



Bricolage versus creativity what's the difference?

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**BRICOLAGE VERSUS CREATIVITY
WHAT'S THE DIFFERENCE?**

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BRICOLAGE VERSUS CREATIVITY: WHAT'S THE DIFFERENCE?

Bricolage as one face of Creativity

Bricolage as a means to nourish the understanding of Creativity

Paper to be presented at the 21th EGOS colloquium – Berlin, 2005
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Convenors: Johannes Lehner, Charles-Clemens Rüling, Raffi Duymedjian

by

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Abstract: This article aims at better defining the notion of *bricolage* by making analogies with the concept of *creativity*. An analysis of the frameworks that conducted to define the components of both notions and a comparison between these components lead to the conclusion that *bricolage* can be considered as one kind of *creativity*. However, the approach used to define the concept of *bricolage* can be helpful to analyse the concept of *creativity* thanks to new factors: the mode of resources selection and the way these resources are used.

Key words: *bricolage*, creativity, resources,

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Introduction

The aim of this article is to better define the concept of “bricolage” by making analogies with the concept of “creativity”. Since its birth in 1966, “Bricolage” has been mostly used as a metaphor to explain facts from an anthropologist, sociological and managerial point of view (Levis-Strauss, 1966; Abertnathy & Clark, 1985; Clegg, 1990; Bayon et al. 1996; Orlikowski, 2000). Nevertheless, recent works tend to raise this metaphor to the rank of concept (Ciborra, 1996; Garud & Karnøe, 2003; Duymedjian & Rüling, 2004). “Bricolage” is mostly used in two main managerial fields: Knowledge Management and Entrepreneurship. Whatever are the nature and the context of use of “bricolage”, several definitions have been proposed to qualify this term. They all refer to the *“the process of theoretical thinking by which individuals and cultures use objects around them to assimilate ideas”* (Papert, 1993).

This basic definition seems very close to those of “creativity”¹, which has been developed by psychologists and psycho-sociologists and adopted by researchers who are working in the fields of innovation and organizational creativity. As for “bricolage”, different definitions have been given to this concept (Isaken, 1988). Nevertheless, they all converge toward the same idea of resources gathering, assimilation and re-combination to produce something new and useful (Amabile, 1988).

Even though the concept of creativity seems to have a broader sense than those of “bricolage”, even though they have been developed and mostly used in two different contexts – “bricolage” has been developed by a philosopher and anthropologist, creativity has mostly been conceptualized by psychologists -, and even though they are based on different paradigms, we argue we can discuss the relevancy of using two different concepts to design the same meaning.

This conceptual paper aims at presenting both concepts. Even though their origin differs, their meanings are very closed and bricolage could be considered as one special kind of creativity. Our basic assumption is the framework used to develop the concept of bricolage can be useful to enlighten unseen aspects of the concept of creativity. More specially, the link between resources and creativity, i.e. how and when the creative person gathers resources and recombine them, could be an interesting twist for a better understanding of how creativity takes place within organizations.

I. Creativity and Bricolage: Two different origins, two different histories

I.1. Creativity or Creativities? A conceptualization thanks to three main research frameworks

The concept of creativity is quite old and has been explored (and still be) for years. We agree with Woodman, Sawyer and Griffin’s (1993) opinion, according to whom, *“(…) hundred of pages would be required in each of these areas (that have been explored to explain the concept of creativity) to provide an encyclopaedic review of the extant literature²”*. The task would be all the more tricky that more than 56 different definitions to creativity have been

¹ Baker et al. present both concepts in the same category, belonging to the “related constructs” of the concept of “improvisation”, (Baker, Miner, Eesley, 2003) p.273.

² Woodman R.W., J.E. Sawyer, R.W. Griffin (1993), “Toward a theory of Organizational Creativity”, *Academy of Management Review*, 18(2), citation p. 293-321, p. 297.

identified in 1961 by Rhodes (Isaken, 1988)! Moreover, we also share Isaken's statements. He explains: "*One of the factors that contributes to the complexity of the conceptions of creativity is that it is an interdisciplinary phenomenon. Certainly, no single discipline can claim to have exclusive rights to creativity. Studies of creativity are found in the arts (...) as well as in the sciences*"³.

Our purpose is not to draw an exhaustive literature on what has already been written on this concept. However, since our objective is to focus on the analogies and differences between the notions of "bricolage" and "creativity", our less ambitious aim, is to present the content of the concept of creativity to check whether the meaning – or content - is the same – or not – as those of the concept of "bricolage".

Creativity, as object of research, has been analysed thanks to several frameworks.

This oldest and "traditional" is a psychological approach (Woodman et al., relating Galton's, 1869; Wallas, 1926). The question is to determine the factors that influence the behaviour of creative people behaviour, whether they are artists or not. Answering this question leads researchers to analyse the link between a creator and his environment, and more specially, the organization in which the "creator" works. The psychological approach has also been – and still be - used to explain how creative individuals solve problems generally speaking (Getzels & Csikszentihalyi, 1967, 1976) and within a specific context, for example under a feeling of time pressure (Amabile et al. 2001).

