The Effects of Contextual Characteristics on Team Creativity:

Positive, Negative, or Still Undecided?

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Abstract

Although the dedicated work of numerous scholars has improved our understanding of the nature and implications of creativity, relatively little attention has been paid to team creativity in which creative ideas are generated by groups instead of an individual. This article systematically reviews and integrates some of empirical research that has examined the contextual characteristics that foster or hinder team creativity in the workplace. More specifically, the article also discusses some debatable determinants of creativity that still do not yet have an inconsistent result. In this article, the author reviews literature in groups as a starting point to take stock of both what has been accomplished and what still needs to be done in order to extend the research in team creativity. Based on the review, this article provides several factors which are meaningful or unanswered and presents some new research directions in future studies of creativity in work teams.

Contents

Introduction 1
The factors that foster team creativity.....4
Supervisory and co-workers support 4
Psychological safety.....5
Group process.....6
The factors that hinder team creativity 8
Conformity 8
Insufficient resources.....9
Bureaucratic structure.....10
Team diversity 12
Conflicts in teams 13
Group cohesion 14
Discussion and conclusion 16

Introduction

In today's competitive global marketplace, creativity is regarded as a necessary step to achieve innovation and organization competitive advantage (Amabile, Conti, Coon, Lazenby, and Herron, 1996; Oldman and Cummings, 1996). Most theories of creativity have focused on the individual level of analysis, highlighting individual characteristics such as personality (e.g. Ford, 1996; Oldham and Cummings, 1996; Zhou and Oldham, 2001), intelligence (Glynn, 1996), individual cognitive processing (e.g. Kirton, 1994; Kwang and Rodrigues, 2002), and the effects of the external environment on the individual (e.g. Amabile, 1983, 1996; Woodman et al., 1993; Amabile et al., 1996). To date, work-based teams have become common and been increasingly responsible for work performed in organizations (Pirola-Merlo and Mann, 2004). However, relatively little attention has been paid to team creativity in which creative ideas are produced by groups instead of individuals (Amabile, 2001; Shalley et al., 2004; George, 2008). A team is expected to bring together people with different experiences, values, and knowledge, and is more effective in adequately solving problems than are individuals (Van den Bossche, et al., 2006). Thus, researchers and organizations need to be more concerned with developing creativity in the teams.

Although individual creativity is the source of team creativity, team creativity is not the simple aggregate of all members' creativity (Woodman et al., 1993). Creativity not only occurs as individuals work alone but also happens as members interact with each other, as they share, build upon, and critique ideas together (Pirola-Merlo and Mann, 2004). Individual creativity can provide the raw material of novel and useful ideas, but team member interactions and team processes play an important role in determining how individual creativity is developed into group-level creativity (Taggar, 2002). Team creativity emerges from a social process where individual team members collaboratively contribute their perspectives, knowledge, and unique skills in the team (Tiwana and Mclean, 2005). Because team creativity cannot occur in a vacuum, the work context is a key component for creativity. In general, an organizational context can include support, interaction, communication, and consultation in an organization, risk-taking orientation, and the atmosphere of an organization (Rice, 2006). In Sections 3 of this article, the author uses this concept to discuss how the contextual factors affect creative outcome in work teams.

In this article, the author focuses on what and how contextual factors influence creativity in work teams. As such, this research attempts to complement the work of Paulus (2002), where he theorized about social and

cognitive factors that stimulate and inhibit creativity in idea-generation. This article begins by first defining creativity. Next, the author makes an overview of recent studies regarding contextual factors on team performance to provide some critical contextual factors that might influence team creativity. In conducting the review, in order to be comprehensive in the coverage of the team creativity literature, the author searches major journals in the field (e.g. Academy of Management Journal, Journal of Applied Psychology, Journal of Management, Organization Science, Journal of Organizational Behavior, and Personnel Psychology) and classifies the contextual factor by useful factors, harmful factors, and debatable factors on team creativity. Finally, discussion, conclusion, and future research are presented.

