Organizational creativity: breaking equilibrium and order to innovate

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Abstract

Purpose – The aim of this paper is twofold: to propose a new theoretical framework to interpret organizational creativity as a process of situated and distributed cognition in a sense-making perspective; and to identify the system of tools which influences this process.

Design/methodology/approach – The analysis developed in the paper is theoretical, as it is rooted in a rich literature review concerning organizational creativity and in the proposal to enrich these studies by applying a cognitive and a sense-making perspective.

Findings – The paper provides a novel framework as well as new levels of analysis.

Originality/value – Compared with previous contributions, the main theoretical thesis is that a firm’s creativity is achieved only if some of the well-established mediating structures that influence creativity are intentionally broken or renewed. This proposal can provide insights for researchers and managers as well.

Keywords Organizational innovation, Cognition, Modelling

Paper type Conceptual paper

Introduction

The issue of organizational creativity has become increasingly popular in many social sciences fields. Social and cognitive psychologists, sociologists, as well as marketing and management experts are addressing this issue from different perspectives and levels of analysis in an attempt to find specific answers concerning antecedents and moderating factors.

According to Woodman et al. (1993, p. 23), organizational creativity can be interpreted as the creation of a valuable, useful new product, service, idea, procedure, or process by individuals working together in a complex social system.

This definition incorporates the concepts of novelty/originality and usefulness/value which can be considered the most common features ascribed to creativity (for a review of different definitions of creativity see, among others (Amabile, 1996; Mayer, 1999)) and also underlines the importance of applying creativity in practice (see also West, 2001): products, procedures, processes.

According to the position taken in this paper, creativity does not merely represent the capability of developing original ideas, producing intelligent work and making scientific discoveries. For firms, it does not only concern thoughts/ideas, but also action, innovation, and progress (Vicari, 1998). Innovation is a defining feature of organizational creativity. New ideas should be implemented in order to achieve competitive advantage through innovation.

However, organizational creativity does not coincide with innovation since it can also be achieved through incremental changes and is not necessarily attributable to the discovery and adoption of new approaches and rules. It is instead linked to the idea of a more or less
radical structural change in the system, such as the transition from one configuration to another in the competitive strategy (Mintzberg et al., 2001).

Moreover, it can be said that creativity within business organizations cannot be analyzed simply as individual or group creativity that takes place at work (Williams and Yang, 1999). The particular environment represented by the organizational setting influences creativity in different ways. The complex links and relationships among variables involved in an organizational creative process require different approaches depending on the level of the analysis.

It has been asserted (Drazin et al., 1999) that a theoretical model useful for management studies should study creativity from a multi-level perspective (Rousseau, 1985; House et al., 1995; Chan, 1998; Morgeson and Hofmann, 1999), considering at least three levels of analysis:

1. intrasubjective (individual);
2. intersubjective (group); and
3. collective (organization).

This approach, originally proposed by Woodman et al. (1993), allows us to understand how, in the creative process, individuals (in the context of groups and organizations) contribute to the outcome of a creative product through a sensemaking process (Drazin et al., 1999; Levenhagen et al., 1993; Dutton and Penner, 1993; Weick, 1979, 1995)[1].

The contribution of this paper to the multilevel and sensemaking perspectives is to propose a definition of a firm’s creativity based on the notions of capability – or aptitude (Vicari, 1998) – and to adopt a new level of analysis. Therefore, in order to understand the importance of this additional level, an interpretation of the creative process is presented. Compared to the significant work of Drazin et al. (1999), this contribution is original in that it provides a broader understanding of the creative process and, in particular, of the structures which facilitate the sensemaking process by reframing beliefs.

**The state-of-the-art of organizational creativity research**

According to the multi-level analytic perspective, individual creativity is understood as a function of previous conditions (past personal history, biographical variables, etc.), skills and cognitive style (divergent thinking, flow of ideas, etc.), personal elements (self-esteem, control, etc.), relevant knowledge, motivation, social influences (benefits, social rewards, etc.), and contextual influences (physical environment, task and time constraints, etc.).

