2005) claim that the market rewards “*high R&D capability*”. Desarbo, Di Benedetto, Song and Sinha (2005) propose a set of “strategic capabilities” including marketing, market linking, information technology, technology management, and management capabilities. Danneels (2008) focuses on marketing and R&D second-order competences. Activity-based capabilities may also come from transversal activities like “project management” (Kale, Krishnan and Singh, 2005).

(2) Culture-based capabilities are inferred from values and cultural dimensions (Hurley and Hult, 1998; Wang and Ahmed, 2003). Leonard-Barton (1992) views a core-capability as based on values and norms, hence some cultural aspects associated with the processes of knowledge creation and control. Hult and Ketchen (2001) suggest that four capabilities contribute to the positional advantage of firms. These capabilities are market orientation, entrepreneurship, innovativeness and organizational learning. Compared with the organizational culture model (Cameron and Quinn, 1999), the “market orientation capability” seems close to the external dimension of organizational culture, while the “innovativeness capability” seems to fit the external-flexibility quadrant of organizational culture. The same observation can be made for “innovative capabilities” developed by recent research (Subramaniam and Youndt 2005, Zaheer and Bell 2005) or “capacity to innovate” (Hurley and Hult, 1998).

(3) Resources-based capabilities are inferred from the ownership, increase or disposal of some resources, and then refer to an ability to attract and obtain or get rid of some resources. Grant (1991) suggests six major categories of resources: financial resources, physical resources, human resources, technological resources, reputation resources, and organizational resources. For each of these types of resources, the literature on capabilities has led to associated resources-based capabilities. For instance, Heugens, van Riel and Van den Bosh (2004) explore the “reputation capabilities” that a firm developed in response to reputational threats. Mayer and Salomon (2006) show the importance of “technological capabilities” on governance modes for transactions. Moliterno and Wiersema (2007) propose “resource divestment capability” to modify a firm’s resource base, including human and financial resources. As for organizational resources, stakeholders’ relationships and knowledge have often been referred to as resources-based capabilities. On the one hand, stakeholder-related capabilities refer to the ability to create,

maintain and develop profitable relationships with stakeholders. For instance, Ethiraj, Kale, Krishnan and Singh (2005) suggest a “client specific capability” that consists in learning from repeated interactions with a given client, and allows reducing project execution costs. Dyer and Hatch (2006) propose “relation-specific capabilities” as they can be barriers to knowledge transfers, hence a source of performance. Recently, Kale and Singh (2007) emphasize the role of alliance learning process to promote “alliance capability” relative to stakeholders. On the other hand, knowledge-based capabilities have a clear focus on the role of knowledge, and more broadly learning. For instance, Kogut and Zander (1992) emphasized “combinative capabilities” that take the role of knowledge and external opportunities into account. McEvily and Marcus (2005) highlight the tacit nature of knowledge that underlies “competitive capabilities”. Smith, Collins and Clark (2005) suggest that the “knowledge creation capability” explains the rate of new product and service introduction. Last but not least, the “absorptive capacity” seems to cover knowledge, learning and innovation (Cohen and Levinthal, 1990). This last capability – although it is called a “capacity” – has been the recent focus of many scholars. For instance, Zahra and George (2002) suggest that the absorptive capacity includes four distinct and complementary capabilities, which are acquisition, assimilation, transformation and exploitation. Jansen, Van den Bosch and Volberda (2005) found two organizational antecedents of absorptive capacity: “coordination capabilities” and “socialization capabilities”. Lane, Koka and Pathak (2006) claim that the absorptive capacity includes three learning processes, which are explorative, transformative and exploitative processes. Todorova and Durisin (2007) revisit the arguments developed by Lane et al. (2006) and suggest a refined conceptual model of absorptive capacity.

