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A Process Model of Collaborative Management Research: The Study of Collective Creativity in the Luxury Industry

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Abstract This article explores collaborative management research (CMR). As one of the streams within the action research family, CMR is one approach that has been identified as a potent method for advancing scientific knowledge and bringing about change in organizations. The article proposes a hybrid model of the CMR research process in organizations. Following a brief introduction of collaborative management research, we advance an emerging, inductively derived, hybrid process model of CMR. Three critical clusters for achieving the intended outcomes of collaborative management research include: (1) contextual factors, (2) quality of the collaboration, and (3) the development of the collaborative research process itself. Within each cluster, concepts, variables, and processes were identified and linked together to form a hybrid model of CMR process. An illustration of a collaborative management research project that focused on the study of collective creativity with an Italian fashion and design company is followed by a reflective analysis. The discussion provides directions for future research and implications for practice.

Keywords Collaborative management research · Organizational change and development · Collective creativity

Introduction

The debate on research ontology, epistemology, methodologies and relevancy in the Management field continues to be lively. Management and research in organizations are the targets for growing criticism. *Management* and its practitioners are criticized in the public debate and in scholarly writings for acting irrationally based on unfounded beliefs

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and imitation (Pfeffer 2009). *Management science* and the researchers it engages are criticized for producing knowledge of little relevance for management practice (Starkey et al. 2009). Collaborative management research (CMR) can help improve the relevance of both (Shani et al. 2008).

Methodologies that are based on varied degrees of *action* and *collaboration* were advanced during the last (and the current) century, each of which seems to emphasize distinct scientific or collaborative or action features. Such methodologies include action research, participatory action research, action learning, action science, developmental action inquiry, cooperative inquiry, clinical inquiry/research, appreciative inquiry, learning history, intervention research, and collaborative management research, to mention a few.

The collaborative management research orientations are based on a specific world view (ontology), epistemology that expresses how we seek to know (the theory of knowledge) and methodologies that articulate the approach that is being adopted for inquiry (Coghlan and Brannick 2010). Those orientations seem to be consistent with the "system thinking", which is based on the concepts of emergence and interrelatedness (Emery 1981). Indeed, system thinking has been conceived in the social sciences in two different ways: system thinking, which advocates thinking about real social systems as they are in the world, and systemic thinking, which assumes that the social construction of the world is systemic; both those theoretical streams constitute a grounding for collaborative research orientations in general and action research in particular (Flood 2010).

Due to the scope of this manuscript we stay away from the debate about both the scientific merit of research orientations in organizations and any comparative based discussion about the wide variety of collaborative research orientations. Our view is that collaborative research is a form of science in the field of practical knowing, which differs from the model of experimental physics that have dominated the traditional organization and management science. Yet, it is genuinely scientific in the emphasis on the careful scientific observation, documentation and interpretation in the study of human behavior and human systems in organizational settings. For those reasons, collaborative research is consistent with the Mode 2 Knowledge Creation, which has the following main features: knowledge produced in the context of application, transdisciplinarity, heterogeneity and organizational diversity, social accountability and reflexivity, diverse range of quality controls (Gibbons et al. 1994).

At the most basic level, CMR orientation claims that by bringing management and researchers closer together, the rate of progress in understanding and addressing issues such as creativity, innovation, growth, change, organizational effectiveness and economic development will be faster than if either managers or researchers approached these topics separately. Managers are continuously acting out models of good management but are not always aware of where the models came from, how they were developed, whether they are robust, or whether they fit the current circumstances. Management scientists are continuously building new models while keenly observing what is going on in the world of business. If the two groups join forces they will have the components necessary for faster and more relevant knowledge creation: model building, testing out models, observing consequences and analyses of cause and effects. Closed groups and systems do not easily change or innovate. Left on their own, managers might continue to develop local solutions to organizational issues that do not draw upon the vast shared knowledge that exists, in an uncoordinated fashion and without the benefit of the latest thinking on the topic. The result would be to reinvent the wheel, misdirect or sub-optimize the application of organizational resources, and ultimately achieve slower progress. On the other hand, left to their own devices, researchers could frame questions with no practical significance, draw erroneous conclusions from data, or suggest

remedies that are entirely impractical. In theory at least, bringing together managers with practical experience and urgent needs with academics who are in touch with accumulated wisdom and possess the capacity for research-driven innovation should be a win–win for both as well as for society at large (Pasmore et al. 2008a).

This article focuses on a specific CMR effort that investigated the phenomenon of collective creativity. A brief review of the emerging CMR orientation is followed by a proposed hybrid CMR model. The model is used to describe and examine a collaborative management research project with an Italian fashion and design company. Last, the collaborative research effort is discussed within the context of the illustrative project and the set of criteria about rigor and relevance that were advanced by Pasmore et al. (2008b).

Collaborative Management Research: A Definition and Some Key Features

According to Pasmore and his colleagues, CMR is not a new thought (Pasmore et al. 2008a). For example, some draw upon Socrates for guidance that is extremely relevant to the conduct of collaborative research today (Tenkasi and Hay 2008). CMR efforts in the early part of the twentieth century produced innovations ranging from time and motion studies (Taylor 1911) to high performance work systems (Trist and Bamforth 1951) to human relations at work (Roethlisberger and Dickson 1939). These efforts were not formulated with an explicit intention of undertaking collaborative research; they were simply natural evolutions of existing collaborative relationships that led to ground-breaking projects with benefits to both the organizations involved and the field of management more broadly. It is only now as we look back on these efforts that we can see in each how perfectly the context for collaboration was created, even though it seemed so effortless that it was given almost no attention at the time.