The second framework is what Drazin et al. (1999) call a multilevel analysis (Amabile, 1988, 1996; Sawyer et al., 1993), which is based on a psychological and sociological approach. Amabile and her team consider that the creativity is an individual task – or the task of a small group –, influenced by several factors – intrinsic motivation, skills in the domain and skills in creative thinking – that has to be assimilated within the innovation process. Sawyer et al. go further in this approach by developing an interactionist framework. More precisely, they argue that creativity is a complex task in which individuals, small groups and organizations are intertwined, each component being in interaction with the others.

The third framework analyses the concept of creativity based on a « sense making » paradigm (Drazin, Glynn et al., 1999; Ford, 2002). Using this framework, and focussing on the creativity within a large project development (Clark & Weelwright, 1991), Drazin et al. (1999) shed light on the existence of three types of crises that can occur within a creative process: natural and technical crises, crises of stimulation and crises of manipulation. Facing these crises, actors, managers as technicians, involved in the project interpret present facts, past experiences and available resources to bring solutions to these crises. More precisely, technicians tend to be more creative to solve natural crises whereas managers are more involved in a creative process when facing crises of stimulation and manipulation.

This framework is also used to explain creativity within other contexts. Ford (2002), for instance, focuses on the effect of projection in the future, that individuals can make, on their creativity.

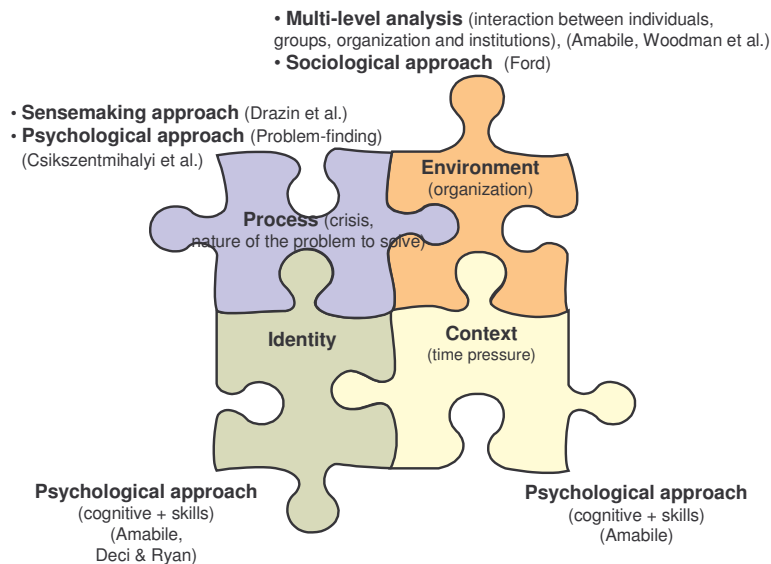
Other marginal frameworks are also used to analyse the concept of creativity. Among them, the social framework that is mostly used to explain facts that occur within an innovation process is of particular interest (Ford, 1996).

Our purpose in this paper is not to present in details all the approaches. On the contrary, our aim is to draw up all the aspects of the concept of creativity that have been explored – or, at least, have already been the object of exploration – and the approach that have been used to

³ Isaken S.G. (1988), "Educational implication of creativity Research. An updated rationale for creative learning", in K. Gronhaug, G. Kaufman, *Innovation: a Cross-Disciplinary Perspective*, Norwegian University Press, Oslo, p. 167 – 203, citation p. 171

analyse these aspects of creativity. The following chart provides a summary of the main frameworks that have been used to understand “creativity” and which aspect of this concept they respectively highlight.

Figure 1 : Explored Aspects of Creativity and Frameworks used to analyse the concept



“Bricolage” is grounded on other paradigms and frameworks.

I.2. Bricolage: From an anthropologist approach to a new word that is used in the sciences of management

The question of their content excepted, creativity differs from bricolage from two main aspects:

Firstly, we argue the concept of creativity is a stable concept. Now, no one would discuss its status. On the contrary, bricolage is still perceived as to be an unstable “expression”. Its borders are not clearly defined. Its status stills be discussed: Baker (2003) is levering bricolage on the rank of concepts while Garud & Karnoe (2003) prefer to talk about a “label”. Some researchers also consider bricolage has been almost used as a metaphor (Duymedjian & Rüling, 2004b).

Secondly, bricolage and creativity have been and still be defined and analysed by different research frameworks and approaches, so that the comparison between the two terms has never been explored.

The concept of creativity is highlighted thanks to three main research frameworks: a psychological approach, a sensemarking approach and a multilevel analysis approach. On the contrary, bricolage is derived from a unique approach, a philosophico-anthropological one (Levi Strauss, 1966) and has been used to explain the birth of Primitive Societies. For a few decades, the concept has been entering into other research topics, and, more precisely, and as far as we know, in the sciences of management. From an historical point of view, the main problem is not to highlight specific aspects of the concept under specific circumstances, as it is, for instance, the case with the concept of creativity under time pressure (Amabile et al.,

2001) or during crisis (Drazin et al., 1999). The tricky question dealing with bricolage, but also with all “new concepts” that are put forward to explain new social contexts, is to define whether it is useful or not to raise this term to the range of concept or to just to consider it as a metaphor. Another way to present the question deals with the relevancy of bricolage to explain managerial facts.

