Collective Creativity by Design: Learning from an Italian Fashion Design Company

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ABSTRACT

Developing collective creativity is viewed as a critical capability needed to sustain competitiveness within a variety of industries. The fashion design industry, with its seasonal cyclic demand, requires intense creativity over a short time cycle that repeats every three months. Such intensity in today's global economy relies on strong leadership to direct the creative designers, backed by precise management processes. These processes entail promoting extensive learning spread across a series of complex fields that go well beyond any single person and involve exchanging and integrating knowledge among individuals and groups. Drawing on literature in creativity and learning, this paper advances the proposal of a framework of collective creativity by design. The framework identifies the learning processes critical to developing collective creativity, the contextual features that regulate the process and the kinds of learning mechanisms that can be intentionally designed to foster collective creativity. The case study of an Italian fashion design company is used to illustrate and discuss the proposed framework. Implications for research and practice are then reviewed.

Key Words: Collective creativity; learning mechanisms; organisational change

INTRODUCTION

Organisations cannot survive, sustain their market position or increase their market share without developing new capabilities (Grant, 1996; Mohrman et al., 2006). Studies across industries and nations have identified the importance of continuously developing new capabilities (Dosi et al., 2000; Henry and Johnston, 2007). Despite the increased focus on

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this challenge, relatively little is known about how to design and develop such an organisational mechanism.

For example, the fashion industry is a knowledge intensive industry that is dependent on the continuous development of new capabilities, such as creativity. The nature of this industry and its customers forces companies to create new materials and products in rapid cycles four times a year – the seasonally driven cycle – and for different age groups. Companies tend to address this level of customer pressure by developing design and management processes that support continuous creativity.

The focus of this paper is on collective creativity by design. 'Collective creativity' is viewed as creativity that occurs in a micro social system, such as a project team or a cross-functional team. 'Collective creativity by design' refers to the intentional decision to focus on learning and implementing learning mechanisms that can prompt and sustain collective creativity.

In this paper, our aim is to illustrate the complexity of developing collective creativity and to explore the various organisational learning mechanisms that can help collective creativity to become established. In the first section of the paper, we present a theoretical analysis of literature on collective creativity and learning. In the second section, we advance the proposal of a design-based framework of collective creativity by design, drawing on the theoretical principles of creativity and learning. The framework identifies the learning processes critical to developing collective creativity, the contextual features that regulate the process, and the kinds of learning mechanisms that can be designed with the express purpose of fostering collective creativity. In the third section, we use the case study of an Italian fashion design company to illustrate the proposed framework and highlight both the role of collective creativity and its complexity. In the final section, we present the discussion and analyse the implications for research and practice.

THEORY DEVELOPMENT: BACKGROUND

The framework proposed in this paper is founded on theory and research; that is, it is based on two scientific aspects of knowledge, namely creativity and learning. In the following subsections, we will review the literature on collective-level creativity and learning.

Creativity at the Collective Level

Most companies try to promote creativity – that is, ideas about solutions, products and services that are both novel and useful to an organisation (Amabile and Khaire, 2008; Kylen and Shani, 2002). Organisational scholars argue that focusing on creativity at an individual level does not address either the nature or the complexity of the issue (Amabile, 1983; Hennessey, 2003). Moreover, creativity often appears as an elusive concept (Hogg and Scoggins, 2001) since '… the duality, paradox and contradictions of creativity are frequently acknowledged and alluded to' (Bilton, 2007: 11).

This paper is concerned with the *organisational* perspective of creativity. Within this area of scientific knowledge, creativity is viewed as more than just an individual-level-related aspect, but also the result of social interaction and social exchanges (Nijstad and Paulus,

2003). The notion of organisational creativity is viewed as 'the creation of a valuable, useful, new product, service, idea, procedure, or process by individuals working together in a complex social system' (Woodman et al., 1993: 293). Kurtzberg and Amabile (2001) claim that relatively little attention has been paid to creativity occurring at the collective level. The term 'collective level' refers to a micro social system or work unit. The concept of a micro social system originally stems from the industrial concept of 'micro units' (Quinn, 1992) and is viewed as a unit of people who work together on a regular basis performing a collective task. It has a clear business-related aim and organisational resources and work processes must be integrated to produce a desired performance outcome.

The examination of creativity at this level becomes even more significant in practice. Most creative ideas within the work context are the outcome of exchange in a collective space, when individual interactions trigger ideas through dialogue, debate and conflict (Chen, 2006; Hennessey, 2003). Creativity seems to be the result of collaboration, interaction and the exchange of ideas (Paulus and Brown, 2003) between people who work together (Amabile and Khaire, 2008; Peelle, 2006). It follows that organisations increasingly rely on specific work units to instigate creativity (Baer et al., 2010).

Scientific literature in which the terms 'group creativity' and 'team creativity' occur frequently is limited and dispersed between different perspectives (e.g. Amabile and Gryskiewicz, 1987; Amabile, 1988; Ekvall, 1999; Kylen and Shani, 2002; Taggar, 2002). These are:

1. The combination of individual characteristics in the group
2. The relationship and interaction between individual group members
3. The relationships between team members and non-team members
4. The nature of group leadership
5. The learning perspective
6. The group development perspective
7. The nature of group resources (resources-based view)
8. The nature of work environments (climate)
9. The nature of the team outcomes

A critical assessment of the relevant literature suggests that there are three main gaps in current knowledge:

1. The need for integration between the different levels of analysis (Woodman et al., 1993)
2. The need to reconcile the objectives of different players, both internal and external (Hargadon and Bechky, 2006)
3. The need for holistic action models, able to help practitioners tackle organisational change and development (Ramamoorthy et al., 2005; Cirella, 2010)

Recently, several scholars have advanced the concept of 'collective creativity' (Hargadon and Bechky, 2006; Chaharbaghi and Cripps, 2007; Catmull, 2008; Bissola and Imperatori,

2011; Hirst et al., 2011) to include, and extend, the concepts of 'group creativity' and 'team creativity', as well as introducing several individual and organisational variables (Catmull, 2008) in a multilevel perspective. 'Collectives' are nested within organisations and are composed of individual members or lower-level collectives (e.g. Morgeson and Hoffman, 1999). For the purpose of this paper, collective creativity is defined as a purposeful set of processes, activities and mechanisms established by individuals working together within an organisation, through which a new idea, product, service or procedure is generated.

This paper subscribes to this view of creativity. Collective creativity emerges from the collaboration between individuals who work together in a micro social system to solve a multi-faceted task or a project (Chaharbaghi and Cripps, 2007). Collective creativity benefits from the integration of all the 'bits and pieces' of knowledge acquired by individuals and those within their network. Therefore, collective creativity is viewed as a process driven by the desire for understanding at a deeper level (inquiry) and for action. It is the outcome of the synergy between various knowledge processes that utilise some form of learning mechanism (Catmull, 2008; Hirst et al., 2009). Collective creativity relies on the knowledge and understanding that is generated within the context of work units addressing a challenge of common concern (Chaharbaghi and Cripps, 2007).