The definition of team creativity

Although team creativity has attracted increasing attention in organization research, the definition is still not very concrete and settled, compared with the definition of individual creativity. Kurtzberg and Amabile (2002) state that creative synergy is the group process in which ideas are formed, shared, adapted, and inspired simultaneously by more than one person, and people in a group have produced something that no one would have been able to do alone. The idea of creative synergy is very similar to team-level creativity. Paulus (2000) also argues that group creativity can be viewed as "divergent thinking in groups as reflected in ideational fluency" (pp. 238). In short, Kurtzberg, Amabile, and Paulus place emphasis on that the generation of creative ideas in groups is associated with social process. Teams are groups that work together for a common goal in an organization and actors who have some interdependent influence on each other through interactions (Paulus, 2000). Creativity often refers to the generation of novel and useful ideas, products, processes, or solutions (e.g. Shalley; 1991; Oldham and Cummings, 1996; Zhou and Shalley, 2003). According to the definition of creativity, Shin and Zhou (2007, p.1715) define team creativity as "the production of novel and useful ideas concerning products, services, processes, and procedures by a team of employees working together". This definition follows the consensus in the creativity literature (e.g. Amabile, 1996; Shalley et al., 2004) and makes a distinction from innovation.

Because innovation also involves newness, usefulness, and social process, it would be easy to confuse it with team creativity and innovation. These two terms represent different concepts respectively and it is important to distinguish creativity from innovation. Creativity emphasizes the production

of new and useful ideas, whereas innovation primarily involves implementing new ideas throughout an organization (Shin and Zhou, 2007). Creativity is a first stage in which novel and useful ideas emerge, and innovation has to consider the stage of adoption and implementation. Thus, although team members might share these ideas with others, only when the ideas are successfully implemented at the organization or unit level would they be considered innovation (Amabile, 1996; Mumford and Gustafson, 1988).

Team creativity is neither equal to innovation nor the simple aggregate of all members' creativity (Woodman et al., 1993). Individual creativity provides the raw material of novel and useful ideas, but team member interactions and team processes play an important role in determining how this raw material is developed into group-level creativity. Unlike research of individual creativity, which has tended to focus on the impact of personal characteristics (e.g. personality; Gough, 1979; Costa and McCrae, 1992), intra-individual factors (e.g. motivation; Amabile, 1982), and the design of jobs (e.g. job complex; Shalley et al., 2004), team creativity needs to consider and recognize each member's viewpoint and ideas. For members to solve problems together and provide valid responses, individuals should expand the source of knowledge and information and improve social facilitation to other group members. As members interact with each other, share, build upon, and critique ideas together, such interactions may stimulate creative ideas among the individuals and allow ideas to be reliable and practicable.

Although individual and team creativity represent the different levels of creativity, both group and individual outcomes may be affected by the work context. Thus, this study does not only review the studies that have examined the effect on team creativity, but also those that have tested contextual factors on individual creativity to figure out whether those factors also affect team creativity.

Research on team creativity: The impact of contextual factors

Contextual factors can be broadly defined as the characteristics of the environment that are related to the effectiveness of a group or an individual, but the group or the individual does not have control over them, such as characteristics of the job, work setting, and relationships with co-workers and supervisors, which would be considered contextual factors (Shalley et al., 2004). Most studies on creativity have followed an "intrinsic motivation" perspective (e.g. Amabile, 1996; Shalley et al., 2004; Oldman and Cummings,

1996) that states how an individual performs a work assignment affects his/her intrinsic motivation, which in turn influences creative achievement. Furthermore, the contextual factor affects creativity via its effects on employees' "intrinsic motivation" to perform a work assignment.

Several studies have theorized and tested the effect of contextual factors on creativity by using the intrinsic motivation perspectives. For example, Oldham and Cumming (1996) examined how organizational context, including job complexity, supportive supervision, and controlling supervision impact employees' creative performance through intrinsic motivation perspectives. Amabile, Conti, Coon, Lazenby, and Herron (1996) also demonstrate that employees' perceptions of work environment influence the intrinsic motivation, whereby people are most creative when they are primarily intrinsically motivated by the interest, enjoyment, satisfaction, and challenge of the work itself, and examined the relationship between the work environment perceptions of project team members and the creativity of the project outcomes. This study shows that perceived work environments discriminate between high-creativity projects and low-creativity projects.

These important studies integrated a number of contextual factors into creativity. However, like the majority of creativity studies, they either focus on the individual creativity or emphasize the task characteristics or work environment. In this article, the author evaluates the potential for team creativity in light of recent studies, and discusses positive, negative, and undecided (debatable) contextual factors on team creativity. Figure 1 summarizes the various factors that may play a role in team creativity.

The factors that foster team creativity

Next, the author reviews those contextual factors that have received attention in the literature, and explains how each factor might affect team creativity. First, this article introduces the three main positive characteristics, including (1) supervisory and co-workers support; (2) psychological safety; (3) group process.