One way to answer this question is to relate in which context the metaphor of bricolage has been used and to what purpose. Once again, our objective is not to present an exhaustive summary of what has been written on the topic of bricolage, and more precisely, in the managerial sciences. For a more detailed approach, we can refer to the communication of Duymedjian & Rüling (2004b), who present “*some of the ways in which bricolage has been used in organization and management theory and contrasts these views of bricolage with the characteristics of bricolage suggested by Lévi-Strauss*”⁴.

Bricolage is originally used to describe the links between human being, objects and animals and, more precisely, how myths are built by primitive societies (Levi Strauss, 1966). It contains three main components:

The first one is the identity of the bricoleur that Levi Strauss opposes to the engineer, who defines, in advance, the finality, and all the pieces and components of any object.

The second component of bricolage is its process. The bricoleur accumulates resources - generally material resources - that could be useful in the future for any reason that is not clearly defined yet. The bricoleur also have the faculty to consider his external world with an original scheme, so that he is capable to change the finality of objects and use them in the way that differs from their originally purpose.

Finally, the last component of bricolage is the context in which it takes place. Levi Strauss mostly focuses on the bricoleur has a lonely person or, more precisely, someone who does not interfere with its environment while he is acting. On the contrary, his link with his environment is established before his involvement in a process of bricolage, when he gathers his resources. In that sense, the bricoleur has a certain power to his environment, since he does not need it to get involved in any process of bricolage. He just gathers resources from this environment when the environment considers them as being non-useful.

For one decade, social scientists have been using the metaphor of bricolage to explain social facts (de Certeau, 1990) but also three main organizational facts.

The first situation that has been explained by the metaphor of bricolage is a specific way to develop a knowledge management system by firms (Duymedjian & Rüling, 2004a; 2004b). More precisely, the management of knowledge would not necessary be built on the idea of resources sharing, but, on the contrary, on resource gathering. The accent would be made on the capacity developed by some actors to change their perception of their problem, their environment and be able to transform the original finality of objects and use them to solve their problem. Bricolage is also mainly used by Ciborra (1996) who argue that information systems are never used in the way they have originally been defined: Users are capable of taking profit from the flexibility of information tools to make them work as users want to! This change and behaviour can, to some extend, be explained by a process of bricolage.

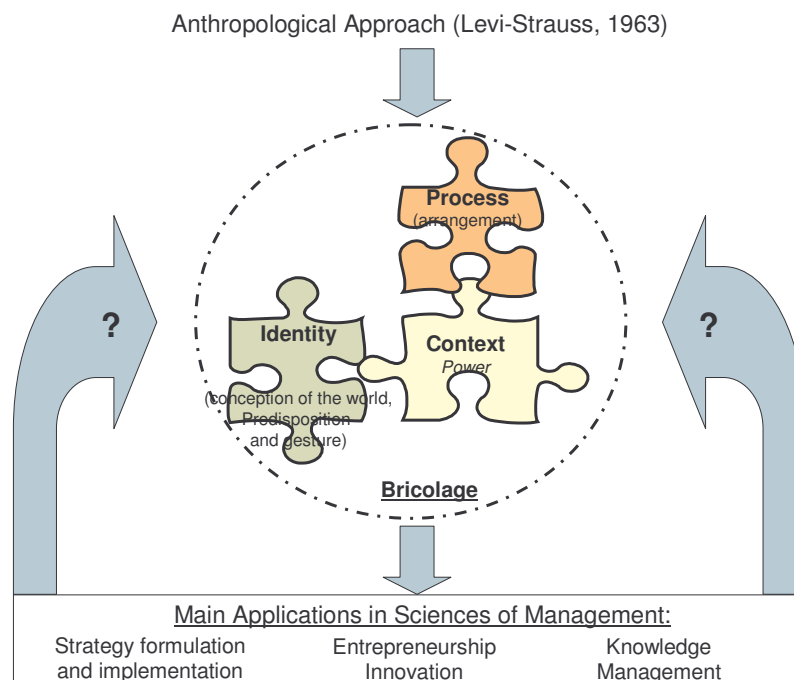
Researchers working on innovation process by emergent firms (Garud & Karnoe, 2003; Baker et al., 2003) also tried to explain their statement thanks to bricolage. The use the Baker et al. make of the metaphor of bricolage is all the more interesting that they focus on the interaction between the bricoleur and other bricoleurs, and, more globally, between the bricoleur and his environment. Thanks to the concept of improvisation but also of “network bricolage”, Baker

⁴ R. Duymedjian, C.C. Rüling (2004), “From metaphor to concept: Towards a Foundation of Bricolage in Organization and Management Theory”, 20th Egos Conference, Lubjiana, July, 19 p.

et al. are able to explore how a firm can be developed and, consequently, a new product can emerge. Finally, the analysis that one makes thanks to bricolage for entrepreneurial situations can also be used to highlight how the strategy of any established firm emerges (Michaud & Thoenig, 2001). Using the concept of “garbage can” (Cohen, March & Olsen, 1988), the authors consider the firm as “a source of bricolage”. The organization is the result of the accumulation resources that come from different areas and whose natures are all the more diverse. Strategy is the art of representing the environment, and gathering and recombining resources to win within this environment. Using the resources that have been accumulated in the garbage can and being able to reconsider them and recombine them for a more or less unexpected use, to explore new sources of innovation, is a kind of bricolage process.