Learning and Learning Mechanisms at the Collective Level

Individuals rarely learn in isolation (O'Leary et al., 2011). Organisations face the challenge of how to turn the learning that an individual acquires through a network into collective learning such that it can guide action and become ingrained in shared routines (Powell, 1998; Kale and Singh, 2007). Three main factors of collective learning are learning at multiple levels, practice-based learning and cross-community learning (Shani and Docherty, 2008; Grant and Baden-Fuller, 1995). Given the complexity of the factors at play, developing capability at the collective level will depend essentially on whether learning processes exist (Edmondson, 1999; Easterby-Smith et al., 2000; Gibson and Vermeulen, 2003).

Such processes seem to be present to the extent that learning mechanisms can be intentionally built into an organisation's design (Fredberg et al., 2011). An organisation can purposefully plan and build learning mechanisms that induce learning by design. Learning mechanisms are conscious, planned tools that proactively enable and encourage collective learning (Popper and Lipshitz, 1998; Shani and Docherty, 2003; Armstrong and Foley, 2003). These features can encourage dynamic learning in general, including the learning required to develop a specific new capability. Although defined and classified in different ways, by different scholars, basically a capability is the capacity to undertake a particular activity successfully in order to achieve a desired end (Grant, 1996). Dosi et al. (2000) stress the importance of a company's long-term intentions and its strategies in providing continuity, which allows capabilities to grow and show up in a company's performance, through building knowledge-based resources and routines that include search routines, decision routines and operating routines. A common theme is that capabilities are coherent mixed bundles of competencies, skills and technologies, rather than being single discrete skills (Mohrman et al., 2006).

A resource-based view of a company emphasises how it can improve its competitive position through harnessing competencies and capabilities. The supporters of dynamic capability would claim that a capability resource should be developed by design and nurtured (Azadegan et al., 2008). Dynamic capability includes other elements, such as absorptive capacity, architectural capability, combinative capability and learning capability. These confer the ability to access, import, generate and apply knowledge, enabling a collective to modify its performance and achieve different outcomes. For example, considering issues of cultural intelligence and adaptation, from the viewpoint of dynamic capabilities, organisations can develop the capability to adapt their resources and expertise to cross-cultural environments (Moon, 2010), by coordinating and restructuring resources to facilitate the learning process.

The capability to learn is a skill that can be designed rather than left to evolve or be positively encouraged (Lipshitz et al., 1996). The learning processes needed to create a new organisational capability can be planned at the individual, collective, organisational and inter-organisational levels, and specific features can be designed to initiate, facilitate, monitor, reinforce and reward this learning (Garvin et al., 2008; Sinkula et al., 1997). Exploring the literature on learning mechanisms, we can identify several different approaches, specifically the cognitive, the structural and the procedural mechanisms (Table 1) (Popper and Lipshitz, 1998; Shani and Docherty, 2003; Mitki et al., 2008; Fredberg et al., 2011).

Cognitive mechanisms are the bearers of language, concepts, symbols, theories, frameworks and values needed to think, reason and understand consistently with one's newly acquired capabilities. Cognitive mechanisms are the principle means whereby an understanding is reached among all employees about the characteristics of such a capability, the need and priority of such a capability for collective creativity within the company, and the learning and changes required to realise it. Cognitive learning mechanisms are 'a foundational part of the emergent multi-level and cross-community social fabric of the firm, and underpin the dispersed practice-based learning processes' (Fredberg et al., 2011: 123).

Structural mechanisms are organisational, physical, technical or work system infrastructures that encourage practice-based learning. Organisational mechanisms enable the collaboration and debate required for collective learning of new practices. Technology mechanisms include learning centres, e-learning programmes, databases and data warehouses, and data sharing systems. Structural learning mechanisms may include communication channels and the establishment of lateral structures to enable learning new practices across various core organisational units; changes to the work organisation, including the definition of roles and the establishment of teams with shared accountability leading to a mutual need to learn; and learning-specific structures, such as parallel learning structures, bench-learning structures and process improvement teams (Fredberg et al., 2011).

Procedural mechanisms concern the rules, routines, methods and tools that can be regulated and adopted within the organisation to promote and support learning. These may include tests and assessment tools and methods, standard operating procedures and methods promoting specific types of collective learning. The focus of the routine or work

process will influence the degree to which the procedural learning mechanism is multi-level and crosses community boundaries. 'Democratic dialogues', work-based dialogue and de-briefing procedures are methods that have been applied successfully, allowing participants to learn systematically from each other's experiences through reflection and the encoding of new knowledge into new practices and/or repositories (Fredberg et al., 2011).

Table 1: Synopsis of Learning Mechanisms

Categories	Key Features	Types and Examples
Cognitive mechanisms	Promote and support learning through thinking, reasoning and understanding learning issues	Language, concepts, models, symbols, theories and values (e.g. company value statements, strategy documents)
Structural mechanisms	Promote and support learning through organisational, technical and physical infrastructures	Feedback channels, communication channels, technical structure, physical structures, fora and arenas (e.g. learning centres, data warehouses, spatial design)
Procedural mechanisms	Promote and support learning through rules, routines, methods and tools institutionalised in the organisation	Methods, models, procedures, rules and tools (e.g. tests, assessment methods, operating procedures)

Source: Adapted and modified from Shani and Docherty (2008: 504)

Linking 'bits and pieces' of wide and complex bodies of knowledge – such as creativity, learning, learning mechanisms, design and strategy – presents a challenge and entails choice. At the base of the proposed collective creativity by design framework is a design-based concept that links the different fields together. The framework attempts to explain the essential elements, the systemic requirements and the different challenges that relate to the great many changes required to enhance creativity within work organisations.