Individual creativity has been mainly studied by psychologists. Initially, studies on creativity addressed the understanding and description of characteristics and distinctive traits of people thought to be creative (e.g. Barron, 1955; MacKinnon, 1965), and particularly of prominent figures in the arts and sciences (Simonton, 1975), giving rise to the so-called “biographical” research approach. At the same time, the psychodynamic approach (e.g. Kris, 1952; Kubie, 1958), based on the contributions of Freudian psychoanalysis, also provided some important insights on the different role that conscious and encrypted unconscious thoughts have on creative processes.

By focusing on individual creativity, other approaches have emerged in psychological and social disciplines (Sternberg and Lubart, 1999; Mayer, 1999):
- psychometric;
- cognitive;
- social and contextual (including cultural and evolutionary); and
- experimental.

The common trait of these perspectives lies in the idea that novelty (originality) and usefulness (utility and appropriateness) are the distinctive characteristics of creativity, be it the property of a product, a person or a process.
For example, the biographical, psychodynamic, psychometric and a part of the cognitive schools of thought regard creativity as related to the person. Other studies belonging to the cognitive and experimental currents assume that creativity can be understood by analyzing the cognitive process that generates the creative output whereas the social and contextual approaches regard creativity as a context-based activity (Mayer, 1999).

According to the psychometric approach (e.g. Guilford, 1950; Torrance, 1974), creativity should be considered as a mental trait that can be quantified by using appropriate measurement systems. The experimental methodologies (for a review see Runko and Sakamoto (1999)) are based on the same assumption that creative capability can be quantitatively measured and focus on understanding the cognitive processes of people engaged in creative thinking by using artificial environments in which researchers can analyze the cognitive process during a creative thinking task.

The social and contextual schools of thought (see, for example, Amabile, 1996, Csikszentmihalyi, 1999; Lubart, 1999; Lumsden, 1999) are particularly concerned with the role of the social, cultural and evolutionary context since creativity and the creative process are regarded as an event that is more social and cultural than psychological.

Each of these approaches can be useful in understanding individual creativity in the organizational context even though, taken alone, they only provide a partial perspective.

Oldham and Cummings (1996), for instance, considered these contributions in their important study on employee creativity that particularly focused on the independent and joint effects of personal as well as organizational factors (job complexity, supportive supervision, and controlling supervision). They demonstrated that employees produce the most creative work when they had appropriate creativity-relevant characteristics, worked on complex, challenging jobs, and were supervised in a supportive and non-controlling way.

Woodman et al. (1993) proposed an interactionist model of creative behavior which provides an integrated framework that combines almost all the elements involved in explaining creativity from the different theoretical perspectives proposed in the literature: personality (Barron and Harrington, 1981; Singh, 1986), cognition (Barron and Harrington, 1981; Basadur and Finkbeiner, 1985; Gardner, 1993; Johnson-Laird, 1993), and social psychology (Amabile, 1983; Kanter, 1988; Amabile et al., 1990). This framework also provides a model of situated creativity, where contingent aspects condition both the individual and social factors of creativity.

Another important contribution can be found in the works by Amabile which are specifically devoted to creativity in organizations (Amabile, 1996, 1997, 1998; Amabile et al., 1996). Explaining her model of creativity “in context” (Amabile, 1983, 1996), Amabile proposes an interpretative framework for the study of creativity based on individual creativity.

Based on that model, the implicit idea is that creative behavior can be developed only by the individual and that his cognitive and creative skills, and especially his motivations, are more important than norms, routines (Nelson and Winter, 1982; March, 1991) and shared behavior.

The central concept of this theory is the distinction between the opposite roles played by motivation: a negative influence, in the case of extrinsic motivation (external to the individual and which can be manipulated by the job motivation mechanisms that exist in organizations), and a positive influence, in the case of intrinsic motivation (related to the person, stemming from personal and subjective interests) (Amabile, 1996).