This literature review about organizational capabilities suggests that four characteristics are at the heart of organizational capabilities (Amit and Schoemaker 1993): a performance target,

resources' combination, processes and development. Among these elements, the first three ones concern the nature of organizational capabilities while the fourth one is more about their evolution through time. Next to an empirical review of the many types of capabilities, three sources of inference for capabilities have emerged: activity, culture and resources. Crossing these three sources with the four characteristics proper to any capability, a certain similarity can be found between two of them: activity and processes, resources and resources' combination. As for culture, it may be assumed that this source is linked to the two other characteristics of a capability: a development over time and some performance targets. However, there is need to better articulate the sources and characteristics of capabilities. In this regard, an integrative framework may help to better understand how capabilities characteristics and sources interact. Therefore, a dynamic approach of capabilities is necessary that will answer those challenges, leading eventually to a renewed approach of organizational learning.

TOWARDS LEARNING AS A DEVELOPMENT CYCLE OF CAPABILITIES

The literature review on OL and OC has emphasized relationships between learning and capabilities (Hult and Ketchen, 2001; Goh, 2003; Henri, 2006; Lane, Koka and Pathak, 2006; Winter, 2000). In particular, three similarities are worth being mentioned between OL and OC. First, both learning and capabilities can be approached at the individual and organizational levels of analysis. Crossan, Lane and White (1999) see organizational learning as the process of change in thought and action – both individual and shared – embedded in and affected by the institutions of the organization. As there is a need for more research on learning at the organizational level (Lähteenmäki, Toivonen and Mattila, 2001), this paper focuses on the organizational level of analysis, and views learning as the development of capabilities. However, as individual

influences are important to take into account to understand organizational learning, the individual level may not be ignored in any integrative framework.

Second, both learning and capabilities involve activities (learning flows or routines) and resources (learning stocks or assets). In this regard, it may be helpful to analyze how the neo-classical view of economics (Mankiw 1997) articulates resources and the production activity (see Figure 1).

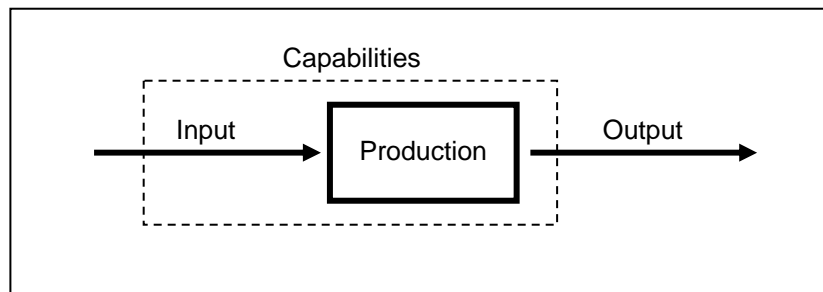


Figure 1: Capabilities in the neo-classical view of production (adapted from Mankiw, 1997:8)

Although organizational capabilities and learning are not the focus of the neo-classical view of economics, it is however interesting to establish a connection with this economic view. Basically, the neo-classical view of production holds that some inputs are transformed in a production “black box” to result in outputs. Inputs are basically what an organization has: capital, labor and raw material. Production is the main activity and outputs are what an organization has achieved as the outcome of the production activity. If a capability was to be added on this scheme (Figure 1), it would certainly cover both input and production activity, as capabilities have sources in both resources and activities. However, this simplified economic view of capabilities would not be satisfying for organization theory and strategic management for at least two reasons. First, capabilities have also a source in organizational culture that is not represented on this scheme,