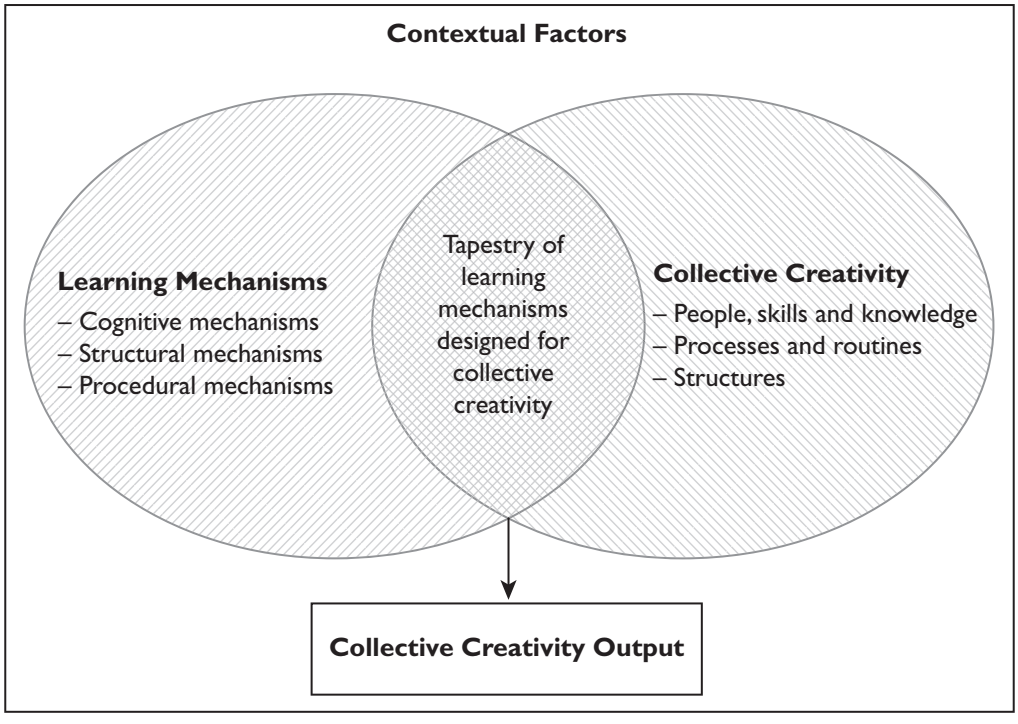
COLLECTIVE CREATIVITY BY DESIGN: A DESIGN-BASED FRAMEWORK

An organisational design-based perspective integrates both structures and processes. This section presents a dynamic design-based framework for collective creativity development (Figure 1). The framework is composed of five interactive clusters, specifically contextual factors, learning mechanisms, collective creativity, tapestry of learning mechanisms and collective creativity output. Within the dynamic nature of the context, the central part of the framework represents the intersection between learning mechanisms and creativity at the collective level. The output corresponds to the set of components developed from collective creativity.

Learning dynamics occur in a specific context of networks. Internal networks include social and professional networks within the organisation, while networks external to the organisation can be communities of practice and professional associations. These learning

processes often occur across groups, teams and communities, and involve individuals and collectives within, and often without, the organisation, leading to systemic learning at both individual and collective level. The nature of learning mechanisms sets the stage for the development of collective creativity, involving skills, knowledge, routines, structures and processes, norms and values.

Figure 1: Towards a Design-Based Framework of Collective Creativity Development



The quality, efficiency and effectiveness of the learning processes leading to the adoption and regulation of new capabilities within an organisation are affected by learning mechanisms. Learning mechanisms are cognitive, structural or procedural features that encourage and facilitate learning processes. They are often consciously designed and implemented for that purpose.

The central flow in the proposed model goes from the complex environmental and organisational context through the organisation's business strategies to the perceived need for capabilities within the organisation that can generate the desired output of creativity, goals and objectives. The development of these capabilities is enabled by the nature and dynamics of the actual learning mechanisms tapestry designed and implemented by the organisation. While the model presented can help to explain and predict creativity

outcomes, it is, however, too simplistic an approach to allow us to explore the dynamics and complexity of collective creativity. In the next section of the paper, we will provide an illustrative case study of an Italian fashion design company. The framework is used to illustrate the company in relation to collective creativity and learning.

ILLUSTRATIVE CASE: AN ITALIAN FASHION DESIGN COMPANY

A multi-phased collaborative research involving one of the top five companies in the Italian fashion design industry provided the data for the case analysis that follows. The company designs and produces silk accessories for men and women, such as scarves, ties and womenswear. The aim of the study was to explore the nature of creativity and how this creativity can be enhanced.

Method

The study represents a part of a collaborative management research process (Cirella et al., 2012), developed following an intervention research approach (Hatchuel and David, 2008). This involved detailed, semi-structured interviews, based on an interview protocol that included questions about the company in general (its markets, products, strategy, structure, processes, challenges and plans for the future) and questions about collective creativity and its meaning, the practices followed when developing creative projects, competencies and resources (questions were chosen from a variety of sources in the scientific literature). The interview protocol and the topics covered in the interview were developed together with company representatives who were part of a joint research team composed of researchers and practitioners. The interviews took place with senior managers, key product managers, designers, colour experts and salespeople (i.e. all the different roles within the unit). The interviewees were selected from units working on three different projects. Table 2 outlines the profile of the interviewees.

The interviewees were initially contacted by phone; they were then sent an email describing the objectives of the research project, the methodology used and the structure of the interview. All the interviews took place face to face, were conducted in Italian and lasted between 45 and 90 minutes. They were carried out by two researchers who had the task of conducting the interviews. The participation of the two researchers was critical both in facilitating dialogue and to ensure that the questions made sense. A total of 21 interviews were carried out, which were all taped and transcribed. Data were analysed using a set of default variables, including the meaning of creativity, key influential factors, the characteristics of the process, required skills and achieved outcome. Each transcribed interview was read, coded and analysed by two different researchers to determine the different relevant aspects. We then prepared a comprehensive analytical report. The data were organised and clustered according to the default variables, preserving the anonymity of the interviewees. The document, including both the most frequent, representative raw responses and the content analysis, was distributed within the company for the entire collective to make sense of the data and create a collective meaning. For the purposes of this paper, some of the data from the total set of data collected were extrapolated with the

objective of illustrating the different elements of the framework, and the quotes were translated into English.

Table 2: Key Characteristics of the Interviewees

Roles	Description of the Roles	Number of Interviewees
Senior management	CEO and the other members of the management team; the heads of the business units (including the design unit)	6
Product manager	Person responsible for a specific collection; each manages a small group of clients	3
Salesperson	Salesperson for a group of clients; each gives strong support to the product managers in meeting the clients, analysing sales data and studying the markets	2
Designer	Person responsible for the creation (design) of the products; usually works for a specific client over a given period; the atelier is the sub-unit that gathers together the designers and is headed by a senior designer	6
Other experts	Support product managers and designers in developing product design; they include brand managers (give marketing support on own brands), company archive managers, colour experts (the so-called 'variantista', who try colour changes in textile printing), Jacquard experts (expert in different printing techniques using a special mechanical loom, called a Jacquard) and print experts/ technicians	4

The Company

Located in Como, the company was founded at the beginning of the twentieth century. Since then, it has grown into one of the market leaders in silk fabrics and in designing and manufacturing accessories. The company has always been a privately held, family-owned and family-managed company. Three generations of the family have led the company since its establishment (and a fourth is now part of the company's management team). During the 1970s, the company strengthened its international presence by opening commercial offices in New York, Paris and Hong Kong. In the early 1990s, they opened an office in the Zhejiang province, China, in order to increase control over raw materials. The company invested heavily in providing advanced technological know-how to bring both the quality and reliability of products up to acceptable standards. These challenges did not produce the intended results. Unsuccessful investments in China and increased global competition translated into financial losses during the period 1999–2001. This losing trend continued

over the following years. Attempts to fight the continuous financial losses did not yield any major success and, in December 2006, the board hired an outsider as the chief executive officer (CEO). The new CEO had a strong background in finance and he handled, first and foremost, the financial emergency. He then formulated a strategic business development plan that centred both on efficiency and on improving customer service.