One of the most comprehensive definition of CMR was advanced recently by Pasmore et al. (2008a, p. 20): "*Collaborative management research* is an effort by two or more parties, at least one of whom is a member of an organization or system under study and at least one of whom is an external researcher, to work together in learning about how the behaviour of managers, management methods, or organizational arrangements affect outcomes in the system or systems under study, using methods that are scientifically based and intended to reduce the likelihood of drawing false conclusions from the data collected, with the intent of both proving performance of the system and adding to the broader body of knowledge in the field of management".

As such, CMR is research that occurs in a natural setting within a specific business and industry context, involves true collaboration between practitioners and researchers, addresses an emerging specific issue of concern, uses multiple methodologies that are scientific, involves the creation of a learning system via the establishment of learning mechanisms, improves the system performance and, adds to the scientific body of knowledge in the field of management. At the core of CMR one can find three terms or pillars: Collaboration, management and, research.

"Collaboration" implies research efforts which include the active involvement of managers and researchers in the framing of the research agenda, the selection and pursuit of methods and the development of implications for action (e.g. *co-determination* of the research, *co-evolution* and *co-interpretation*). In our view "collaboration" does not impose the requirement of an equal partnership in each of these activities, although we understand that a more equal partnership would be ideal (see Lincoln and Guba 1985 and Reason 1988 for a discussion of the benefits of collaborative inquiry). At the heart of this endeavor is

"collective inquiry" which is the joint pursuit of answers to questions of mutual interest through dialogue, experimentation, the review of knowledge, or other means. To be more precise, management engages in collective inquiry in order to get a better understanding of a certain issue or phenomenon by means of input of scientifically valid knowledge from researchers. Similarly, scientists engage in collective inquiry in order to get a better understanding of a certain issue or phenomenon by means of practically valid knowledge from practitioners. If two parties don't share a fundamental interest in learning, there can be no collective inquiry and no collaborative research.

The second pillar in the term, "Management", should have the same meaning to most. Yet, this is not necessarily the case nor is our ability to explore the meaning of management within the scope of this article. For some *Management* is thought of as a noun: an individual or collective group of actors who aspire to influence the behavior or performance of a system. *Management* (*or managing*) also can be a verb: the practice of those actors, i.e. what formal or informal managers actually do to achieve their intentions. In addition, *Management* signifies an art or practice, i.e. what managers tacitly or explicitly know and believe about how to go about managing an organization or complex system. Pasmore et al. (2008a) suggest that one can envision three dimensional matrix in which one dimension focuses on the actions of different types of managerial actors (individual, organizational, systemic); the different setting as the second dimension (a single organization, networks of organizations, systems, regions or communities), and; the third dimension being the *aspect* of management studied (specific managerial actions; systems of management processes affecting organizational culture or performance; coordinating mechanisms among networks of organizations). One can also add to this complexity by inserting additional dimensions such as managerial roles. Thus, the question of what is management and how one should approach its study is open to debate and experimentation.

"Research" is the third and last pillar of the term. At the most fundamental level, what every form of research shares in common is the desire to understand something of importance through the use of means that limits the likelihood that we will reach false conclusions. What researchers aspire to add to the discussion of these topics is "objective data", or rather to express beliefs justified by earlier research, by observations having been gathered through more rigorous methods, and having been arrived at by a better application of a formalized logic than one would casually use in forming an opinion about something based on one's personal experience or informal conversations with others.

As can be seen from what is outlined above, while the benefits of CMR are attractive, attaining them is not easy and certainly never guaranteed. The complexity of the CMR process coupled with the emerging complex nature of the workplace, firms, industries and regions suggests the need for a guiding conceptual model or a roadmap for action. This study attempts to propose a comprehensive hybrid model of the CMR process and its outcomes.

A Hybrid Process Model of Collaborative Management Research

This section presents an overview of the proposed hybrid process model of collaborative management research. The framework presented in Fig. 1 identified the main elements characterizing the process and outcomes of the CMR effort. The model is viewed as a hybrid due to the fact that it includes a few elements from action research (Shani and Pasmore 1985; Dickens and Watkins 1999; Stephens et al. 2009), clinical research/inquiry (Coghlan 2009), intervention research (Hatchuel and David 2008) and developmental action inquiry (Torbert 1999).

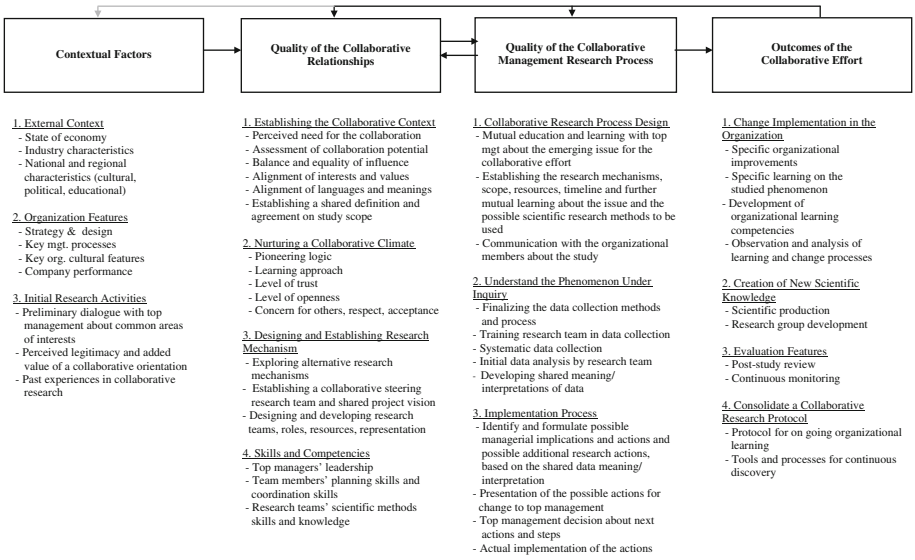

Fig. 1 A hybrid process model of collaborative management research

The formulation envisions four major sets of interrelated clusters with a number of variables that affect the CMR process: (1) contextual factors, (2) quality of the collaborative relationships, (3) the quality of the collaborative management research process itself, and (4) the outcomes of the collaborative effort.