As a first conclusion of the origin and use of bricolage, the following scheme sums up the components of bricolage, its origin and its application:

Figure 2: Origin of the Metaphor of Bricolage, aspects and applications in the Sciences of Management



We assume that any attempt to raise bricolage to the range of concept (Baker, 2003) requires not only a “mise à l’épreuve” of the concept on a specific situation to make sure it can explain this situation properly but also elements that can explore the concept. That is why we underline the link between applications and components of the concept on the previous scheme. More precisely, researches that have been conducted in Entrepreneurship mostly explored the bricolage process and the link between the bricoleur’s roles within a collective action.

Despite all these attempts to apply bricolage to three specific situations, bricolage remains a metaphor or an “underdeveloped concept”. Some authors argue that other concepts, such as the concept of improvisation, can also explain entrepreneurial or innovative situation (Cunha

⁵ T. Baker et al. (2003), “Improvising firms: bricolage, account giving and improvisational competencies in the founding process”, *Research Policy*, N°32, p. 270

& Cunha, 2000 ; Orlikowski, 2000 ; Baker, 2003). Baker (2003) seems to “prefer” bricolage to improvisation. He puts forward that bricolage is not one aspect of improvisation but can explain, in particular, the link between individuals. This fact cannot be highlight by the concept of improvisation.

As Baker did, our attempt is to compare, on a conceptual level, the concept of creativity with bricolage. Our first conclusion regarding these terms is that the concept of creativity has been widely explored, firstly by a psychological approach and by other social or managerial frameworks (sensemaking approach and multilevel analysis). Bricolage could also be explained by a sensemaking approach since this process and product requires a redefinition of the context and of what is commonly defined as to be the norm. However, we notice that both terms have been barely compared, maybe just because researchers who work on the concept of creativity did not consider bricolage and *versu versa*.

II. Creativity and Bricolage: twins, false friends or “enclosing” concepts?

The following discussion aims at comparing the content of creativity and bricolage.

As we have already written in the introduction of this communication, the respective generic definitions of both terms offer a narrow sense of bricolage and creativity. Both concepts can be understood as a product or a process. Duymedjian & Rüling (2004) consider that the bricolage contains both notions, as it is the case for many words, such as “production”. The question whether creativity is an output or a process has been the object of a real debate (Amabile, 1988; Drazin et al., 1999; Unsworth, 2001). Finally, most definitions tend to refer to creativity as a process, whose achievement is a product.

Consequently, bricolage and creativity refer to a process that is conducted by an individual. Amabile (1983, 1988) also pretends the creativity of a small group, group she does not describe, is the same as those conducted by individuals, in terms of tasks and components.

Both notions converge toward the same idea of production of a solution that contains a certain novelty. Creativity can be defined as the process by which individuals gather resources, assimilate them, re-combine them and, finally, produce something new and useful (Amabile, 1988; Woodman et al., 1993; Ford, 1996; Drazin et al., 1999; Unsworth, 2001), even though the question of the useful output can be discussed (Drazin et al. 1999; Copley, 1999; Ford, 2004). As for bricolage, Papert (1993) lays more emphasis on the aspect of resources combination: “(Bricolage is) *the process of theoretical thinking by which individuals and cultures use objects around them to assimilate ideas*”.

The comparison between bricolage and creativity can be done on five main aspects: the context, in which bricolage and creativity occur, the process of bricolage and creativity and, more precisely, the states of the resources that are respectively used by the bricoleur and the *créateur*, the status of the bricoleur and of the *créateur*, the relationship between bricoleur and *créateur* with their respective environment and, finally, the status of the final output. The comparison between what has respectively been written and acknowledged on creativity and bricolage makes us raise the following assumption: bricolage tends to be one specific kind of creativity.

II.1. Context

Contrary to creativity, which occurs in a wide range of contexts, bricolage takes place within an unexpected solving-problem situation.

According to the literature that has already been written on the concept, creativity can theoretically occur in any kind of situation, a product-development process (Amabile, 1988) but also any other kind of contexts. Some researchers tend to clarify the diversity of the contexts of creativity. Among them, three approaches are of particular interest for the scope of our communication:

Unsworth (1999) refers to Getzels & Csikszentmihalyi's work (1967) and states creativity can solve a series of different problems, from closed to opened ones. The qualifications of "closed" and "opened" refer to the degree to which the problem has been formulated. A closed problem implies its pre-formulation: the objective is known and eventually, the method to solve the problem is also given. On the contrary, an opened problem implies that creators have to discover, or to invent, the problem. Unsworth pretends that "*within the organizational arena, an example of a closed problem is a task requirement to make specific, well understood change*". However, this approach sheds light on its own limits: If a problem contains its own solution and the appropriate method to solve it, we can no longer call it a problem! Consequently, we find it hard to find the creativity within a closed problem!

Nevertheless, this approach is all the more interesting that it can be related to the opposition between exploration and exploitation (March, 1991). Even though March does not work on and with the concept of creativity, we state their approach describes the contexts of creativity. Exploration implies the development of new ideas, new concepts from a defined resource, a defined framework. On the contrary, exploitation refers to the search for something brand new: a new framework, a new technology, etc.