and is somehow ignored in the neo-classical view of production. Second, capabilities in strategic management go beyond the sole production activity. Notwithstanding its defaults, this comparison with the neo-classical view of production allows to highlight some simplifying assumptions or common shortcuts about capabilities, some of which have been encountered in the literature. A first shortcut is raised on the idea that “*a repeated activity is a capability*”. This shortcut tends to be more frequent for activity-based capabilities, either in their definition (Javidan 1998) or measuring items (Danneels 2008). However, it is not obvious that an activity that is repeated several times is a capability. If that was the case, how many times an activity should be repeated to be considered as a capability? Would they not rather have to be considered as routines instead? A second shortcut comes from the idea that “*a set of complementary resources is a capability*”. Although capabilities may be defined as sets of resources (Miller 2003), such definitions do not insist enough that a capability is also anchored in organizational processes. Therefore, having the necessary means implies having a potential, but does it mean having a capability as long as these means are not put into action? A third shortcut comes from the idea that “*past performance reflects a capability*”, as it may appear in some capability items (Desarbo, Di Benedetto, Song and Sinha, 2005; Subramaniam and Youndt, 2005). However, past outcomes may result from luck or other contextual factors, but not necessarily represent a constant capability.

Based on these two similarities between OL and OC, it seems then useful to propose a renewed view of learning, which will first make a clear conceptual difference between capabilities and other concepts like activities, resources and performance. Therefore, I define organizational learning as a development cycle of capabilities (Kale and Singh, 2007). The following scheme

shows how organizational learning as a development cycle of capabilities involves capabilities through separated resources, activities and outcomes (see Figure 2):

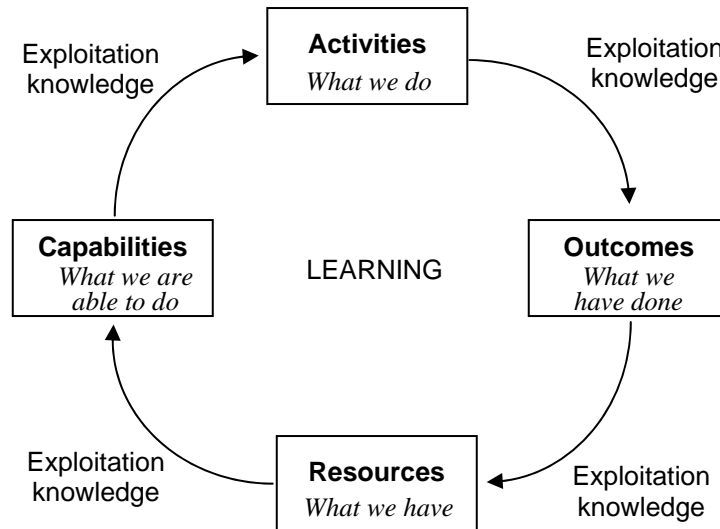


Figure 2: Organizational learning as a development cycle of capabilities

In the above development cycle of capabilities, four elements are to be articulated. Starting with “*what we have*” in an organization, resources allow then to assess “*what we are able to do*”, which means organizational capabilities. When put into action, these capabilities then allow and lead to “*what we do*”. Further on, the organizational activities are expected to help achieve some outcomes, hence “*what we have done*” as an organization. Finally, achieved outcomes may be referred to as resources (e.g. experience) that will support organizational capabilities. Interestingly, capabilities do not have a direct impact on outcomes in Figure 2, as only activities allow reaching outcomes through the “activation” of capabilities. Being oriented along a forward turning wheel, the arrows between these four elements represent each a “flow of learning” (Bontis, Crossan and Hulland, 2002), which represents the transfer of a production knowledge. In that sense, the forward turning arrows represent a development cycle characterized by the

exploitation of old certainties (March, 1991). As for the “learning stocks”, these can be represented by the accumulated number of changes in capabilities. In other words, “learning stocks” can be viewed as the experience that is accumulated along a learning curve. Although it is beyond the scope of this paper, such an accumulation can only be made in “organizational memory”, the location of which depends on whether this is declarative or procedural organizational memory (Moorman and Miner, 1998). In summary, the process of learning (organizational learning) is clearly represented on scheme with the suggested articulation of capabilities and learning. Moreover, the description of this cycle calls for a definition of organizational capabilities as these are assumed to be developed through learning. Therefore, I define organizational capabilities as cognitive combinations of existing resources to be activated into new or existing activities so as to reach some targeted outcomes.