Contextual Factors

The first set of factors is seen as contextual to the collaborative effort because they set the stage of the collaborative effort. This cluster includes three kinds of contextual factors. Particularly, this category underlines the importance of the external context in which the collaboration takes place, and the importance of understanding the nature and characteristics of the parties involved in the collaboration. The external context includes the state of the economy, the characteristics of the industry (in which the effort takes place) and the national and regional characteristics (cultural, political, educational). Organizational features affect the quality of the collaboration and, in turn, the development of the collaborative process. Some of the main features include business strategy, structure, key processes, technology, social system, economic performance indicators, and management systems and dynamics. Finally, the initial research activities such as the preliminary dialogue with top management about common areas of interests, perceived legitimacy and added value of a collaborative orientation and past experiences in collaborative research, all play a critical role in shaping the quality of the collaborative relationships that evolve.

The Quality of the Collaborative Relationships

The second cluster in the model is the nature and quality of the emergent collaborative relationships. It differentiates the CMR from other specific orientations, and it has the most significant impact on the collaboration process and, in turn, on the outcomes. The context

in which the collaboration takes place does much to determine the quality of the collaboration that will eventually evolve, but the management of the collaboration is equally important, if not more important. In this sense, the quality of the collaboration depends on different factors. First, the establishments of the collaborative process sets in motion the emerging collaborative dynamics. This factor includes different variables, such as the perceived level of need for collaboration, the collaboration potential, the alignment of interests, values, languages and meanings. Differently from other orientations, we propose an approach in which there is a common definition and sharing, and then a common agreement, concerning the collaborative study and its scope. The organization does not seek help, and the researchers do not impose their studies; the collaboration here is really co-determined by the constructive dialogue between the researchers and the top management of the organization about a topic of mutual interest.

An integral part of the exploratory dialogue is the establishment of a collaborative climate. Nurturing a collaborative climate, the second factor in this cluster, refers to the pioneering and learning logic, the building of trust and openness and, finally, modeling the concerns for others, respect and acceptance. As a part of the early dialogue with top management different ways to manage the project and the possible mechanisms to carry out the project are explored. Some tapestry of research project steering group and study teams that best fits the organization and topic under study are explored and established. A few of the key variables in this factor include possible criteria for the formation of the collaborative research team/s, the appropriate number of organization and academic members, the structure and roles in the team, resources (time, spaces) of the team, diversity (for example, in terms of basic demographics, motivation, or personality) and, the development of a shared vision. This factor also includes the development of working processes such as how should the study teams and steering team work, how should the teams interact with organizational members that are not a part of the steering/study teams, what should be the most appropriate coordination mechanisms, how unanticipated challenges should be handled. Finally, development and possession of the skills and competences that are needed in the facilitation of the collaborative research process compose the last factor in this cluster.

The Quality of the Collaborative Management Research Process

The development of the collaborative process can be captured by a cluster of different subprocesses and phases. These processes are influenced by, and at the same time, influence the quality of the collaboration among the actors involved in the effort. Since the quality of the collaboration continuously evolves throughout the inquiry process, the delineation of what variables influence what other variables is complex. We clustered the variables into those that have to do with the design of the collaborative research process, those that have to do with inquiry process and, those that have to do with the implementation process.

The first process is the collaborative research process design. It includes mutual education and learning with top management about the emerging issue for the collaborative effort; the establishment of the research mechanisms, scope, resources, timeline and further mutual learning about the issue and the possible scientific research methods to be used, and; the design and management of the ongoing communication with the organizational members about the study. In this process, the key words might be two. The first is pluralism, both theoretical pluralism and methodological; in fact, given that different theories inform different methodologies and methods, methodological pluralism (drawing upon methods from different paradigms) becomes a useful partner to theoretical pluralism

(Midgley 2010). The second key word is change, as collaborative research processes "are best suited to the investigation of situations in which action leads to change; indeed, we might argue that mode 2 is perhaps the only consistent way of looking at change, i.e. "from the inside" of a dynamic which can only be accessed by experience" (McLean et al. 2002).

The second process is the inquiry process itself. It is seen as an operative core of the collaborative process and it is a joint process managed by the collaborative research steering group and study groups, if formed. Typically, it includes exploring alternative data collection methods and processes and finalizing them, training the research team/s in data collection, systematic data collection, initial data analysis by research team, and developing the process for creating shared meaning and data interpretations.

The third process in this cluster is the implementation phase. This includes identifying and formulating possible managerial implications and actions, and possible additional research actions, based on the shared data meaning/interpretation, presentation of the possible actions for change to top management, top management decision about next actions and steps, and actual implementation of the actions. This could lead to significant changes and it influences the quality of outcomes of the collaborative effort. As change actions continue to take place, and ideally become an integral routine of organizational life, ideas for change could be enhanced and iteratively reformulated. As we'll see in the next paragraph, this leads to implementation and systematic diffusion of changes through the organizational system. Finally, the collaborative process itself as described is influenced by the quality of the collaboration, developed and transformed through the evolution of the effort. At the same time, the development of the collaborative process has a direct influence on the outcomes of the effort.