Other few researchers tend to focus on contexts where creativity barely occurs. The first context that can handicap the creative process is the organization or the context in which it takes place (Weis, 1988). More precisely, the author reveals, thanks to a comparison between two empirical situations, that creativity is limited by the organizational design, i.e., its structure that can avoid the necessary resources gathering, and the management system that can influence the motivation of the creative individual⁷. The second context is a situation in which members have a feeling of time pressure (Amabile et al., 2001). The creativity of the individuals and small groups during a project development is enhanced by time pressure. However, when the time pressure is perceived as being too high, the creativity of the actors tends to decrease. Actors tend to be more focused on behaviour of exploitation rather than of exploration. Moreover, they tend to solve problems by using methods or ideas that have already been tested.

⁶ K. Unsworth (2001), p. 290.

⁷ The question of how resources are collected, gathered, transformed and integrated in the creative process is discussed in II.2. and II.3. of this communication.

The context of creativity is broad, even though time pressure and the organizational design can reduce its potential. On the contrary, bricolage occurs within a specific context, i.e. when there is a problem to solve (Innes & Booher, 1999). We make the distinction between two situations. Firstly, the problem can be defined by the bricoleur: he sets his own goal. Secondly, the bricoleur faces a more or less clearly identified problem he did not expect. To some extent, the problem can be assimilated as a crisis within an innovative process (Drazin et al. (1999) are talking about the creative process). In both cases, the problem is not anticipated by the bricoleur.

Consequently, bricolage occurs when its time to improvise (Baker et al., 2003), this means “when the design and execution of novel activities converge⁸”. Indeed, in an entrepreneurial context, even though the new activity has been designed and planned, its implementation often contains crises or, at least, unexpected problems. To get the activity achieved, one needs improvisation and bricolage.

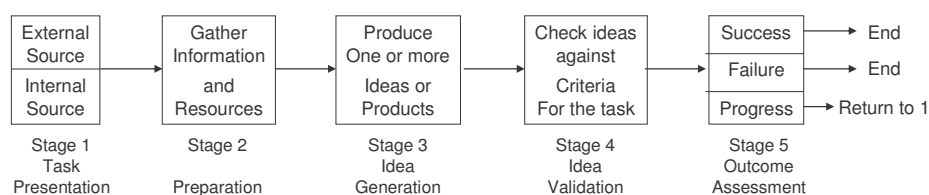
In that sense, while creativity happens in any kind of context, bricolage seems to occur in two different situations within an organizational context: when the rationalization of any given process is weak or / and when an unplanned situation occurs.

II.2. Process and use of resources

Contrary to the process of bricolage, the process of individual creativity has already been modeled. In order to compare both processes, we will begin our analysis by exploring how individual creativity occurs and by making analogies with what has been written on the process of bricolage.

The referent modelization of the individual creative process is Amabile’s one (Amabile, 1988). Her model cuts the creative process into five successive tasks that are presented in the following figure:

Figure 3: Individual or small – group Creativity (Amabile, 1988, p. 138)



As for the description of the context of creativity, the creative process is presented in a very general way. The origin of the source refers to the state of the problem (closed or opened as Unsworth, for instance, stated it). The way the resources are gathered is not explained. Amabile just precises the point in the sense that the *créateur* - creative individuals or creative small groups – use their own personal networks to get information and resources. Stages 4 and 5 imply that the idea or output is creative only if it is considered as useful by the organization or the community that ought to accept or reject it. This definition, and, consequently, these two stages of the creative process, is rejected by other researchers (Drazin

⁸ Op. cit., abstract of the communication

et al., 1999) who consider a creative output regardless its useful or un-useful aspect for the community or the organization.

The process of bricolage follows almost the same general phases. Nevertheless, it can be much more precise. Four main aspects can be put forward:

Firstly, the task comes from an external as well as an internal source, but the task is unexpected, or, at least, not planned.

Secondly, the main characteristic of the process of bricolage (phase 2) is the bricoleur does not gather specific resources to solve the problem or to complete his task. Innes & Booher (1999) explain: “*The latter modes of problem solving or dispute resolution typically allow zero sum allocation of resources among participants or finding the actions acceptable to everyone*”. The bricoleur works with “*a heterogeneous but finite store of materials and tools*”⁹. He will use these resources even though they do not, at first sight, fulfil the required task. His resources have already been gathered – Levi-Strauss consider only material objects but recent researchers in social sciences are also talking about any kind of resources, information systems, knowledge, etc. – that have not been gathered before the task presentation, and not on the purpose to solve the problem. Consequently, the first difference between creativity and bricolage, regarding the process, would be that bricoleur gathers resources to use them when they may be useful, whereas *créateur* firstly considers the task and, then, gathers the required resources to get his work completed. However, this assumption is not so easy to raise since Amabile does not precise where the resources come from in the creative process: “*At this point, the individual builds up or reactivates a store of information relevant to the problem or task*”¹⁰. Consequently, we can also guess the *créateur* gathers resources, maybe before the task is being presented and, select and use some of them during stages 2 and 3.