Contextual Factors

The organisation evolved with a multi-phased corporate restructuring process. The main drivers for restructuring were to cut overhead costs and reorganise the commercial and production divisions. The old organisation was function-based. Changing this approach, the company introduced a hybrid client-based structure which segmented clients (by price, product, creativity, etc.) and the ways to serve them (different distribution systems). While the positive results of the restructuring were becoming apparent, the global economic crisis hit both the company and the entire industry, especially from 2009. These economic pressures resulted in cutbacks throughout the organisation, in working hours, budget and workforce. A new company mission was sorely needed to express its goals both in terms of company profitability and high quality of service to its customers, by pledging its commitment to continuous creativity, innovative design and high quality products.

Learning Mechanisms

The organisation used a variety of learning mechanisms to enhance creativity. The cognitive learning mechanisms seem to play an important role in how the company functions. For example the company mission statement – viewed as a cognitive mechanism – was revised (September 2010) to involve its employees in its new strategies and their implication. The mission states:

> Our mission is to grow profitably, while offering outstanding service to our customers. We endeavour to guarantee excellence and leadership in the area of textiles and accessories, through the quality of our unique and innovative creations.

The revised mission statement reflects and emphasises the combined drive for profitability and a high quality of service to its clients; the two goals are connected to the 'unique and innovative *creations*' (emphasis added) that the people within the company attempt to realise every day to satisfy the continuously changing needs of the market. The mission outlines a specific concept of creativity; that is, not the artistic creativity in crafting works of art, but creativity from an organisational perspective to develop the capability of world-class creativity.

Structural learning mechanisms include different visible structures within the company to sustain organisational learning, including periodical staff meetings (held by the CEO) and, importantly, the design and maintenance of a company archive containing all the designs, materials and collections created by the company since its inception. The archive (or, as it is fondly known in the company, the 'Library') is one of the most comprehensive

in the fashion and design world, and contains all the company's developments in silk over more than 100 years. This learning mechanism represents an important source of inspiration and continuous learning and yields creative ideas for designers. As one designer stated:

> This thing about the archives is very interesting because you are inspired by many things that others have done over the years …. One never knows what will get triggered by whom and when … just sitting in the library with your team and discussing what other ideas were sparked seems to generate a whole new set of ideas.

Procedural learning mechanisms are also visible within the company. One example is the review of procedures, representing an opportunity for the systematic reflection on completed projects (i.e. a collection for a client). Although the process of post-collection reviews is the responsibility of each product manager, the review procedure enables collective reflection and learning. This helps prevent any similar mistakes from being repeated and to inform everyone about the lessons learned, and therefore support continuous improvement. As one designer stated:

> We must be creative, and our creativity must be proactive and focused; to achieve this, we must know our clients and their tastes very well. We need to explore and understand the nature of our past experience with them. The greater the knowledge you have, the easier it gets.

Work Design and Collective Creativity

The company covers the premium market segment of silk products and its clients are the largest, best known players in the fashion industry. Since each customer – on average – commissions four seasonal collections per year (each of which can include several different elements), the company must be able to generate new ideas continuously. The expectation in the industry is that each collection is to be distinctly different from the previous one; the driving pressures seem to be on continuous creativity.

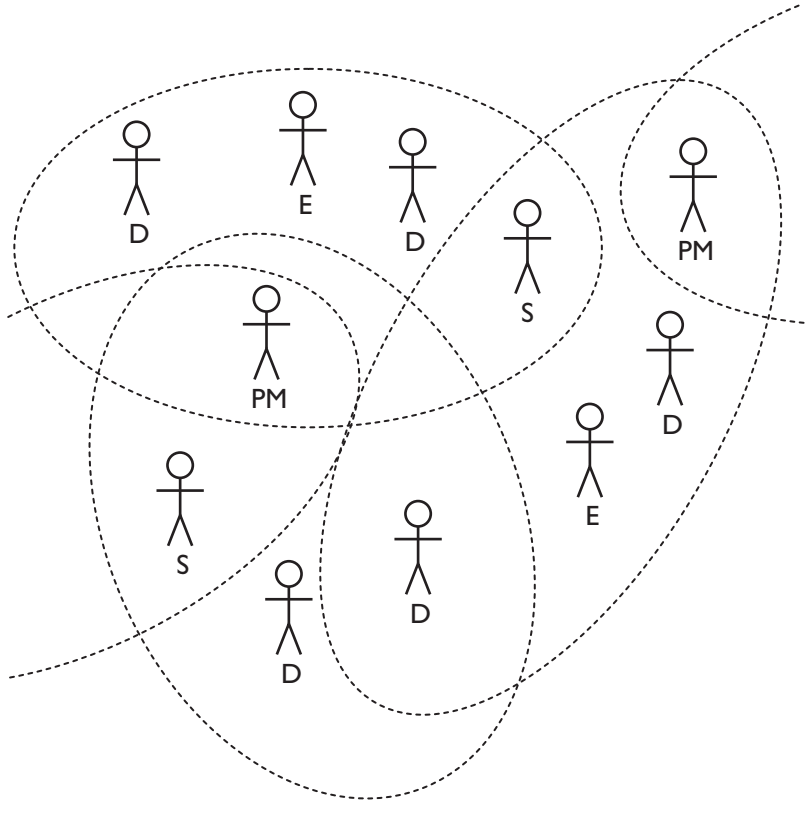
In the design unit, people are given the task of working with a specific client on their collection. This collective of individuals usually consists of a product manager, a salesperson and between three and five designers from the company atelier – the sub-unit that gathers together all the designers. Other people may be involved on an as-needed basis, for example specific colour experts or technicians. The collectives are not viewed as rigid fixed teams (they may change with each occasion, that is, every collection required by a client), although several usually stay as the 'core group' working with a specific client (this is particularly true for designers who have established special relationships with some customers for whom they usually work and they are familiar with the style required). Each person may be part of a different collective at any point in time.

The work units in the company are of a dynamic nature and are flexible and adaptable, inserted within internal (other collective entities, other units) and external networks

(clients, suppliers). In these collective entities, salespeople are associated with specific clients and product managers, but they do not necessarily work with the same customers. Designers are selected for a particular project (i.e. a collection for a client) based on their expertise with regards to specific customers and their requirements, and on whether they are available. This flexibility within the collective is seen as a critical element of creativity. As one product manager stated:

> Collective creativity also comes from the continuous exchange of information …. The collective creativity process integrates experience from different projects, diverse groupings of clients and interaction with others inside and outside the company.

Figure 2: An Illustration of the Collective Entities



PM: Product Manager
S: Salesperson
D: Designer
E: Specific Expert (colour expert or technician)

Figure 2 visually explains how a collective evolves around a new collection for a client. The lifetime of a specific collective entity is typically the development period of a collection.

Learning Mechanisms Tapestry Designed for Collective Creativity

In the case presented, learning mechanisms and collective creativity are clearly visible to the individuals, as described previously, but this does not always guarantee the development of collective creativity (via learning mechanisms); a specific tapestry of learning mechanisms can be designed consciously for collective creativity. For example, a single mechanism (such as the archive) cannot sustain the development of collective creativity on its own. As one senior manager said:

> The archive was the reason why I changed my job. It is the biggest library about silk in the world. Bigger than any other …. But my point of view is that [creativity] must not only be understood, but also needs to be managed. We need to combine the archive with our internal systematic data on creative processes.