The contributions focusing on the analysis of the role played by other social factors have also acknowledged the relevance of the following elements: the environments that offer opportunities, the absence of constraints, the presence of organizational slack (within certain limits) (Nohria and Gulati, 1997; Drazin et al., 1999) and resource availability (Payne, 1990), the presence of rewards (Amabile, 1996; Oldham and Cummings, 1996; Mumford and Gustafson, 1988), the low presence of strain and the presence of high job satisfaction (Livingstone et al., 1997), conditions of co-action, levels of expected evaluation, and goal-setting (Shalley, 1991, 1995).
In organizations, it is also important to consider intersubjective creativity or group creativity (Anderson and West, 1998; West, 2001). It is generally studied as a function of the creative behavior of the individual, group composition, group characteristics (norms, size, degree of cohesion, etc.), group processes such as approaches to problem-solving, participation in decision making (see De Dreu and West, 2001) and contextual variables such as climate (Anderson and West, 1998; Amabile et al., 1996), characteristics of the organization (Hennessy and West, 1999) and so on. Other researches have provided evidence of the importance of leadership style, cohesiveness and level of cooperation (King and Anderson, 1990; Payne, 1990).

With regard to this level of analysis, psychology and in particular social and industrial psychology studies have greatly contributed to better understanding of the factors which stimulate or promote creativity. Moreover, management studies research on teamwork, its productivity and capacity to innovate, can help contribute to advancing greater understanding of group creativity.

Finally, organizational creativity is intended as a function of the creative results of its groups and of contextual influences (organization culture, reward systems, resource availability and limits, external environment and so on). Therefore, the final outcome of the creative process of the entire system derives from the complex patchwork of the characteristics of individuals, groups and organizations and of the behavior that emerges in salient or critical situations (that can stimulate or inhibit creativity).

An interesting perspective, based on the distinction between the different levels of creativity, has been proposed by Vicari (1998). He considers the firm’s creativity (as distinct from organizational creativity) as the ability of a system to evolve; something which does not entirely depend on individual creativity but on the conditions of the organization as a whole.

This brief review demonstrates the wide range of contributions that can help studies on organizational creativity. They all provide greater understanding of the role of one or more specific factors that facilitate or inhibit creativity. In fact, it would be essential and extremely worthwhile to work out a global theory on organizational creativity that furnishes a systemic perspective.

Despite the variety of contributions and perspectives, at present only the model proposed by Woodman et al. (1993) offers a broad vision of the problem that approaches a systemic view; as a consequence, it can be asserted that today there is little knowledge of the conditions that influence organizational creativity (Oldham and Cummings, 1996; Drazin et al., 1999).

Overview

In order to encourage debate on the importance of a global theory on organizational creativity based on a more systemic perspective, in the following paragraphs we shall make some observations and analyze the main features of the context of business organizations.

The nature of social and technical systems brings to the fore the importance of individual as well as organizational knowledge, organization culture and group subcultures.

The position maintained in this paper is that there exists a close link between the organization’s knowledge and its capacity to generate variety (in an innovative, not absolute, sense), and that, in turn, the nature of knowledge relevant to the creation of value depends on the structure, programs and processes (Mella, 1997) carried out to achieve a certain strategy (Miller and Friesen, 1982; Simons, 1987).

Knowledge contributes to producing creative thoughts and generating innovation (Nightingale, 1998; Coombs and Hull, 1998), and represents the link between the different levels of creativity[2].

To understand the creative process of firms, it is important to consider the knowledge of the organization; in other words, the system of shared knowledge, crystallized in mental models, organizational routines, the culture and values of an organization. We can also put forward
the hypothesis that it is the sensemaking process that determines creative performances (March, 1991).

Like social systems, firms are characterized by the simultaneous presence of different cultures that are expressed in a diversity of values, knowledge and skills, all of which influence the objectives of the organization as well as the behavior of the people and sub-systems within it.

Work practices, in fact, do not merely comprise performance, behavior, material processes or operations, but also include meaningful actions that are interrelated in terms of some cultural systems.

To be defined as such, creativity should express a change involving both pre-existing knowledge systems and systems of shared meanings (Csikszentmihalyi, 1999). Knowledge and value systems, taken together, constitute the culture of a social system. In business organizations, it is possible to recognize different knowledge and value dominions that can differ according to the relative functionalities and specialized competences, as also maintained by Drazin et al. (1999) and in the literature on intergroup behavior (see, for example, Hennessy and West, 1999).