Second, the proposed articulation is focused on the organizational level of analysis, but takes also individual influences into account. Based on the previous definition of learning and capabilities, organizational learning is expected to occur when cognitive combinations of existing resources are reviewed by managers. This may take place especially after some poor outcomes or changes in the existing resources. In particular, capabilities are claimed here to be also at the crossroad of organizational and individual levels. Defined as individual cognitive combinations, capabilities have indeed organizational antecedents and consequences in terms of resources, activities and outcomes. Further, several authors have suggested the influence of individual resources and activities on organizational learning, hence on capabilities. Vera and Crossan (2004) argue that CEO leadership styles (human resource) and leadership practices (managerial activities) have an impact on organizational learning. Lawrence, Mauws, Dick and Kleysen (2005) argue that different forms of power are connected with some specific learning. In this sense, power may be

considered as an individual resource that some members get in a specific organizational structure. Encompassing both the individual and organizational levels of analysis, power may also be considered as a cultural characteristic (Hurley and Hult, 1998), which refers to an organizational context. Much of the same comments apply for incentives as they concern both individuals and organizations in the promotion of certain allocation of resources into specific activities. For instance, Arthur and Aiman-Smith (2001) have argued that gainsharing plans may have an impact on first-order (single-loop) learning as well as on second-order learning (double loop). Thus, previous research suggests that individual resources and activities have an important role in the development of capabilities, hence in organizational learning. In this respect, the suggested definition of organizational learning allows to take individual aspects into account.

In summary, a view of organizational learning has been suggested that separates and articulates resources, activities, capabilities and outcomes. Although this view is focused on the organizational level of analysis, it takes also individual influences into account through capabilities that are defined on a cognitive perspective. However, some characteristics from learning and capabilities remain to be articulated. The next part aims at building a capability-based learning integrative framework

BUILDING A CAPABILITY-BASED LEARNING INTEGRATIVE FRAMEWORK

Based upon the previous arguments and the suggested view of organizational learning, a capability-based learning integrative framework is developed that integrates capabilities' realized and potential aspects as well as the following learning dimensions: exploitation-exploration, cognition-action. First, the exploitation cycle through "flows of learning" has already been represented by four forward turning arrows. This direction is consistent with the neo-classical

view of the production cycle. In that sense, the knowledge transfers between each step are made accordingly to the way activities have been conducted in the past. As for exploration, it is rather represented by four backward turning arrows, going from outcomes to activities, then to capabilities, then to resources. In that case, the “flows of learning” are rather associated with knowledge creation, rather than simply knowledge transfers. For instance, past outcomes may lead to renewed activities, hence the creation of new ways for producing. Going one step further, activities may lead to changes in the capabilities, hence creating new cognitive combinations of resources into activities. In each case, the “flow of learning” leads to the creation of knowledge. Therefore, the backward turning arrows represent exploration (see Figure 3).