Outcomes of the Collaborative Effort

Last, the model focuses the attention on the outcomes of the collaborative effort. We identified four main factors that seem central in capturing the effectiveness of collaborative efforts. The first factor is the change implementation in the organization, which potentially includes organizational improvements, specific learning on the studied phenomenon, improvements of quality work life, the development of organizational learning competencies and the possible observation and analysis of these learning and change processes. The second intended outcome is the creation of new scientific knowledge, that is scientific production and, anyway, research group development (in terms of knowledge and skills, both on the studied topic and on the collaborative processes).

The third possible outcome concerns the creation of evaluative systems: a post-study review and/or a continuous monitoring program can be developed in order to generate further reflections and learning about how the collaborative processes and the change actions were performed. Last, the fourth outcome is the possible consolidation of a collaborative research protocol and coherent tools, the protocol for ongoing organizational learning and the tools and processes for continuous discovery.

These outcome factors and their quality are a result of the complex interactions, relationships, processes and activities that occur throughout the course of the collaborative effort. As the model indicates, the outcomes are influenced by the development of the collaborative process and its quality, which, in turn, is influenced by the quality of the collaboration, which is itself influenced by contextual factors. To add to this complexity, the outcomes later influence the process itself, the quality of the collaboration and, at times, even the contextual factors, for example the organizational features or the research group/s features. The dynamic nature of the model helps explain the reasons for the variety of

approaches and outcomes associated with collaborative efforts. The next section of this article used the framework to capture and examine a CMR project with an Italian fashion and design company.

An Illustrative Case: A Collaborative Management Research Project on Collective Creativity

The CMR project was led by a research team from the Politecnico di Milano (Department of Management, Economics and Industrial Engineering) and one of the top five companies that designs and produces silk for well-known fashion customers, located in the North of Italy. The study was launched in January 2009 and is still in progress as this manuscript is written. This section will capture the project in a holistic and detailed way. We will describe the contextual factors, the emerging objectives of the study, the nature of the emerging quality of the collaborative relationships, the quality of the collaborative research process itself, the key features of the research mechanisms and phases, and the outcomes both in terms of scientific discoveries around the phenomenon of collective creativity as well as in terms of managerial actions taken.

Contextual Factors

Located in Northern Italy, and with approximately 580.000 inhabitants, the Como District is a composite of small-medium sized firms, that operate in the textile, chemical and pharmaceutical, furniture and machine tools sectors; tourism is another major economic activity of the area. The textiles and fashion industry is one of the main branches of activity in the district, where about 30% of manufacturing manpower is employed in the textiles and fashion sector. While the top five companies in the industry are located in the district, no single company has a dominant position.

In recent years, various forces such as globalization and an economic crisis, have strongly affected this industry. Most firms responded to the changing business context by focusing on achieving more efficiency and cutting costs, and by increasing capacity to serve changing customers' needs. Since each customer—on average—commissions four seasonal collections per year (each of which can include up to 25 components), and each seasonal collection also includes designs for different age groups, the companies are expected to continuously generate new ideas. 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. Thus, designing and managing for collective creativity is a major challenge, an area of interest and concern.

The current state of the literature on creativity and innovation is vast and seems to vary significantly. An in-depth review or exploration about the meaning of innovation, creativity and collective creativity is beyond the scope of this article. For the purpose of this manuscript we have adopted the definition that was advanced by Styhre and Sundgren that states that creativity is the generation process of ideas for new and improved ways of doing things (Styhre and Sundgren 2005). Creativity involves some degree of social interactions (Nijstad and Paulus 2003). As, such, creativity seems to occur at the collective level, or within what some have referred to as small groups of individuals and/or teams (such as project teams) that work together. Collective creativity is the result of collaboration, interactions and exchanges of ideas (Paulus and Brown 2003). Most creative ideas within the context of work are the outcomes of exchanges in a collective space, when individuals

interact with one another and trigger ideas for one another through dialogue, debate and conflict (Chen 2006; Hennessey 2003). Finally, collective creativity can be viewed as a purposeful set of processes, activities and mechanisms established by individuals within an organization, which are a part of a larger social and professional network, through which a novel idea, products or procedures are generated (Cirella and Shani 2010). Collective creativity emerges from collaboration between individuals who work together to solve a multi-faceted task or a project (Chaharbaghi and Cripps 2007). Collective creativity is a result of the synergistic integration of the bits and pieces of knowledge that are held by the individuals and those within their network; literature investigated different processes and techniques that enable collective creativity (i.e. Torlak 2001; Valqui Vidal 2004; Molineux and Haslet 2007).

The nature of collaborative work at the company coupled with the realization that much knowledge existed within both the company and the scientific literature, led to the determination by the research team that a collaborative management research orientation is likely to be advantageous (i.e. Ragsdell 1998). Initial meetings with the CEO and the top management teams suggested that understanding enhancing and facilitating collective creativity within the organization will address an important area of an ongoing concern and challenges. In its over one hundred years of existence, the company and its employees have generated a significant amount of experience and knowledge about creativity. Yet, most of the knowledge about creativity and the creative process seems to be held in bits and pieces in individuals' heads. A collaborative research approach was viewed by the top management team as the one that has the most merit in surfacing, capturing the meaning of creativity, and in exploring alternative ways to design and manage the collective creativity process.