Assuming this cultural and cognitive perspective implies redefining the proper structure of the different level of the analysis and considers additional levels as alternatives to the subjective-intersubjective-organizational ones. It should be asked in fact if these levels are sufficient to understand all the variables involved in the cognitive processes developing in organizations.

In the following sections of this paper a new level of analysis is proposed which also considers all the mediating tools which influence individual as well as collective cognition. In a creative process intended as a cognitive one, these tools are mainly represented by language, the role of people, the rules and values of groups and many of the moderating factors which have been previously studied (individually and rarely together) in creativity studies.

The research began by observing the creative process of an important Italian design firm. While applying the model proposed by Drazin et al. (1999) and its propositional structure, it was impossible to verify each hypothesis, so a more fundamental approach has been adopted. The result of the analysis allowed to increase understanding of the creative process considered as a sensemaking process, with the discovery that the fulfillment of the creative process depends on the presence of different mediating structures which influence the interactions, behaviors and beliefs of the sub-communities involved.

The role of knowledge and culture in creative processes: the sensemaking process

The organizational culture of the firm is made up of an organized set of knowledge and values intertwined in a “web of meanings” (Geertz, 1978). Those meanings represent how the organization interprets itself, its own behavior and decisions, and constructs and defines its own identity (Pettigrew and Andrew, 1979).

Assuming the form of an intertwining of meanings, encompassing often conflicting interpretations and objectives, the organization culture can appear evanescent and elusive, impervious to any attempt to define it. For this reason, it can be more effectively interpreted as the result of a process of construction, sharing and disruption of meanings created by
individual and collective decisions and actions, and the ongoing interaction among people belonging to the organization.

That intertwining of meanings, in fact, comprises the various forms of preserving and crystallizing knowledge including:

- all of the knowledge acquired and applied in operative processes;
- the system of mental models used by the organization members to interpret reality and give an unambiguous meaning to the experience accumulated in the firm (Sims and Gioia, 1986; Senge, 1990, 1992; Barr et al., 1992; Fiol and Huff, 1992, Vicari and Troilo, 1997);
- the rule, norms or principles that guide individual or collective choices and behaviors;
- the system of values the organization uses to formulate judgments, distinguishing between what is right and wrong, ethical, important or fair, even in new situations; and
- the various group of symbols and material ways that the knowledge, rules and values of the organization can be expressed (Schein, 1985; Smircich, 1983; Meyer and Rowan, 1977)[3].

Considering the creative process as a cognitive and cultural one implies a greater understanding of its learning features. In order to achieve this understanding, the contributions of psychology on distributed and situated cognition are especially useful.

According to the multi-level perspective, firms can, in fact, be regarded as “culturally constructed technical and social systems” (Hutchins, 1995, p. 287), meaning that they themselves are cognitive systems and, at the same time, represent particular contexts for the cognition of those who work in them.

From the perspective of the cognitive systems, organizational learning processes can be intended as distributed cognition (Salomon, 1993a), while from the perspective of the individual belonging to a particular organization, individual learning processes can at least be interpreted as situated cognition (Kirshner and Whitson, 1997) or distributed cognition.

According to distributed cognition, people appear to think essentially in conjunction or partnership with others and with the help of culturally provided tools and implements (Salomon, 1993b, p. xiii). They can be regarded as inseparable from their social, technical and cultural context – meaning that the proper unit of analysis should be the activity systems, historically conditioned systems of relations among individuals and their proximate, culturally organized environments (Cole and Engeström, 1993, p. 9) – or, according to a less radical position, as a dynamic and interactive part of that context (Perkins, 1993) – meaning that not all individual cognition is distributed, but that only the part regarding knowledge and skills interacts closely with other entities (Salomon, 1993b).

This paper maintains the less radical position and assumes that in business organizations, as in other social and technical communities, individual cognition is situated and often distributed; social, contextual, cultural and technological factors are part of individual learning, vehicles of thought rather than simple stimuli or inputs.