In his statement, the manager claims that, in this complex tapestry of learning mechanisms, a structural mechanism (the use of the archive) has to be interwoven with procedural mechanisms (such as review procedures for continuous improvement) within cognitive mechanisms (such as a shared mission, a creative organisational culture). This tapestry therefore involves an entire collective entity and has an impact on creativity at the collective level. As another product manager said:

> When the designers, arguably the most creative group, start work, they need to work with the technicians, the colour experts, the product manager, the salesperson and maybe also others. It is this interweaving of skills and how the process is managed that breeds success.

The realisation that a tapestry of learning mechanisms can aid the collective creativity processes and outcomes seems to be reflected in how people describe their working processes. Actually designing such mechanisms remains an ongoing challenge for management, and it requires more systematic exploration of choices and actions.

Collective Creativity Output

Collective creativity by design means *creating* new solutions that are effective and coherent with the objectives set out by the organisation. In this case specifically, according to the company's mission statement, this means both client satisfaction (through the products designed, e.g. the number of products that are selected to be worn during fashion shows) and achieving positive economical results for the company. Other factors are the satisfaction of individuals within the collective entity to be part of the collective process of creativity, and how original the product is (in aesthetic terms).

One example representing the high level of output from collective creativity is a collection for a famous luxury fashion client, here called FASHION. In this project, the product

manager and the head of the atelier had to work together and cooperate closely. The product manager was not in a position to supervise the unfinished drawings and their development scrupulously, as she was involved in preparing the successive development phases for a new product, which meant that she had to spend a great part of her time in the printing shop trying out the new creation and its process. She said:

> FASHION is a race against time, so my job is to organise the next phase in order to deliver the printed samples. You direct work according to the day-by-day reaction of the client, even a simple sentence said on the phone. For example, by adding their logo if they happen to mention it.

Due to the short time frame, colouring was carried out in parallel with the drawing, by the same designers. As the show was imminent, they already knew the colours they wanted. In this case, they involved inkjet computer-aided design (CAD) technicians. Starting from the idea to use a chandelier, and following input from FASHION, they then moved to baroque frames, a theatre bar, neon lights and even fake flowers. Several designers belonging to this group visited a cemetery to study fake flowers and take this concept further. Specific searches were made through the archive; the team's knowledge about the client allowed them to search for items in the archive in a very specific, focused way. Being able to carry out the processes in parallel meant that the collective entity could deal with challenging requests for creations; it constantly had to re-start and propose new concepts or re-work previous ones, generating proactive ideas and possibilities. The most immediate result of this collective creativity process, supported by a tapestry of learning mechanisms (the archive and the systematic knowledge of the client) was the large number of items in the client's collection, especially when compared to the company's direct competitors. As the head of the atelier said:

> In the end it was a success, because six designs were printed and three were worn during the show.

The general impact of the actions carried out by management to achieve a creative outcome of *excellence* (collective creativity by design) was reflected in the company's financial figures. In 2010, the net income was nearly €1 million and the company was once more profitable, following six years of losses. This result is particularly significant considering the context. Three similar companies in the district, all competing in the same market segment, were reviewed in an Italian national newspaper in February 2011 and the CEO of our case company, when interviewed by the journalist, attributed the company's turnaround to its initiatives involving collective creativity (Pagni, 2011).

This section analysed the representative case of an Italian fashion design company to illustrate an effort of collective creativity. The case was organised and examined using the proposed collective creativity framework. In the next section, the framework will be

discussed, using the elements from the case illustrated above, to define the boundaries and characteristics of a specific field undervalued so far in literature.

DISCUSSION

This section builds on the case illustrated and proposed literature. The framework is discussed in light of its basic parts, namely the learning mechanisms and the contextual factors, the development of collective creativity and the collective creativity output (Figure 3). We will discuss some of the study's limitations, its implications for practice and the direction of future research.

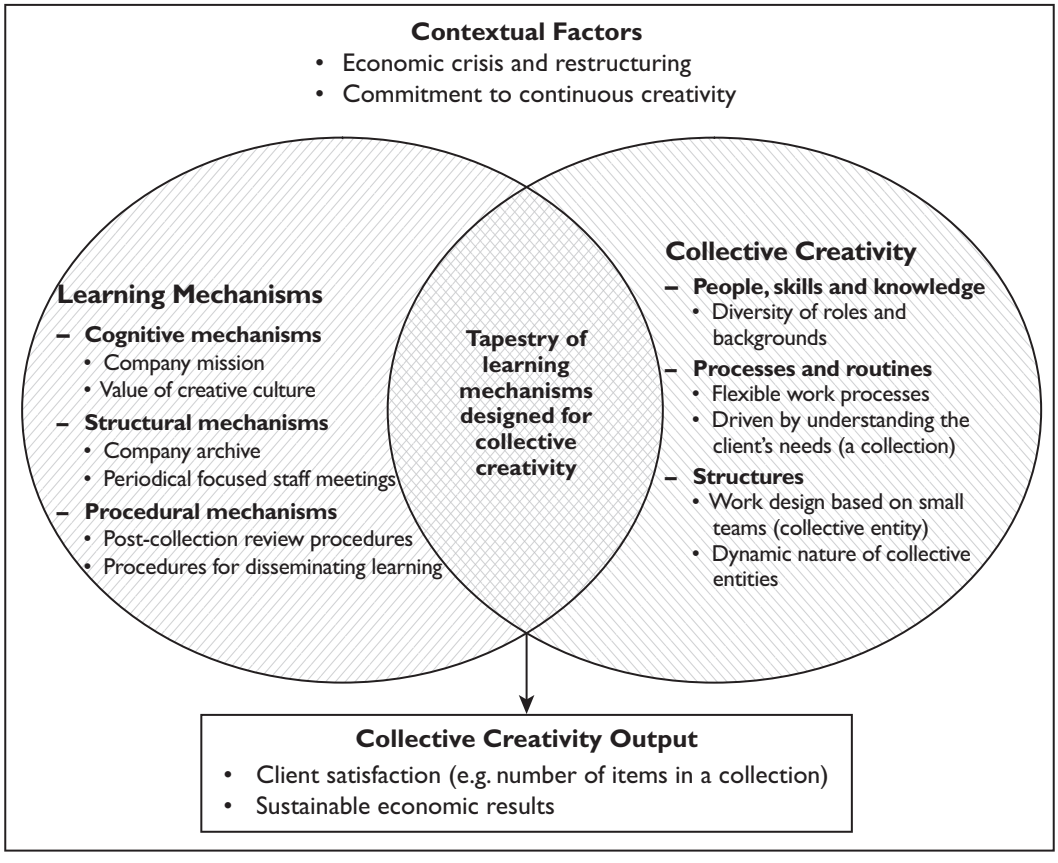
Learning mechanisms are organisational features that foster required learning processes (Lipshitz et al., 1996). Although some may simply emerge informally, the argument advanced in this paper is that learning mechanisms can be designed with the specific purpose of promoting a more rapid development of collective creativity. Because the learning of capabilities necessarily occurs in the context of a complex system, appropriate learning mechanisms must be consciously designed (Hirst et al., 2009; Hirst et al., 2011). In the case illustrated, the possibility of consulting the recent history of a client, using ordinary practices, established a routine that both enhanced and sustained the process of developing collective creativity. The complexity of collective creativity suggests that the learning processes, based on the literature, would benefit from being (1) practice-based, (2) experimental-based, (3) multi-level, (4) cross-community, and (5) systemic and integrative. Sustaining such learning processes requires appropriate learning mechanisms. The literature argues that the effect of these learning mechanisms on the development of collective creativity is also regulated by the contextual factors proposed in the framework: the complex dynamics of these contextual factors can promote or inhibit the learning mechanisms from being established, even when such a need is well understood (Shani and Docherty, 2003; Mitki et al., 2008; Fredberg et al., 2011). Contextual factors can be seen at different levels, specifically in a business context, e.g. the state of economy, features specific to the industry and to the region (e.g. McDonnell et al., 2010); organisational features, e.g. strategy, design, technology, social issues, cultural issues and human resource practices, such as communication (e.g. Heffernan et al., 2009; MacKay and McKiernan, 2010); team features, e.g. task, composition and resources, skills and knowledge, team dynamics, working routines (e.g. Bassett-Jones, 2005); and individual features, e.g. skills and abilities, personality, motivation and basic demographics – education, experience, age, gender (e.g. Faucheux and Moscovici, 1925).