The company covers the premium market segment of silk products, a segment in which much more creativity is needed. The company's clients are the biggest and most famous players in the fashion industry. The company designs and produces silk garments and accessories such as scarves and ties. Sometimes, particularly for the silk accessories business, the company obtains licenses for the international distribution of its products. Staying competitive in this market requires regular realignment in the way of operating. In 2006, the company was losing market share to its competitors. The management analyzed the problems and started a complex process of restructuring. The main drivers for restructuring were cutting overhead costs and reorganizing the commercial and production divisions. The old organization was function based, and the functions were not focused on different businesses/products/clients. The company introduced a client-based structure which segmented clients (in terms of prices, product, creativity, etc.) and ways to serve them (different distribution systems). The restructuring process also resulted in streamlining the organization's personnel and the total workforce was reduced by 20%. The restructuring resulted in regaining its client-base, increasing the number of new major clients and increase in overall company profits. While the positive results of the restructuring were becoming apparent, in 2008 the global economic crisis hit the company and the entire industry. Specifically, in 2010 the company received fewer orders, 20% less than in 2008 and management was required to reduced production capacity, in order to manage the variations better, and it is using the redundancy income support scheme ("cassa integrazione ordinaria"). The company consolidated the number of manufacturing units from five to two and also decided to outsource some portions of the actual production. These radical changes led to being the only profitable company in the district in 2010. These economic pressures have also meant cutbacks in resources—in terms of time, budget and workforce—for creative processes.

The Project and the Quality of the Collaborative Relationships

The creativity emphasis at the company, as underlined in the introduction, is congruent with the commitment to better understand, enhance and facilitate collective creativity. The nature of the work itself established a culture of basic collaboration that is embedded in the company as well as between the company and its key clients. The relationships with the clients are such that a specific collective of people is assigned to work with each client and for each collection. This collective usually consists of a product manager, a salesperson and some designers from the company atelier (5–7 people on average). Other actors may be involved, particularly for high profile, major customers and/or collections. The collectives are not rigid fixed but rather fluid teams. Composition may change for each specific occurrence, that is, a collection required by a client, yet a few individuals seems to stay as a part of the core group. For example, designers who have established special trusting and satisfying collaborative working relationship with a customer seems to be the contact person for the next seasonal collections. During the year and at times during the same period, any individual is likely to be part of different collectives and work with few different clients.

The objective of the collaborative research effort was to create actionable knowledge of relevance to the company: as collective creativity capability is a natural strength in the competition, the collaborative research project represented for the company an opportunity to understand better and enhance collective creativity capability. Furthermore, since the conceptual and empirical literature on collective creativity is both limited and fragmentary, the collaborative research project represented for the academic research group an opportunity to carry out a field study that can contribute to the scientific body of knowledge.

Following an initial discussion between the CEO and the senior researcher, a meeting was established between the Polimi research team, the CEO of the company and a few of his top executives. The purpose of the meeting was to develop and refine the scope of the collaborative management research project, and explore alternative designs for the research mechanism. A joint research team was established to carry out the study and included three individuals from the company and three individuals from Polimi. The research methodology was to be developed by the joint research team. The joint research team will report regularly on progress to the top management team via one of the research team members who was also a member of the top management team. The major role of the joint research team was to design and with the sanctioning of the top management team carry out the study. As the joint research team worked on its tasks, a climate of open exchanges of ideas was established. The members of the team that were a part of the company educated the outside researchers about the company, its evolution, its culture and their insiders' company knowhow. The mutual educational process helped establish an appreciation for the individuals and the rich and diverse knowledge and experience that they poses. Working through the framing of the study, its design and implementation provided valuable learning opportunities to all. The open dialogues and exploration of meaning were part of the established working culture. An open communication process was established within the collaborative research team and between the team and the rest of the organization. Variety of communication tools and methods were put in place, such as regular update from the collaborative research team to the top management team, regular updates by department heads to their respective units, and opportunities for organizational members to provide input the collaborative research team.

The Project and the Quality of the Collaborative Management Research Process

The project that started in early 2009 about collective creativity has evolved into ongoing set of collaborative investigations. Table 1 briefly summarizes the process of the project by describing its phases and times, purposes, key actors and main activities. The table underlines the complexity and the richness of the collaborative process, the phases in the evolving project, and the real and in-depth collaborative spirit.

Collaborative Research Process Design

Initial CMR activities. Activities consisted of a preliminary dialogue with the company top management about common areas of interest and how these may be of practical application in their firm. Issues of immediate importance to the company ("red and hot" issues) were explored. Possible research issues were discussed taking into account current research findings and gaps, ensuring the referential property. A decision was reached to focus the study on collective creativity.

Establishing the CMR mechanism and setting direction. The researchers, together with the top management, agreed to create a joint research team with three individuals from the company—the insiders—and three individual from Politecnico—the outsiders, and established the criteria for selecting the insiders to the research team. The people were chosen by the top management team, the individuals were asked to volunteer to take part in the research project and the joint research team was set up. A timeline with key milestones for the project were established and an announcement about the study was made to the rest of the organization.

Developing the CMR design, methods and process. During this stage the joint research team explored different alternatives in the research design and methods. In-depth semi-structured interview was chosen as the method for the first phase of the data collection. The team generated the specific interview questions and its format. The data collection timeline was established together with the interview protocol that included both open questions (for qualitative data) and scoring tables (quantitative data). The team identified the organizational members to be interviewed and it was decided that the outsiders members of the research team will conduct the interviews.

Understand the Phenomenon Under Inquiry

Data collection and shared data interpretation. The outside researchers members of the joint research team conducted the interviews. The interviewees included 6 members of the management team and fifteen employees that represented three different teams from different units of the organization. The interviews lasted between 45 and 90 min each. The outsiders members of the joint research team created a comprehensive document that included most of the raw statements from the interviews. The data was organized and clustered by the interview guide questions. The document followed the anonymity principle that was promised at the beginning of interview.