The third point to consider is the stage 3, dealing with idea generation. Amabile hardly gives any explanation regarding the cognitive process of the individual during this stage. However, Drazin et al. (1999), using a sensemaking approach raise some assumptions regarding the behaviour of the *créateur*. During a project development, actors’ actions can be explained on an individual, or intrasubjectival level, and on a collective level – or intersubjectival level -. On an individual level, each actor has his own “cognitive map” that helps him to make sense of any event. According to this “cognitive map”, the *créateur* is able to develop what he believes to be an appropriate solution to any presented task. Once again, the analysis that has been conducted on the behaviour of the bricoleur goes further. Bricolage is a kind of exploration process (March, 1991), since resources are finite. However, the bricoleur is, in a certain way, capable of changing its “cognitive map”, i.e. developing a new frame of the situation, changing the finality of the resources and objects and integrating them into the situation in an unexpected – or, let us say in a new rational – way. The example of how users change the finality of the Information Systems to achieve their own goal (Cibora, 1996) is a perfect illustration of this point.

Finally, the process that validates the bricoleur’s new idea is not clearly defined by the researches that have been conducted on the topic. Levi-Strauss regards the bricoleur as a lonely person, who validates his action, and his framework, by the fact the introduction of the object allows him to achieve his goal, or not.

The process of individual creativity is presented in a very general way. That is why, bricolage can be regarded as a specific process of creativity, in which the problem is given but unexpected, resources have already been gathered by the bricoleur, who won’t look for other

⁹ Innes & Booher (1999), p. 15

¹⁰ Amabile (1988), p. 139

ones, and bricoleur changes the first rational purpose of these resources to solve the problem. The validation does not necessary come from the organization but by the fact the problem is solved or not.

II.3. Status of bricoleur versus status of the *créateur*

Since the bricoleur solves unplanned problems, Levi Strauss opposes the bricoleur to the engineer. The bricoleur does not plan his objectives and his actions. He does not act by phases and does not order the required resources to achieve his established goals. He does not evaluate his actions. On the contrary, he acts by “induction” and by intuition: choosing among all the objects he has gathered in his “garbage can”, making essays and errors and, finally, achieving his goal. Duymedjian & Rüling (2004) also adds that the bricoleur is curious, and always in interconnexion with several words.

The creativity of individuals is quite developed and has already been analysed (Amabile, 1988; Woodman et al., 1993; Ford, 1996; Ford, 2004). Contrary to Ford, who mostly considers individual creativity can be influenced by the social context, Amabile (1988) considers that creativity mostly relies on three main individual characteristics. The first one is the intrinsic motivation to do the task. This motivation does not only come from the will to get a promotion or a better salary but the will to make something successful. The second characteristic relies on the skills in the task domain and, finally, the last one is the skill in creative thinking. These three characteristics reveal some aspects of the identity of the *créateur*. By building her model thanks to the interviews of R&D managers or product managers, i.e. engineers. Drazin et al. (1999) also consider that the creative individuals can also be a member of the technical staff, a manager or an engineer. According to these authors, depending on the type of crisis that occurs in the creative / innovation process (during the large scale project), technical staff or managers are less or more creative.

However, what is at stake is not the organizational function of individuals engaged in the problem solving process in itself but the way they behave. Bricolage and creativity are attitudes that individuals do not always adopt (Drazin et al., 1999). Nevertheless, we are not able to compare the identity of the bricoleur and the *créateur*.

II.4. Relationship between bricoleur and *créateur* and their respective environment

The link between the *créateur* and his environment is an almost compulsory task to make the process work. The environment has been qualified by researchers: it mostly deals with social networks, colleagues from or out the organization, who can bring any kind of information, tips, etc.

On the contrary, Levi-Strauss (1967) seems to consider the bricoleur as a lonely person, working alone. In fact, the situation is more complicated and sophisticated. Firstly, Innes & Booher (1999) agree that the bricoleur makes a dialogue with the objects he has gathered. Secondly, this relation between the bricoleur and his material is completed by a relation between the bricoleur and the culture of his community. The culture gives him the basic framework he will use to change the nature and the finality of the objects. Finally, to some

extends, the bricoleur is also in contact with several environments, from which he will gather objects. He is capable of gathering objects coming from all these environments.

Consequently, bricolage implies a specific kind of relationship with the environment, a “materialistic” one. This idea seems not to be so developed by the notion of creativity.

II.5. Status of final output

The nature and the status of the output of a creative process raised a debate among the community of research, working on this topic. As we wrote it a few pages ago, Amabile (1988) insists on the fact that the output has to be useful for the organization. To some extent, she implies that the R&D managers and product managers she interviewed to build her model are asked to develop new concepts, new technologies, indirectly to fulfil a pre-existing task, defined by the organization: the necessity to develop new products, the necessity to escape a tricky situation during a project development. This conception of creativity is, to some extent, not far those of bricolage. Bricolage aims at solving a defined problem! However, Amabile’s point of view can be criticized since, as for bricolage, creativity can also solve a defined problem that has been set up not by the organization but by the individual.

Once again, the general definition of creativity seems to include the notion of bricolage. Nevertheless, bricolage implies a more precise definition. It implies an idea of “mystery” output: one does not know its nature till the end. The result of the process can be unexpected, unusual. Maybe the result does not bring complete satisfaction (“*it is bricolage*”). It can imply the idea the result can be changed and replaced by a better solution, in the future. The only satisfaction it brings is that the identified (functionary) problem is solved.