Contextual factors and events have a strong influence over the dynamics under study (Amabile, 1988). For example, regarding the business context, the case showed that an organisational turnaround can underline the need for collective creativity. It could therefore provide an opportunity to promote and accelerate the establishment of learning mechanisms for collective creativity. But, if not addressed and managed, it also could lead to apprehension within the organisation that could inhibit these learning mechanisms and learning processes from being established. For example, all the changes taking place in the

company could mean that new managers may not be informed about company practices and processes, or indeed, may not even want to be informed.

Moving to the core of the framework, collective creativity development can occur at a faster rate if the organisation has built a tapestry of learning mechanisms that include a combination of structural, procedural and cognitive mechanisms (Popper and Lipshitz, 1998; Shani and Docherty, 2003; Mitki et al., 2008). Each organisation is likely to design its own unique learning mechanisms tapestry to fit the nature of its specific organisation and business context. The key features of the learning mechanisms tapestry promote a new set of competencies, which constitute this development (Friedman et al., 2001). Considering the illustrative case, the argument is explicit, because the high level of collective creativity needed is continuously developed through a specific, complex tapestry of mechanisms. At the cognitive level, the organisational culture has to emphasise the mix of competencies in learning structures and procedures that are needed for collective creativity (Kenny and

Figure 3: Partial Illustration of Empirical Data from the Case



Reedy, 2006). If learning structures and procedures are not designed and aligned in a way that promotes and enhances creativity, events and problems will very likely be managed without seeking either to reframe the existing understanding or to reformulate current knowledge (Antonacopoulou, 1999).

This hybrid collection of structural, procedural and cognitive mechanisms can help the learning processes within work groups and between individuals or groups from different sets and networks (e.g. different levels in an organisation, different organisations and different contexts). These must address different skills ('the interweaving of competencies' (a product manager) in this case), experiences, values, professional or organisational identities, goals and priorities. An approach based on competence must be connected to group and social dynamics (Antonacopoulou and FitzGerald, 1996). It is especially important to ensure efficiency in learning across internal and external sets, where there are different learning contexts. The extent to which learning mechanisms span different sets and networks, and connect and give voice to different players in the respective systems could indeed enhance the value and effectiveness of the output from the collective creativity. For example, in the case illustrated, learning *with* the clients appears to be critical for collective creativity and its results. Such dynamics strengthen the way in which the collective creativity output produces added value for the company.

The literature also yields several parameters that can be used to evaluate a creative process, such as originality, fluency, disciplinary open-mindedness and flexibility towards new ideas. When the focus shifts to collective creativity in organisations the output of creativity at the collective level influences the way target results for the task assigned to the group of people working together can be achieved. This leads to the argument that the main parameters of the output generated collectively include its economic results (in this case, the amount of sales of a new product), client satisfaction (in this case, whether the company's designs appear at the most prestigious shows where the clients' collections are presented and, in the long term, the ability to retain the most prestigious companies as clients), the satisfaction of the people who contributed (in this case, the satisfaction of designers and managers, which influences the climate within the organisation), and the originality of the output (in the case, the aesthetic merits of a new collection).

The complex nature of both the topic and the study exploring this topic does have a few limitations that can be overcome with future investigations. The framework proposed was basically derived from scientific literature and explored through the case study. As such, further scientific investigation to examine the possible causal relationships within the framework would be of added value. Another limitation concerns the generalisation of the results. These were based on the study of a fashion design company in northern Italy. Further studies should explore the nature of collective creativity in other industrial sectors and in other contexts, both cultural and at a national level.

Directions for Future Research

This paper and the proposed framework provide the opportunity to advance scientific knowledge in a variety of areas and directions. According to the literature, the mechanisms

of organisational learning are gaining relevance within the debate on management topics as a way of supporting the development of different organisational practices and processes of change across a wide range of fields. In current literature, however, there is no specific research that focuses on the impact of learning mechanisms on the practices of collective creativity within micro social systems.

Future research could be directed at investigating the effects of different combinations of learning mechanisms (learning mechanisms tapestries) on the development of collective creativity. It could explore different types of micro social systems to enhance both learning mechanisms and collective creativity, collective creativity output parameters relating to the effect of the tapestry of learning mechanisms designed for collective creativity, the possible relationships between individual and collective creativity, and the relationship between internal and external networks and the development of collective creativity.

Finally, a collaborative research structure (Coghlan and Brannick, 2005; Cassell and Johnson, 2006; Shani et al., 2012) is likely to generate new insights into both theoretical development and management practices. Due to the complexity of this issue, it is likely that research should combine qualitative and quantitative methods. For example, further investigations could attempt to make the framework operational (following Morgeson and Hoffman, 1999) and quantify the interactions between the different elements empirically.

Implications for Practice

Practitioners face increasing challenges in promoting creativity in the workplace. The dynamics of creativity, the many factors that can impact on creativity and the difficulty in developing collective creativity are complex and not easily understood. In this paper we provide a comprehensive framework that analyses the issue of collective creativity and can improve the understanding of the levers that promote the development of collective creativity. This framework supplies a way to map out learning mechanisms within an organisation. It also provides a roadmap to help design the particular learning mechanism tapestry that fits a specific organisation and its business context. Common to the three types of learning mechanism – cognitive, structural and procedural – during the process in which collective creativity is being developed, is the fact that they stimulate the creation of a new shared meaning and enable learning and the generation of knowledge across multiple networks and communities, throughout different hierarchical levels of an organisation and across the boundaries within an organisation. They build learning into the organisation's routines, so that it becomes synonymous with the development of collective creativity and its output. Lastly, the structure provides a holistic perspective that can guide the actions of managers at all different levels within an organisation, who desire to improve or promote collective creativity and its results.