The absence of organizational creativity might not depend on a problem involving the generation of ideas, but might depend on a problem of translating ideas into products or
In order for creativity to exist within an organization, every action should be clearly directed towards promoting innovation.

Innovative ideas generated in the organization can develop into some forms of innovation if the sub-systems involved in carrying them out (from ideation to production) share mental models on what should be realized and what objectives should be reached. It follows that organizational creativity depends on the ways the sub-systems organize themselves during their interaction (conflicting or cooperative).

In order for creativity to exist within an organization, every action should be clearly directed towards promoting innovation. This can be achieved when the sub-systems interact in a constructive way and lead to processes of sensemaking.

Sensemaking develops through a process of unlearning and learning by the organizational sub-systems and a temporary integration of sub-cultures towards a common vision.

These theoretical assumptions lead to the assertion that the integration of sub-cultures is necessary for any form of creativity to occur. If that integration does not arise spontaneously, it should be reached by suitable managerial practices, organizational mechanisms, resorting to leadership or other ways which here are defined as a “mediating structure” and which will be described later.

Based on the previous assumptions and propositions, the following model illustrates the dynamic creative process achieved for a specific dominion of competences and is based on processes of cultural integration, the creation of new knowledge, and the codification of knowledge through integration and sharing (Figure 1).

According to the logic of system dynamics, the direction of the model depends on where we start in the model. Let us consider any problem that involves more than one dominion (or function or sub-unit) of the organization and start with the variable “variety”. In the model, variety generally represents the proposal of a creative solution to a problem that will inevitably affect the entire organization: a new idea, a change in strategy, and so on. Variety can derive from individual or group creativity and represents a noise for the organization. It can also start the creative process moving towards the generation of an effective creative
output only if it is possible to develop a learning process. This learning process should be a generative process involving the generation of new knowledge and development of new competences. In order to face a break with the past and lead the organization towards a new equilibrium, learning should allow for the disruption and change of shared mental models of groups or, if necessary, of the entire organization. This process can be understood in a broader sense with respect to the reformulation of the reference of communities as previously intended (Drazin et al., 1999), because it may concern any type of beliefs.

During the development of the process, the integration among the different cultures of the dominions in question represents the necessary condition for generating the stock of new knowledge and competences essential to problem solving.

The integration of cultures, in fact, increases the system of knowledge, rules, procedures, models of behavior and techniques, referred to as “Shared mental models (organizational knowledge). Core competences”, which represents the different patterns by which we can preserve the theoretical and technical knowledge of dominions. At first, they can coincide with the domain-skills of individuals or functional groups (Amabile, 1983, 1996); subsequently, they can be added by the cognitive approach to the typical problems of the dominions (for a review see Runko and Sakamoto (1999)).

Such knowledge and competences, on their own, influence creativity in a positive way by allowing the development of some original and useful output. Given the other conditions, creativity is, from a dynamic point of view, influenced positively by an increase in such knowledge and competences.

On its own, creativity can stimulate a further accentuation in the process of variety generation, since the positive result deriving from the previous attempt and from the new experience obtained from the cross-fertilization of different knowledge can, in fact, favor the birth of new creative ideas (Weisberg, 1999).

With regard to organizational creativity this loop is a virtuous one since, from a dynamic point of view, it gives rise to a self-feeding process.

Widening the scope of enquiry, we can note that the integration of cultures influences the organization’s cognitive processes and triggers a second process: the codification of knowledge. In fact, the processes of sharing and socializing knowledge (Nonaka, 1991; Nonaka and Takeuchi, 1995) allow us to translate forms of knowledge which were contextual or tacit into forms subject to communication and transmission.

Knowledge is codified when it is represented in a system of information, instruction, and in models illustrating the functioning of reality that have been translated and formalized into explicit mental models (Argyris, 1985; Senge, 1990), programs, procedures, software, patents, scientific laws, and so on.

By favoring the spread of knowledge acquired in the firm, codification can, in its turn, positively affect creativity by involving in the innovative process a greater number of people who can participate with the necessary skills and knowledge, thereby making a further contribution to the search for new ideas or to the implementation process.