To sum up this discussion related to the differences and analogies between bricolage and creativity, we can present the following chart:

Chart 1: Comparison between bricolage and creativity

	Bricolage	Creativity
Designation	<ul style="list-style-type: none"> • Process and product (output) 	<ul style="list-style-type: none"> • Process or product (ouput)
Context	<ul style="list-style-type: none"> • Identified problem (by individual or by the group) • Problem solving situation • More or less expected 	<ul style="list-style-type: none"> • More or less “closed” or “opened” problem • Expected or not
Process	<ul style="list-style-type: none"> • Not well modelized • Resources gathering, task identification, development of the solution (<u>development of a new framework</u>), outcome assessment 	<ul style="list-style-type: none"> • Five main stages: task identification, resources gathering, idea development, idea selection and outcome assessment
Resources	<ul style="list-style-type: none"> • Material resources • Collected without any explicit and ex-ante purpose 	<ul style="list-style-type: none"> • Any kind of resources • To be collected when needed but the creative man knows where they are if needed

	Bricolage	Creativity
Actors	<ul style="list-style-type: none"> • Individuals • Curious and interconnection with several networks, worlds, cultures 	<ul style="list-style-type: none"> • Individuals and small groups • Three main characteristics: intrinsic motivation, skills in the domain and creative skills
Relation with the environment	<ul style="list-style-type: none"> • Material • Cultural 	<ul style="list-style-type: none"> • “Human”
Final output	<ul style="list-style-type: none"> • More or less expected • Temporal finality 	<ul style="list-style-type: none"> • New and useful

III. Bricolage as a special aspect of creativity to a new dimension to pursue the exploration of the context of creativity

III.1. Bricolage, between a “responsive” and a “contributory” creativity

We can discuss Innes & Booher (1999)’s point of view, who argue that “*Bricolage (...) is a type of reasoning and collective creativity fundamentally different from the more familiar types, argumentation and tradeoffs*”. Indeed, according to what we just wrote, we can wonder whether creativity can be seen as an inclusive concept and bricolage, as an aspect of creativity.

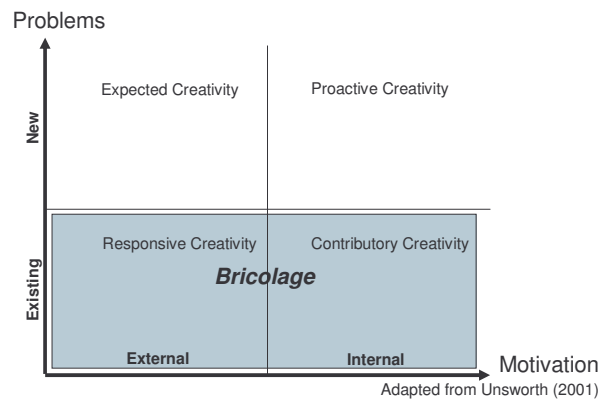
According to Unsworth’s (2001) matrix of creativity, bricolage could be seen as a “responsive” or “contributory” creativity”.

In both types of creativity, the problem the bricoleur has to solve is already closed, identified and given.

However, the drivers of the bricoleur’s actions, i.e. from where the problem to solve comes from, can be internal as well as external. Nothing much is said on the motivation of the bricoleur to get involved into such a process. However, we assume the first part of the process tends to be an internal driven process. Indeed, we raise the assumption that the resources gathering process - i.e. the building of the bricoleur’s “garbage can” that occurs much before the identification of the problem – is driven by an internal motivation. On the contrary, the second of the process of bricolage - i.e. the identification of the resources required to solve the problem and the reemployment of such resources - can be driven by an internal as well as external motivation. In this second case, internal motivation refers to the specific status of bricoleur who is not a project member but is able to develop a solution for a problem that does not belong to his job tasks. On the contrary, the bricoleur who is a project member faces an external motivation to solve the identified problem.

Consequently, bricolage can be placed in the matrix as follows:

Figure 4: Bricolage in Unsworth's Typology of Creativity



III.2. Contribution of bricolage to the exploration of the concept of creativity

Even though bricolage and creativity contain common aspects, and we can argue that bricolage is just one type of creativity, we also believe an analysis of the concept of creativity, by analogy with bricolage is interesting in the sense it opens new ways of exploration to better understand the context and the concept of creativity. More precisely, we make the distinction between two contexts in which an analysis thanks to the notion of bricolage could be of interest.

Bricolage as a means to explore creativity within a time pressure and a crisis context

On of Amabile's latest works (Amabile et al., 2001) sheds light on the fact the perception of time pressure perceived by members of any project group negatively influences creativity. More precisely, members find it hard to develop creative solutions to defined and planned problems but also to unplanned problems. In such cases, members tend to copy and offer non risky and "old" solutions that were successful in other similar contexts. This point of view can be criticized on two aspects:

Firstly, we face once again the old problem dealing with the definition of novelty: what is an "old" or "new" idea. Amabile insists on the fact the novelty is for the organization. However, as Drazin et al. (1999) argue, we can also pretend novelty can also apply to the context. Consequently, an idea that has already been developed and used within a same organization but in another context – the question of similarity between contexts could be discussed – can also be perceived as novel (new?)!