The raw data document was used as the data-base for content analysis and both were shared with the joint research team for sense making and meaning creation. The joint research team created a shared interpretation of data. Key issues that emerged from the data were identified and briefly discussed. The joint research team shared the data document, its interpretation and some of the emerging issues with the top management team. The top management team was invited to join in the interpretation of the data with the joint

Table 1 The process of the collaborative management research project

	Phase	Purpose	Actors	Activities
Collaborative research process design	Initial CMR activities	Establish basic commitment for a collaborative project Mutual education about the company and CMR	Polimi Team, CEO, CEO Exec Administrator	- Preliminary dialogue with top management about common areas of interests—exploration of red and hot issues
	Establishing the CMR mechanism & setting direction	Establish the CMR Team, developing an understanding of the CMR purpose, process, mechanism, redefining the scope of the project	Polimi Team, CEO, CEO Exec Administrator, 3 company members	- Criteria for CMR Team selection & creating the CMR Team - Mutual education about the company & CMR - Initial decisions about time line & data collection process
	Developing the CMR design, methods & process	Refining the research design, methods, data collection process and protocol	CMR Team	- Exploring alternative research design and research methods options - Developing the data collection tools (interview protocols) - Establishing data collection timeline
Understand the phenomenon under inquiry	Data Collection and shared data interpretation	Data collection and the facilitation of the creation of shared meaning	CMR Team and top management team	- Interviews of top mgt team and the members of three organizational teams - Initial content analysis of the data by RT - Data analysis and interpretation by CMR Team - Creating shared meaning of data with Top Mgt team
Implementation process	Creating an Org shared meaning of data and charting a course of action	Creating org wide shared meaning and generating ideas for change and improvement Move towards actions based on new insights and understanding	CMR Team, organizational members, and top management team	- Org wide meeting and workshop - Creating shared meaning - Generating ideas/ suggestions for action - Top mgt commitment to actions and timeline for actions
	Establishing mechanisms for Experimentation and Continues Learning	Designing a new phase of the collaborative research	CMR Team, CEO	- Designing a survey, based on the previous results and knowledge

research team. The positive experience with the top management team triggered a request from management to invite organizational members to take part in the process.

Implementation Process

Creating an organizational shared meaning of data and charting course of action. Management open invitation to organizational members to attend a session resulted in the participation of 31 members of the organization in a 3 h workshop of sense making and identification of specific actions that can be taken by both organizational members and management to address some of the emerging issues. The joint research team organized and facilitated the workshop. The session started with a brief statement by the CEO about the reasons that he agreed to participate in the study. Upon his departure from the room, the joint research team provided an overview of the study to date. The raw data document was shared and groups of five were asked to create shared meaning of one section of the data. Next, areas that were viewed as needed action were identified. Groups captured the essence of their interpretation and list the emerging issues on a flip chart. Each group shared their insights with the rest of the participants. A list of issues where compiled from the presentations. Individuals were asked to group around an issue of their interest. The new groups spend 15 min talking about meaning and 15 min brainstorming around specific actions that can be taken by organizational members and specific actions that can be taken by management. The CEO was invited to attend the final presentations of the issues that were identified and the participants' initial ideas about possible actions. The results of the workshop were integrated into a final document, containing the shared meanings, the key emerging issues and all the suggested actions. Top management committed to take some of those actions and a timeline for further steps was created.

Establishing mechanisms for experimentation and continued learning. Some ideas that were generated were implemented. For example, the need to establish a clear structural support and eliminate development redundancies led to the creation of a VP position of product/collection development. Other actions that were identified required more indepth study and experimental action first. For example, the need to develop a post collection review process, led to the initiation of a new study to examine the many varied practices that evolved in the company over time and to conduct a scientific experiment that will help to assess the practices such that a companywide process can be established. This phase is in progress and as these lines are written top management is committed to continue this approach to guide further action and research.

Outcomes of the Collaborative Effort

New insights about the meaning and role of collective creativity within the company emerged as a result of the study. Through content analysis of the data collected, five content clusters were identified: definitions of collective creativity, key elements of the collective creativity, competencies needed for collective creativity, factors that impact on collective creativity, and measurements of collective creativity. The scientific knowledge generated included the completion of four master thesis, one PhD dissertation, few manuscripts that were presented in four academic conferences and few papers that have been developed for scientific journals. A research stream in collective creativity is being developed within the university setting.

The ongoing dialogue about the data resulted in new company insights about the phenomenon of collective creativity for change implementation in the organization. The

main change was a restructuring of the company. The insights from the research supported the definition of a new configuration of the design unit: four Divisions were created for enhancing collective creativity for each specific product cluster: Women's Wear—fabrics and accessories for the luxury clients; Fashion—women's wear and beachwear fabrics for the fast fashion segment; Men's Wear—accessories (fabrics and finished products), and; License and Distributions—distribution of women and men's accessories made under license agreements. The new organization emphasizes the role of the collective, and a new team-based performance management was implemented in the four new Divisions created. The impact of the implemented managerial actions (mostly based on the results from the studies) on company financial figures were positive. In 2009 the net income was nearly one million euro and the company was, after more than six years of losses, profitable. This results is relevant considering the context: all the five main companies in the district achieved losses in the same year. This result was published in a national Italian newspaper in February 2011 and the CEO, interviewed by the journalist, explained how collective creativity was the critical success factor of the company turnaround (Pagni 2011).

A routine for journaling practice (i.e. Coghlan 1993) about the research process was developed by the researcher team. This practice helped to facilitate systematic reflection by the research team about both the emerging content and inquiry process. The systemized routine was institutionalized as a managerial practice throughout the organization and facilitated continuous reflection on the process and continuously monitoring of quality.

Last, a collaborative research protocol was consolidated: the protocol, used for the research process illustrated above (such as the way to organize and conduct the research team meetings), was effective for laying the foundations for a set of a new collaborative research studies. Three parallel collaborative projects are in process as this manuscript is written, one on the impact of learning mechanisms on collective creativity, one on the development of a common company wide protocol for post collection reviews and, one on the integration of customers in the collective creativity process.