Presented in this way, however, the model is not complete, since it does not consider the effects that, even after a time delay, are produced by the integration of the pre-existing cultures and subsequent codification of the acquired knowledge.
Without such an integration the model might seem to suggest that, through the integration of the cultures and codification of knowledge, organizational creativity can increase indefinitely, whereas we know that part of the nature of organizations is the fact that they are systems characterized by inertial behavior (Rumelt, 1995)[5].

In this model, such behavior is expressed by inserting, as an additional variable, the so-called “core rigidities”; that is, the transformation of consolidated competences into “organizational rigidities”, meant as the inability to abandon rules and consolidated knowledge which have proved to be effective in the past. Core rigidities appear with a time delay when the level of codification of organizational knowledge is so high that there is no room for “perceived convenience” to redefine the knowledge utilized up to that time (Figure 2).

Since core rigidities negatively influence creativity, the self-reinforcing loop, based on the integration of knowledge, is balanced by the complex dynamics of the second circuit, which represents a limit to the growth of organizational creativity.

The implications are clear: we can hypothesize a sustainable growth in creativity only through the destruction of previously-acquired competences and the manifestation of changes in the cultures of the business sub-systems[6].

The model is based on the following hypotheses:

**H1.**
The greater the available knowledge and level of codification, the greater the probability that this will spread within the organization, leading to the definition of shared mental models that favor group work and the integration of competences.

**H2.**
The greater the integration between the cultures and various forms of knowledge within the firm, the greater the likelihood that the knowledge introduced by innovation will become an integral part of the new patrimony of knowledge.

**H3.**
The greater the codification and sharing of mental models and procedures, etc., the greater the probability that core rigidities will arise.

It follows from this that tacit knowledge (Kogut and Zander, 1992), individual as well as group creative capabilities can represent an important source of organizational creativity, especially through the generation of variety, which, for example, can be traced to ideas that derive from intuition, personal experience, and the ability to translate sensations and

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**Figure 2** The limit to the growth in the creative process of multicultural organizations
emotions into products, both by individuals and groups within the organization. This can represent the “disturbing” factor that makes the system of shared and deeply-rooted meanings obsolete and suggests, according to the situation, new strategies and behavioral models, or new visions of the world.

The role of mediating structures in organizational creative processes

The set of factors influencing individual and collective learning comprises a collection of tools that can be defined as mediating structures. Mediating structures can be considered the major “loci” in which cognition is distributed.

The most important mediating tool is represented by language, the “tool of tools” (Cole and Engeström, 1993, p. 6). The use of language and the meaning given to words determine the most important tool used to acquire, communicate and maintain knowledge in its different levels and forms (Sackmann, 1991).

The development of learning processes depends on the use of language and the discourse arising in the organization between persons from different sub-cultures. For example, in the Italian firm studied, it was possible to note that some words and phrases had a particular meaning that was shared and unambiguously interpreted by the entire organization. Those words were a sort of device used to communicate a new shift in the direction taken by the firm’s development or to communicate clearly the creative objectives to be reached. Other words or verbal expressions were typical of single sub-communities, used as vehicles of meanings and tacit knowledge shared by their members.

The second type of mediating structure is represented by the role of people in organizational communities. A person’s role particularly influences the way people deal with problems or new situations. Responsibilities and power mediate the meaning ascribed to information or any other input. In this connection, there are three other important mediating tools, namely, social rules, the values of sub-cultures and the division of labor.

The influence of sub-cultural social rules and values has been previously dealt with. It should be pointed out that they mediate learning processes because they determine the influence of particular mental models and this contributes to the decision to change, delete or maintain them. Consequently, they influence the development of knowledge and make it possible to discover and experiment new ways of working and dealing with problems (technical and non-technical). Norms and sanctions, in fact, specify and regulate the expected correct procedures and the acceptable interactions among the participants.

The division of labor, closely related to sub-cultures and the role of individuals, influences cognition in the sense that it leads to the emergence and establishment of fixed routines.

Finally, mediating artifacts and other symbolic mediating tools (in abstract as well as visual or verbal forms) represent a set of important loci of distributed cognition. All the materials people use, namely, the work instruments, the work environment, and all the abstract devices typical of a work setting are part of the “arena” in which learning processes are developed. They are part of people’s cognition in the sense that they condition the way they reason, touch physical objects and feel.