Conclusions

This paper combines different literatures that traditionally have not been integrated. In doing so, we hope to provide value to practitioners and scholars. The components of the framework proposed integrate current theory and empirical research on creativity,

collective creativity, learning mechanisms and processes. We discussed the theoretical foundations of the framework and possible interactions between the elements of the framework. The complexity of the relationships suggests, however, that there is a need for further research to highlight how extensive and intense these relationships are.

While it remains a fundamental challenge for many organisations, the complexity of collective creativity by design helps us to appreciate why scientists studying organisation-related topics and organisations generate only limited research or indeed have produced different versions. Developing collective creativity has received limited attention in the areas of strategy, organisational learning and networks. We synthesised knowledge found in the literature to create and propose a systemic model that could advance scientific knowledge and be of practical use for managers wishing to implement processes to enhance collective creativity.

REFERENCES

Amabile, T.M. (1983) 'The Social Psychology of Creativity: A Componential Conceptualization', *Journal of Personality and Social Psychology*, 45, pp. 357–76.

Amabile, T.M. (1988) 'A Model of Creativity and Innovation in Organizations', in B. Staw and L.L. Cummings (eds.), *Research in Organizational Behavior*, Greenwich, CT: JAI Press.

Amabile, T.M. and Gryskiewicz, S.S. (1987) *Creativity in the R&D Laboratory: Technical Report 30*, Greensboro, NC: Center for Creative Leadership.

Amabile, T.M. and Khaire, M. (2008) 'Your Organization Could Use a Bigger Dose of Creativity', *Harvard Business Review*, 86, pp. 101–9.

Antonacopoulou, E.P. (1999) 'Individuals' Responses to Change: The Relationship between Learning and Knowledge', *Creativity and Innovation Management*, 8, pp. 130–9.

Antonacopoulou, E.P. and FitzGerald L. (1996) 'Reframing Competency in Management Development', *Human Resource Management Journal*, 6, pp. 27–48.

Armstrong, A. and Foley, P. (2003) 'Foundations for a Learning Organization: Organization Learning Mechanisms', *Learning Organization*, 10, pp. 74–82.

Azadegan, A., Bush, D. and Dooley, K. (2008) 'Design Creativity: Static or Dynamic Capability?', *International Journal of Operations & Production Management*, 28, pp. 636–62.

Baer, M., Leenders, R.TH.A.J., Oldham, G.R. and Vadera, A.K. (2010) 'Win or Lose the Battle for Creativity: The Power and Perils of Intergroup Competition', *Academy of Management Journal*, 53, pp. 827–45.

Bassett-Jones, N. (2005) 'The Paradox of Diversity Management, Creativity and Innovation', *Diversity Management*, 14, pp. 169–75.

Bilton, C. (2007) *Creative Management: From Individual Talent to Collective Process*, London: Creative Industries Workshop – Creative Industries Observatory.

Bissola, R. and Imperatori, B. (2011) 'Organizing Individual and Collective Creativity: Flying in the Face of Creativity Clichés', *Creativity and Innovation Management*, 20, pp. 77–89.

Cassell, C. and Johnson, P. (2006) 'Action Research: Explaining the Diversity', *Human Relations*, 59, pp. 783–814.

Catmull, E.D. (2008) 'How Pixar Fosters Collective Creativity', *Harvard Business Review*, 86, pp. 65–72.
Chaharbaghi, K. and Cripps, S. (2007) 'Collective Creativity: Wisdom or Oxymoron?', *Journal of European Industry Training*, 31, pp. 626–38.
Chen, M.-H. (2006) 'Understanding the Benefits and Detriments of Conflict on Team Creativity Process', *Creativity and Innovation Management*, 15, pp. 105–16.
Cirella, S. (2010) 'Exploring the Phenomenon of Collective Creativity: Learning from Collaborative Research Projects', doctoral thesis, Politecnico di Milano.
Cirella, S., Guerci, M. and Shani, A.B. (2012) 'A Process Model of Collaborative Management Research: The Study of Collective Creativity in the Luxury Industry', *Systemic Practice and Action Research*, 25, pp. 281–300.
Coghlan, D. and Brannick, T. (2005) *Doing Action Research in Your Own Organization*, second edition, London: Sage.
Dosi, G., Nelson, R.R. and Winter, S.G. (eds.) (2000) *The Nature and Dynamics of Organizational Capabilities*, New York: Oxford University Press.
Easterby-Smith, M., Crossan, M. and Nicolini, D. (2000) 'Organizational Learning: Debates Past, Present and Future', *Journal of Management Studies*, 37, pp. 783–96.
Edmondson, A. (1999) 'Psychological Safety and Learning Behavior in Work Teams', *Administrative Science Quarterly*, 44, pp. 350–83.
Ekvall, G. (1999) 'Creative Climate', in M. Runco and S. Pritzker (eds.), *Encyclopedia of Creativity*, San Diego, CA: Academic Press.
Faucheux, C. and Moscovici, S. (1925) *Studies on Group Creativity*, Laboratoire de Psychologie Sociale de la Sorbonne, Universite de Paris.
Fredberg, T., Norrgren, F. and Shani, A.B. (2011) 'Developing and Sustaining Change Capability via Learning Mechanisms: A Longitudinal Perspective on Transformation', in A.B. Shani, R. Woodman and W.A. Pasmore (eds.), *Research in Organizational Change and Development*, Bingley: Emerald.
Friedman, V.J., Lipshitz, R. and Overmeer, W. (2001) 'Creating Conditions for Organizational Learning', in A.B. Antal, M. Dierkes, J. Child and I. Nonaka (eds.), *Handbook of Organizational Learning and Knowledge*, New York: Oxford University Press.
Garvin, D.A., Edmondson, A.C. and Gino, F. (2008) 'Is Yours a Learning Organization?', *Harvard Business Review*, 86, pp. 109–16.
Gibson, C. and Vermeulen, F. (2003) 'A Healthy Divide: Subgroups as a Stimulus for Team Learning Behavior', *Administrative Science Quarterly*, 48, pp. 202–39.
Grant, R.M. (1996) 'Prospering in Dynamically Competitive Environments: Organizational Capability as Knowledge Integrators', *Organization Science*, 7, pp. 375–87.
Grant, R.M. and Baden-Fuller C. (1995) 'A Knowledge-Based Theory of Inter-Firm Collaboration', *Academy of Management, Best Papers Proceedings*, pp. 17–21.
Hargadon, A.B. and Bechky, B.A. (2006) 'When Collections of Creatives Become Creative Collectives: A Field Study of Problem Solving at Work', *Organization Science*, 17, pp. 484–500.