Discussion

The hybrid collaborative management research model advanced in this manuscript was utilized to critically reflect on the project that took place with the Italian fashion and design company. The intent in this section is to discuss the hybrid collaborative management research process model advanced in this manuscript with an emphasis on merits for practice and the scientific community. Following Pasmore et al. (2008b), the issues of rigor, reflectiveness, and relevancy are examined within the context of the collaborative management research effort reported in this paper. Table 2 below captures the dimensions identified by Pasmore et al. (2008b) that we focus on.

Collaborative Management Research: The Rigor Challenge

Management and organization researchers have generated a variety of standards for research design and data analysis. For example, Campbell and Stanley (1966) set out principles for designing and conducting research in organizations. Based on Campbell and Stanley (1966) principles, Pasmore et al. (2008b) identify specific recommendations on

Table 2 Elements of rigorous, reflective and relevant collaborative management research

Rigor	Reflection	Relevance
Data-driven	Referential	ROI
Multiple methodologies	Historical impact	Practical
Reliability across settings	Co-interpretation	Co-determined
Co-evaluation	Community of practice	Re-applicable
Causality	Collection	Teachable
Underlying mechanisms	Repeated application	Face valid
Publishable		Interesting
		True significance
		Specific

how to enhance the rigor of collaborative management research. Next we focus on the issues of *data-driven* research, *multiple methodologies* and *co-evaluation*.

A *data-driven* research means a research well supported by objective sources of data, preferably both qualitative and quantitative, that tie behaviors or practices to organizational performance (Pasmore et al. 2008b). Gathering and analyzing data is seen as a crucial activity for the entire process in the illustrative case. In the case, the *Collaborative Research Process Design phase* included the development of research tools (e.g. interview guides) that were designed to support a *data-driven* analysis. During the *Understanding the Phenomenon under inquiry* phase, the raw data was compiled for an accurate interpretation of the data such that a holistic understanding of the phenomena under study will be generated.

The rigor challenge requires to use of *multiple research methodologies* to provide a verification and accurate explanation of behaviors (Lawler et al. 1985; Woodman 1989): a combination of experimental and unobtrusive methodologies provides the most rigorous explanation for behaviors in natural settings (Pasmore et al. 2008b). The data in the case was gathered by combining multiple methodologies, both qualitative—namely interviews and workshops, in the first phases of inquiry—and quantitative—survey, in following inquiry phases. The use of the multiple methodologies enhanced to probability of a comprehensive understanding of the phenomenon of collective creativity.

Last, *co-evaluation* is the immediate collaborative interpretation of data to determine findings. Since researchers are not immune to bias in their observations, using independent co-researchers or even managers to review and create shared meaning and drawing conclusions supports rigor (Pasmore et al. 2008b). In the illustrative case, the initial review of the data was done by the researchers, without a significant contribution from the Research Team members of the company. The main rationale of this choice was to protect the anonymity of the interviewees. The raw data document that was prepared by the researchers later was shared with the collaborative research team, management and organizational members all with the goal of creating a shared interpretation or sense making. This was followed by the generation of ideas for actions. Although the risk of bias on the side of the research team in the creation of the comprehensive raw data document is possible, the inclusion in the research team of managers and practitioners helps in achieving the rigor challenge in interpreting the data.

Collaborative Management Research: The Reflective Challenge

Pasmore et al. (2008b) suggest that the researchers in management field pay little attention to what happens over time in the organizations they study, and underline the importance of reflection in collaborative management research. Suggestions for making collaborative management research more reflective include the issues of *referential* research and *co-interpretation*.

A *referential* research is built on past research/theory, recognizing and building upon the contributions of others, and adding weight to current conclusions through the pattern of previous findings (Pasmore et al. 2008b). The assumption is that the opportunity for collaborative management research to produce interesting breakthroughs more reflection into the ordinary practices is needed. As Kuhn (1970) points out, scientific advancements or revolutions derive from the work of many people, casting doubt on accepted theory, and leading to additional studies that could confirm the new proposal. In the case, *referential* property was ensured as data was collected and clustered in compliance with research needs highlighted by previous academic studies. An in-depth literature review combined and analyzed the dispersed literature on group/team/collective; by combining the scientific body of knowledge, namely focus and perspective, a few content clusters were identified. Those literature-based content clusters were: (1) studies that focus on the combination of individual characteristics in groups (i.e. Pirola-Merlo and Mann 2004); (2) the relationships and interactions between individual group members (i.e. Pearce and Ensley 2004); (3) the relationships between team members and non-team members (i.e. Shalley and Perry-Smith 2008); (4) the nature of group leadership (i.e. Hirst et al. 2009); (5) the learning perspective (i.e. Swift and West 1998); (6) the group development perspective (i.e. Cohen and Bailey 1997); (7) the nature of group resources (resources-based view, i.e. Chirumbolo et al. 2004); (8) the nature of work environments (climate, i.e. Ekvall 1999); and (9) the nature of the team outcomes (i.e. Kratzer et al. 2008). The content clusters illustrated above were the input for the research team to the collaborative research team and guided the development of the interview guide for the first explorative collection of data (semi-structured interviews). The semi-structured interviews were carried out leaving enough room to respondents to describe scenarios, processes, and to express opinions even not strictly connected with the subject at hand; first, to fully understand the context and conditions on which creativity operates, thus being able to identify underlying mechanisms and new managerial views.

Last, *co-interpretation* is the collaborative reflection on events and outcomes over time to assess impact and formulate theory, coauthoring accounts to ensure balanced representation in historical interpretations (Pasmore et al. 2008b). In the case, the collaborative research team and management meetings had the deliberate aim of *co-interpret* the interviews results. The research team members not only contributed in meaning creation and sense making, but also in generating specific managerial implications and then involving the top managerial team in identifying possible action for improvement at the company. A joint meeting with both research team and top management team was organized: each research team members presented the shared interpretations, generated within the collaborative research team, and the top managers had the opportunity to discuss them and identify, with the research team members some additional insights for actions, prioritize and organized the improvement actions for immediate, short and long term.