Secondly, bricolage implicitly implies an unplanned problem that has to be solved within a more or less short term perspective – otherwise, one can thing the bricoleur would have enough time to look for other resources to achieve his goal. Obviously, Amabile et al. do not build their conclusions on specific cases where a situation of bricolage does not occur.

In that sense, the notion of bricolage offers an action research framework to help managers to develop creative ideas during a perceived time pressure context. The related assumption regarding this action research framework is a new "knowledge management system" would be required to solve problems within such a context. This knowledge management would not be based on the commonly adopted idea that information (or resources) has to be shared by

everybody within the organization but, on the contrary, project members are more productive if they enter a project with their “garbage can”.

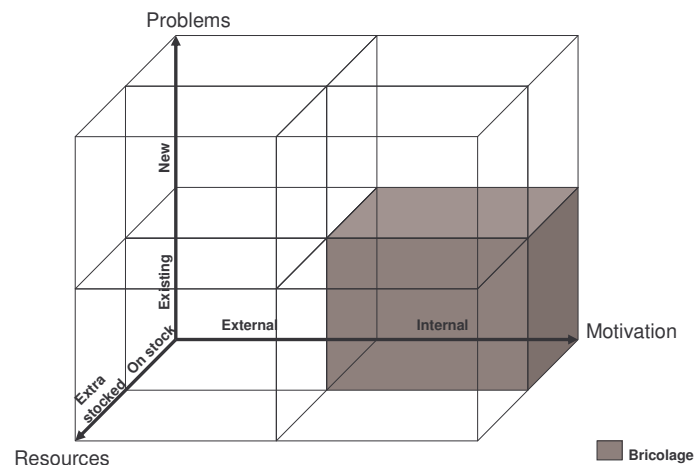
Bricolage as a means to better define the concept of creativity

Bricolage implies a specific resources gathering process and an ability to reframe the perception of the situation, the defined problem. We also find the second idea in the concept of creativity. However, the first one seems to be an unexplored aspect of creativity. Generally speaking, in the creative process, one tends to consider resources are a prerequisite or an easy to solve problem, since the creative person has the network to get the appropriate information or, more generally, the appropriate resource. However, we argue that the task is not so simple. A first action research conducted within a multidivisional firm tends to reveal the basic problem for creative individuals is to find resources – technologies, market studies but also personal networks or even cash – among the labyrinths and chimneys, which constitute the complex structure of the firm. However, these resources would allow him to achieve his goal and solve the problem he has firstly defined or that occurred during a product development process (Le Loarne, 2001, 2004).

Analysing more carefully, i.e. being able to determine the nature and the origins and the time when resources have been identified and gathered within, or maybe before, the creative process occurs, seems to be an interesting twist for a better understanding of the concept of creativity.

More precisely, an analysis of creativity thanks to the notion of bricolage would lead us to better precise the typology of creativity that has been developed by Unsworth, we perceive as to be too general. According to the definition given to bricolage, we can define two “basic” origins of the resources: resources on stock, that have already been gathered by creators and resources that still have to be gathered after the identification of the problem.

Figure 5 – Propositions for an Unsworth’s extended model



Second work research on the concept of creativity that emerges from the analysis of both notions (creativity and bricolage): the link between the performance of creators and the origins of the resources involved in the creative process. Beyond the terminology “origins”, we can question the phase of resources gathering (before or after the identification of the task to be solved) and the context (who gathered the resources, where? Under which

circumstances). Being able to raise a series of assumption regarding this point would be helpful to better understand and the nature of define creative individuals, and, the link between their performance and the knowledge management systems they adopt or develop.

Conclusion

Bricolage and Creativity differ from the frameworks and approaches that have been used to present both notions. Bricolage, which has been mostly used more as a metaphor than as a concept, is the product of an anthropological approach that is reemployed in the management sciences. On the contrary, creativity has been mostly developed and explored by psychologists. As a consequence, scientists developed to notions that designate almost the same objects, even though they have traditionally been used to explain or illustrate different situations: knowledge management for bricolage and product development process or team management for creativity. However, according to our analysis, bricolage seems more precise than creativity and can be regarded as one type of creativity. It consists in a process, as well as a result, that occurs within a problem solving situation, which is not planned by the bricoleur. To achieve his goal, the bricoleur uses resources he has already gathered, change their original use and purpose and re-employ them.

We shall conclude this paper by enhancing two opened assumptions.

The first one deals with the relevancy to use the notion of bricolage to explain or illustrate a product development process, theme that is often analyzed thanks to the concept of creativity. According to our analysis, we tend to answer no, just because all the basic elements contained in the notion of bricolage are also included in the concept of creativity: process, identity, relation between the innovator and his environment... Moreover, the concept of creativity is considered as to be a stable concept. Bricolage does not face the same situation, for the present time.

However, - it is our second assumptions -, we argue bricolage sheds light on aspects of creativity that still be unexplored: the link between the performance of the creative individuals and the mode of resource gathering (when, what and how). Answering this question could help us to erase – or, at least, explain – creativity within a specific context, a problem-solving situation under the perception of time pressure.

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