Hatchuel, A. and David, A. (2008) 'Collaborating for Management Research: From Action Research to Intervention Research in Management', in A.B. Shani, S.A. Mohrman, W.A. Pasmore, B. Stymne and N. Adler (eds.), *Handbook of Collaborative Management Research*, Thousand Oaks, CA: Sage.

Heffernan, M., Harney, B., Cafferkey, K. and Dundon, T. (2009) 'Exploring the Relationship between HRM, Creativity Climate and Organisational Performance: Evidence from Ireland', paper presented at the Academy of Management conference, Chicago, IL, 7–11 August.

Hennessey, B.A. (2003) 'Is the Social Psychology of Creativity Really Social? Moving Beyond a Focus on the Individual', in P.B. Paulus and B.A. Nijstad (eds.), *Group Creativity: Innovation through Collaboration*, New York: Oxford University Press.

Henry, C. and Johnston, K. (2007) 'The Creative Industries: Ireland's New Tiger Economy?', *Irish Journal of Management*, 28(2), pp. 211–19.

Hirst, G., Knippenberg, D.V., Chen, C.-H. and Sacramento, C.A. (2011) 'How Does Bureaucracy Impact Individual Creativity? A Cross-Level Investigation of Team Contextual Influences on Goal Orientation–Creativity Relationships', *Academy of Management Journal*, 54, pp. 624–41.

Hirst, G., Knippenberg, D.V. and Zhou, J. (2009) 'A Cross-Level Perspective on Employee Creativity: Goal Orientation, Team Learning Behavior, and Individual Creativity', *Academy of Management Journal*, 52, pp. 280–93.

Hogg, M.K. and Scoggins, B. (2001) 'Telling Tales: An Ethnographic Account of Creativity in Agency–Client Relations', paper presented at the Critical Management Studies conference, Manchester, 11–13 July.

Kale, P. and Singh, H. (2007) 'Building Firm Capabilities through Learning: The Role of the Alliance Learning Process in Alliance Capability and Firm-Level Alliance Success', *Strategic Management Journal*, 28, pp. 981–1000.

Kenny, B. and Reedy, E. (2006) 'The Impact of Organisational Culture Factors on Innovation Levels in SMEs: An Empirical Investigation', *Irish Journal of Management*, 27(2), pp. 119–42.

Kurtzberg, T.R. and Amabile, T.M. (2001) 'From Guilford to Creative Synergy: Opening the Black Box of Team-Level Creativity', *Creativity Research Journal*, 13, pp. 285–94.

Kylen, S.F. and Shani, A.B. (2002) 'Triggering Creativity in Teams: An Exploratory Investigation', *Creativity and Innovation Management*, 11, pp. 17–30.

Lipshitz, R., Popper, M. and Oz, S. (1996) 'Building Learning Organizations: The Design and Implementation of Organizational Learning Mechanisms', *Journal of Applied Behavioral Science*, 32, pp. 292–305.

MacKay, B. and McKiernan, P. (2010) 'Creativity and Dysfunction in Strategic Processes: The Case of Scenario Planning', *Futures*, 42, pp. 271–81.

McDonnell, A., Gunnigle, P. and Lavelle, J. (2010). 'Learning Transfer in Multinational Companies: Explaining Inter-Organisation Variation', *Human Resource Management Journal*, 20, pp. 23–43.

Mitki, Y., Shani, A.B. and Stjernberg, T. (2008) 'Leadership, Development and Learning Mechanisms: System Transformation as a Balancing Act', *Leadership & Organization Development Journal*, 29, pp. 68–84.

Mohrman, S.A., Docherty, P., Shani, A.B., Schenkel, A.J. and Teigland, R. (2006) 'The Development of New Organizational Capabilities', paper presented at the Academy of Management annual conference, Atlanta, GA, 11–16 August.

Moon, T. (2010) 'Organizational Cultural Intelligence: Dynamic Capability Perspective', *Group & Organization Management*, 35, pp. 456–93.

Morgeson, F.P. and Hofmann, D.A. (1999) 'The Structure and Function of Collective Constructs: Implications for Multilevel Research and Theory Development', *Academy of Management Review*, 24, pp. 249–65.

Nijstad, B.A. and Paulus, P.B. (2003) 'Group Creativity: Common Themes and Future Directions', in P.B. Paulus and B.A. Nijstad (eds.), *Group Creativity: Innovation through Collaboration*, New York: Oxford University Press.

O'Leary, M.B., Mortensen, M. and Woolley, A.W. (2011) 'Multiple Team Membership: A Theoretical Model of Its Effects on Productivity and Learning for Individuals and Teams', *Academy of Management Review*, 36, pp. 461–78.

Pagni, L. (2011) 'Como un Declino Morbido Come la Seta', *Il Lunedì de La Repubblica, Affari & Finanza*, 28 February, p. 13.

Paulus, P.B. and Brown, V.R. (2003) 'Enhancing Ideational Creativity in Groups: Lessons from Research on Brainstorming', in P.B. Paulus and B.A. Nijstad (eds.), *Group Creativity: Innovation through Collaboration*, New York: Oxford University Press.

Peelle, H.E. (2006) 'Appreciative Inquiry and Creative Problem Solving in Cross-Functional Teams', *Journal of Applied Behavioral Science*, 42, pp. 447–67.

Popper, M. and Lipshitz, R. (1998) 'Organizational Learning Mechanisms: A Structural and Cultural Approach to Organizational Learning', *Journal of Applied Behavioral Science*, 34, pp. 161–79.

Powell, W.W. (1998) 'Learning from Collaboration: Knowledge and Networks in the Biotechnology and Pharmaceutical Industries', *California Management Review*, 40, pp. 228–41.

Quinn, J.B. (1992) *Intelligent Enterprise: A Knowledge and Service Based Paradigm for Industry*, New York: Free Press.

Ramamoorthy, N., Flood, P.C., Slattery, T. and Sardessai, R. (2005) 'Determinants of Innovative Work Behaviour: Development and Test of an Integrated Model', *Creativity and Innovation Management*, 14, pp. 142–50.

Shani, A.B., Coghlan, D. and Cirella, S. (2012) 'Action Research and Collaborative Management Research: More than Meets the Eye?', *International Journal of Action Research*, 8, pp. 45–67.

Shani, A.B. and Docherty, P. (2003) *Learning by Design: Building Sustainable Organizations*, Oxford: Blackwell Publishing.

Shani, A.B. and Docherty, P. (2008) 'Learning by Design: Key Mechanisms in Organization Development', in T. Cummings (ed.), *Handbook of Organizational Change and Development*, Thousand Oaks, CA: Sage.

Sinkula, J., Baker, W. and Noordewier, T. (1997) 'A Framework for Market-Based Organizational Learning: Linking Values, Knowledge, and Behavior', *Journal of the Academy of Marketing Science*, 25, pp. 305–18.

Taggar, S. (2002) 'A Multi-Level Model of Creativity in Intact Workgroups', *Academy of Management Journal*, 45, pp. 315–31.

Woodman, R.W., Sawyer, J.E. and Griffin, R. (1993) 'Towards a Theory of Organizational Creativity', *Academy of Management Review*, 18, pp. 293–321.