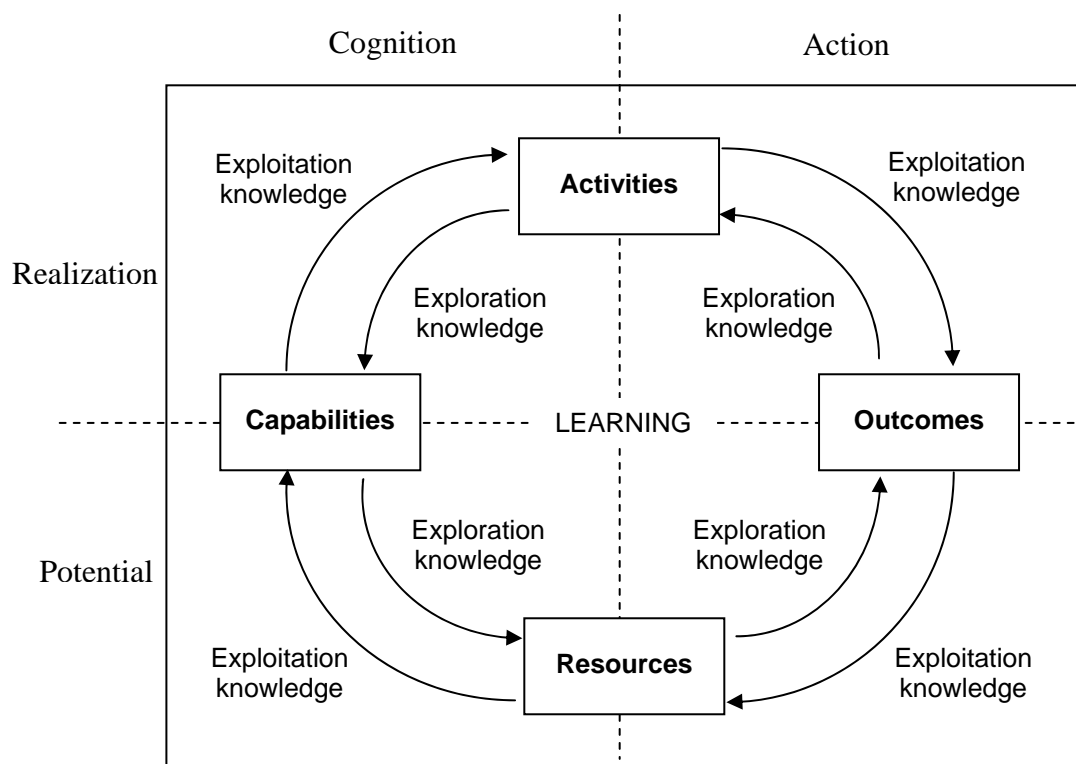


Figure 3: A capability-based learning integrative framework

Second, learning has also been studied through a cognitive lens (cognition) as well as through a behavioral approach (action). Concerning these two dimensions, it is suggested that capabilities

are to be considered from a cognitive perspective. This is also salient with their definitions. As for outcomes, these are suggested to be more action-oriented, as the achievement of outcomes somehow needs action. In between, activities and resources are suggested to be at the interface, relying on both cognition and action. Concerning capabilities, another distinction has been introduced through the notion of potential and realized capabilities (Zahra and George, 2002; Jansen, Van den Bosch and Volberda, 2005). As such, any combination of resources involves a potential capability, while organizational processes imply a realised capability. This distinction is also added on the capability-based learning integrative framework. While activities are linked to dynamic realizations, resources involve a static potential. In between, capabilities and outcomes are at the border and related with both potential and realization dimensions.

This framework allows thus to understand how potential and realized aspects of capabilities can be related, as well as how cognition and action are articulated in the learning process. Further, the exploitation and exploration are presented as learning cycles in opposite direction, possibly happening under different temporalities. However, an important learning dimension has not yet been discussed neither articulated: the single-loop and double-loop learning approaches. The next part is focused on this distinction as well as on the context-process approaches to learning.

VIEWING THE LEARNING FRAMEWORK THROUGH A CULTURAL LENS

Both learning and capabilities imply an overall context that may be influenced by a specific process. On the one hand, a learning organization (learning context) is influenced by and results from organizational learning (learning process) and vice-versa (Huysman, 2000). For instance, double loop learning is expected to change norms and assumptions. On the other hand, organizational culture (cultural context) is influenced by and is the result of capabilities'

evolution (development process) and vice-versa (Leonard-Barton, 1992; Hult and Ketchen, 2001). These reciprocal influences are also important to take into account. In particular, the capability-based learning framework articulates the context (learning organization) and the process of learning (organizational learning) through a cultural lens that is described hereafter.