It follows that to understand the creative process of the entire organization it is necessary to consider not only the cognition of individuals or groups, but also the systems of people involved in the process, the role of the community and of the internal division of labor, as well as all the artificial tools, both abstract and physical. Organizational creativity stems from the development of the entire system.

This different level of analysis may imply the use of research methods alternative to quantitative techniques such as ethnography or other qualitative instruments. Observation of cultures and sub-cultures can be properly developed, for example, by analyzing the different levels and forms of knowledge, according to the methodology proposed by Sackmann (1991).

The relevant managerial implications of this perspective are the following.
In order to promote organizational creativity, promoting intrinsic motivation is not enough. Creativity implies the breaking of equilibrium and order. The order to be broken is not only the one regarding established mental models of sub-communities, but also the systems of distributed cognition in their relations, ways of interacting and nodes. To achieve this renewal, some of the well-established mediating structures should be intentionally broken or changed so that a new organization is obtained that is perhaps far from being in a state of equilibrium.

Limitations and future developments

Research on organizational creativity needs further investigation. Contributions from social psychology and anthropology should study the context of business organizations more extensively and in much greater depth.

The model proposed in this paper regarding the complexity of the creative processes in business organizations is not exhaustive enough. Some important variables might be absent and others might be overestimated. On the other hand, it represents a device that makes one reflect on the need to define better the levels of analysis and try to adopt a systemic perspective in research on organizational creativity. Second, it draws attention to the particular nature of the collective creative process by highlighting the sensemaking process and its cultural and cognitive features.

Obviously, any paper presents some limitations. This one, in particular, offers only a survey of the innumerable studies carried out on this issue and does not identifies all the links between the results obtained and the implications for a global theory of organizational creativity. It also fails to show all the possible mediating structures that intervene in the creative process.

Despite these clear limitations and others that might emerge, this study can arouse a scientific debate regarding the identification of the proper unit of analysis to adopt when studying the cognitive process in organizations.

Notes

1. Adopting the concept of shared meaning, we rely on a constructionist conception of this idea, meaning that the temporal flow of events, the reflection and the control of behavior, and the emergent reality contribute to creating shared rules of behavior and meanings stemming from personal interaction. We do not intend to reach the extreme position, of Parsonian origin, according to which the sharing of meanings, standards and reward systems contribute to maintaining a certain social order (Boland, 1996).

2. Although the models proposed by Woodman et al. (1993) and Drazin et al. (1999) also highlight these aspects related to knowledge, they essentially concentrate on individual knowledge.

3. The dynamic process involving the re-definition of meanings relies on this interaction and conflict among values, norms and symbols.

4. In firms, the specific dominion of competences can be represented by a function involved in the creative process (R&D, marketing, production and so on).

5. As Levinthal and March (1993) state, the search for new organizational knowledge tends to be surpassed by the exploitation of knowledge that has already proved effective in the firm. This derives from the very nature of the organizational search processes which produce incremental knowledge – the so-called “neighborhood of alternatives” of March and Simon (1958).

We can add to this the presence of the inertial forces of path dependency (Teece et al., 1997) that conditions the production of organizational knowledge. In fact, as they develop, learning processes tend to increase the reliability of the directional path that has created them, thereby decreasing the appeal of alternative paths of search and exploration over time.

Other explanations for inertia can also be found in the rigidity of individual cognitive schema and the processes of categorization (Weick, 1995); in policy rigidities; or in the time delays in the feedback processes of firm behavior.

6. An alternative explanation of the limits to creativity from codified knowledge is found in Schumpeter’s interpretation of the latter concept (Schumpeter, 1950) which is based on a succession of processes of innovation, replication and imitation. If the competitive advantage...
derives from the idiosyncratic competences of the organization, its exploitation derives from the possibility of replicating these competences. Replication requires the codification of the tacit component of these competences (Kogut and Zander, 1992). Because of what has been defined as the “paradox of replication”, the replication process might be imitated due to the fact that it is codified.

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