Collaborative Management Research: The Relevance Challenge

Pettigrew et al. (2001) suggest that collaborative management research has not paid sufficient attention to connecting change interventions with performance outcomes. Based on

this assumption, Pasmore et al. (2008b) identify specific recommendations on how can one improve the relevancy of collaborative management research. We focus on the issues of *co-determined research, re-applicable research,* and *ROI*.

A research is *co-determined* when the research goals and design (Mohrman et al. 2001), and ultimate impact, are jointly conceived and aligned with the issues that leaders and other stakeholders care the most about (Pasmore et al. 2008b). This is probably the most defining characteristic of the illustrative case. The preliminary bibliographical and theoretical research on the topic and the coherent preliminary identification about the opportunity for the company, with which we had the preliminary dialogues, facilitated a successful development of a common agreement between the researchers and the company about the topics of the research study and its goals, and about initiating a collaborative discussion about how the research study needs to be carried out. In refining the research goals and designing the research, a real *co-determination* was experienced: the researchers did not impose their points of view and, on the other hand, the company did not seek help, but actually the purposes were openly shared and defined. Also in the following phases of the collaborative management research process, the guide was the principle of *co-determination*, as all decisions were taken together with all the parties involved. For example, for the phase of implementation, the practice is to decide together about verifying the causal relation between collective creativity and specific levers or mechanisms on which the action is taken, and possibly, repeat the application across different organizational unit to strengthen the *relevance* of results and further understand underlying mechanisms.

A research is *re-applicable* when the approach is generalizable to a broader array of organizations or settings: the theories have relevance to a broader set of issues governed by similar dynamics (Pasmore et al. 2008b). In the illustrative case, the collaborative process actually generated a protocol and a few tools that, with minor alignments, can be used in other settings in which the same phenomenon (collective creativity) seems to play a critical role. The re-applicability was actually realized, because one other collaboration—with a company from the industrial design consultancy industry (one of the top five worldwide)—offered the context to study again collective creativity.

Last, we discuss the *Return On Investment* (*ROI*) of the research, because it is related to the *relevance* of the research. If the practitioner partners cannot explain "what's in it for me", the collaboration will be in short-term and the research will be less interesting and with weak impact (Pasmore et al. 2008b). Thus, taking additional resources—time *in primes*—to invest in collaborative management research only makes sense, for an organization, if there is a high enough return to offset the costs. In the illustrative case, the resources invested by the company into the research were basically the labor costs of the involved employees and managers, for the time dedicated to the research (meetings, scheduling activities, internal coordination, etc). The strength in the case was the *ex-ante* clarification of the expectations in terms of costs and benefits. If the benefits of the research were embedded in the research goals, the needed time—that corresponds to the costs for the company—was clearly explicated and defined: the researchers members of the research team, based on their own experiences, clarified the required amount of work hours, for each member of the research team, for every possible step of the process. Thus, we expected to implement research activities only with satisfactory *ROI*.

From the discussion of the model presented above, few implications for practice might be proposed and commented. The first implications is that, even if the collaborative management research process model represents a valuable reference, it does not guarantee that the rigor, relevance, and reflective challenges will be effectively addressed; indeed, all the specific phases included in the model have to be designed, considering a priori those

challenges. In addition, those challenges might be considered as criteria that can be used for evaluating the collaborative research projects implemented, in order to perform, at the end of each project, a sort of a post-project review. The second implications is that addressing those challenges is a *design* issue, and the adoption of specific techniques or tools does not assure their overtaking; in other words, rigor, reflective and relevance should be considered as multiple design criteria, to be taken into account simultaneously and in all the phases of the process proposed. For example, in the illustrative case, the challenge of rigor affected all the phases of the research, and in the third phase (implementation process) it had been addressed jointly with the challenge of relevance.

As result of this discussion we might say that the proposed hybrid CMR process model, in practice, was a knowledge production process that addressed simultaneously needs of the company and the researchers, as Shani et al. (2008) advocated for collaborative management research. This seems to be consistent with the emerging changes in the social production of knowledge stated by previous literature (Pettigrew 2004), that centre around who is involved in the knowledge production process, the actual process of knowledge production, dissemination and use. In particular, the hybrid process proposed in this paper can contribute to the co-evolutionary process between science and society (Etzkowitz and Leydesdorff 2000; Nowotny et al. 2001; Hatchuel and Glise 2004).

Conclusion

This article proposed a hybrid model of the CMR process in organizations and examined the utilization of the proposed model in a study of the collective creativity within one organization. Three critical elements for achieving the intended outcomes of collaborative research, namely (1) contextual factors, (2) quality of the collaboration, and (3) the development of the collaborative management research process itself were identified and discussed. The model was discussed with the illustration of a collaborative research project that is still in progress, as these lines are written. The proposed collaborative management research process model, coupled with the description of the project that was carried out with an Italian fashion and design company, was examined in terms of the standards for a rigorous, reflective and relevant scientific research.

The nature and complexity of designing and managing collaborative management research in organizations helps us realize that while the benefits are many—both for managerial practice and the advancement of scientific knowledge—there are few if any shortcuts in the process. The proposed model represents actionable protocol and knowledge to be used for designing rigorous, reflective and relevant collaborative research projects, *with* organizations. Doing so, is likely to synergistically surface and build on the critical bits and pieces of knowledge that are a part of organizational live, not fully utilized in today's business reality.

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