Since single-loop and double-loop learning have been introduced by Argyris and Schön (1978), they have been intensively referred to in the learning literature. While single loop learning consists of a “*routine, incremental, conservative process that serves to maintain stable relations and sustain existing rules*” (Lant and Mezias, 1992:48), double loop learning is rather “*the search for and exploration of alternative routines, rules, technologies, goals, and purposes*” (Lant and Mezias, 1992:49). In other terms, double loop learning involves changes in current norms and assumptions in an organization, which means organizational culture more broadly. Considering also the culture-based capabilities, organizational culture seems thus to play a central role for organizational capabilities as well as for learning. For instance, organizational learning has been argued to be influenced by organizational culture factors of localness, transformational leadership and openness (Hult, Hurley, Giunipero and Nichols, 2000). Interestingly, a “social constructionist” view of culture (Ravasi and Schultz, 2006) suggests that culture is an embedded system of meanings and understandings, hence a specific context. Based on this view, organizational culture is considered as a context. In this cultural context, I argue that there is double-loop learning as soon as this learning process implies changes in the culture. Otherwise, it is single-loop learning. Crossing exploitation-exploration with double-loop and single-loop learning, it seems that exploitation clearly supports single-loop learning, and that exploration is more likely to lead to cultural changes, hence double loop learning. In this respect, Lant and Mezias (1992) even integrate exploration in their definition of double-loop learning.

Such a distinction between single-loop and double-loop learning needs a cultural lens to be put on the capability-based learning framework. One way to do that is drawing a parallel with a conceptual model of organizational culture. Hatch (1993) develops the dynamics of culture through four cultural elements that are: assumptions, values, artifacts and symbols. Between each of these components, the author introduces specific relationships. Hatch’s cultural model allows giving a meaningful cultural lens to the capability-based learning framework (see Figure 4).

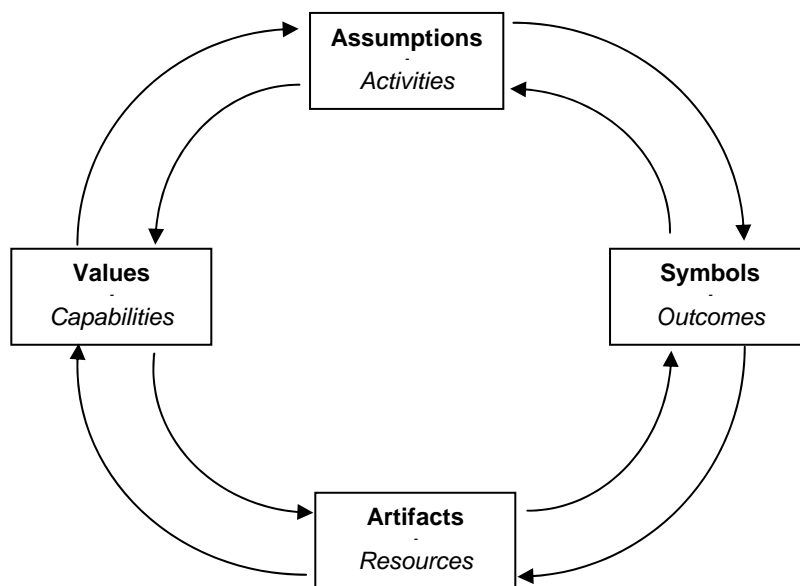


Figure 4: A cultural lens on the capability-based learning framework (inspired from Hatch, 1993:660)

When taking each component from the capability-based learning framework – resources, capabilities, activities, outcomes – and adding a cultural lens, a connection may be made with the cultural components defined by Hatch (1993): artifacts, values, assumptions, and symbols respectively. (1) Concerning capabilities, a cultural lens suggests that these are based on values. This is consistent with previous research that has developed what I called "culture-based capabilities" (Leonard-Barton, 1992). This is also consistent with Glynn (2000) who shows how

the construction of an institution's culture is related to the construction of strategic capabilities and resources. (2) Concerning activities, a cultural lens proposes that these activities embed assumptions. As far as usual activities can be called routines, they integrate indeed assumptions and taken for granted beliefs about reality. In that sense, Nelson and Winter (1982) describe routines as programs, emphasizing the automatist character, as tacit knowing, as organizational memory, highlighting the historical evolution, as a target and as the skills of the organizations. (3) Concerning outcomes, a cultural lens suggests that outcomes may be interpreted as the symbols of an organization. Analysing the underlying dimensions of existing organizational performance criteria, Quinn and Rohrbaugh (1983) find three value-based dimensions on which they built a "competing value framework" for future research on organizational culture. Thus, values exist behind any performance outcomes. As such, outcomes can be considered as symbols of the achieved values. (4) Concerning resources, a cultural lens suggests that some resources may be viewed as artefacts. As artefacts are the visible, tangible and audible results of activity, artefacts are expected to lie among resources, especially physical resources. Sillince (2006) has suggested that resources shape identity and identity shape the meaning of resources. Much the same can be applied to resources and artefacts.

Such a cultural lens of the capability-based learning framework is useful to understand how organizational learning may lead to cultural changes in one of its component. It is only when the exploration and exploitation lead to changes in assumptions, values, artifacts or symbols that double-loop learning really occurs. Of course, resources can change in an organization without introducing new artifacts. Past outcomes may not question cultural values. However, when outcomes question values, learning goes along with culture changes. A next step might be to

understand in more details how interconnections between these two layers of learning – capability-based and cultural – actually work.

CONCLUSION

Although some connections had been established between OL and OC (Winter, 2000; Goh, 2003), an integrative framework was missing in the literature, which would articulate learning dimensions (exploration and exploitation, cognition and action, context and process, single-loop and double-loop) as well as capabilities' components (resources, activities, outcomes) and dimensions (realized and potential capabilities). In this paper, an integrative capability-based learning framework was built and proposes an articulation of these many dimensions. According to Wand and Ahmed (2003), perspectives for OL would be to integrate creativity and radical innovation. The proposed capability-based learning framework may help to this end. Indeed, as far as creativity and radical innovation are declined and decomposed into activities, resources or capabilities, the proposed framework will help to better understand their impact on the learning components, and their cultural influences.

Globally, the suggested capability-based framework helps in understanding how organizational learning works. However, it does not explain why organizations learn and develop their capabilities, or what their catalyser is. In this regard, an answer may be the belief that an organization is able to reach some outcomes by using its resources in certain activities (exploitation), or that an organization will better reach some outcomes by changing its activities and resources (exploration). Therefore, I suggest that there is a need to believe in the continuous changes of capabilities (dynamic capabilities) for organizational learning to happen. To some extent, such a belief could be called itself a “learning capability”. A further question is: where

does the belief in the organizations' ability to learn come from? And one answer may be that it comes from a leader's inspirations that are communicated and shared throughout a whole organization. There would be no surprise to suggest that, if only a leader believes in an organization's ability to learn, an organization will not learn much. So, a collective belief in a capability to learn, possibly introduced as a high value, is probably at the roots of organizational learning. Exploring further such beliefs is certainly complex and promising.

Based upon the capability-based learning framework, learning may come from different places (between each four components) and go in different directions (exploration or exploitation), having a cultural impact or not (single-loop or double-loop learning). Therefore, there is a need to take different temporalities into account. In this regard, empirical analysis will be precious, especially with a longitudinal design. In this line, Simon (1991) suggests the importance of case studies for approaching organizational learning. In particular, it seems particularly interesting for future research to focus on organizations that had previously a poor performance, and to analyse how they have evolved: exploration or exploitation, changes in resources or activities at first, with cultural impact or not, etc. Companies that failed their entry into a new market, organizations that left a R&D project or organizations that failed to get a certification, are just some examples of interesting case studies that are needed.

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