Supervisory and co-workers support

Many studies have examined relations between leadership style and employee creativity. Transformational leadership is one of the most influential leadership styles to enhance creative outputs (Bass and Avolio, 1990). Shin and Zhou (2003) found that transformational leadership, which broadens followers' goals and provides them with confidence to perform beyond the expectations, is positively related to followers' creativity. The study of

Gumusluoglu and Ilsev (2009) proposes a model of the impact of transformational leadership on followers' creativity and suggests that transformational leadership has important effects on creativity at the individual level through psychological empowerment. Leadership not only affects creativity at the individual level but also at team level. Shin and Zhou (2007) examined a relation among teams' educational specialization heterogeneity, transformational leadership, and team creativity. They found that when transformational leadership was high, teams with greater educational specialization heterogeneity exhibited greater team creativity. When supervisors show a supportive attitude of encouraging team members to voice their own concerns and view problems from new perspectives, transformational leadership induces more creative performance in a team (Deci, Connell and Ryan, 1989; Shin and Zhou, 2007).

Besides supervisory support, co-workers support is also beneficial to team creativity. Individuals can derive motivation from the social identities they receive from group members (Douglas et al., 2004). Positive co-workers' interaction can foster a strong sense of social identities and reinforce employees' intrinsic motivation. When team members are nurturing and supportive of each other, the team is expected to exhibit high levels of creativity. Because team members are more likely to share new ideas and are willing to share resources, and cooperate with each other, such behavior enhances their motivation to act creatively (Rickards and Moger, 2000). These trustworthy supervisory and co-worker support systems are expected to lead to the willingness of team members to invest themselves at work. Although it would seem important to directly explore the influence of supervisory and co-worker support on team creativity, empirical studies have done little in this regard.

Psychological safety

Psychological safety can be used both as an individual-level and team-level concept. For an individual, psychological safety influences his or her beliefs about how others will respond when he or she asks questions, seeks feedback or assistance, reports an error or failure, or proposes a new idea (Carmeli and Gittell, 2008). However, team members will be influenced by the same structural climate and by their shared experiences with other members. Psychological safety therefore should be a team-level phenomenon existing among team members rather than an individual perspective (Edmondson, 1999; Nemanich and Vera, 2009). Edmondson (1999) defines psychological safety as "a shared belief that the team is safe for interpersonal risk taking"

(pp. 355) and found a strong relationship between team psychological safety and team learning behavior, which in turn was related to team performance.

Creativity is likely to involve some degree of psychological safety in a work environment. However, psychological safety and creative outcomes have received relatively little attention in the literature to date. This study draws on the recent research on safety by Edmondson and the literature on team learning behaviors to explore the proposed connections between psychological safety and team creativity.

Psychological safety has been found to be an important enabler of learning behaviors in the work setting (e.g. Edmondson, 1999; 2002; Carmeli and Gittell, 2008; Nemanich and Vera, 2009). Edmondson (1999) examined that team psychological safety on learning and performance in organizational work teams and suggested that team psychological safety is associated with learning behavior when controlling for team psychological safety as well as learning behavior mediates between team psychological safety and team performance. Edmondson (2002) further explains that psychological safety can affect team members' willingness to actively and honestly contribute their ideas, evaluations or suggestions providing new insight with team members, which is what team creativity requires.

Moreover, Schein (1985) and Paulus (2000) argue that because psychological safety is likely to help employees overcome learning and social anxiety, psychological safety is regarded as one of the most important contextual factors in a work environment. A sense of psychological safety is likely to enable individuals to overcome their learning anxiety, which is a fretful feeling that hinders their ability to learn when they encounter new ideas and information (Schein, 1985). In addition, individuals may experience social anxiousness in the group and are concerned about the others' evaluation when they try to present their opinions and ideas. Psychological safety, which enables risk taking and the willingness to suggest new ideas without fear of embarrassment, may promote information sharing which assists team to develop new ideas (Edmondson, 2002). As noted in the previous studies, although empirical studies are rare, psychological safety is indeed deeply related to creative performance in work teams.

Group process

Creativity in groups might emerge synergistically when members interact in certain ways. Several studies demonstrate that creativity is not only regarded as an outcome, there is value in understanding the way in which individuals or groups come to develop creative ideas. However, relatively little empirical studies have been conducted on this topic.

Based on a general input–process–output model, individual creativity is the raw material of novel and useful ideas, and team member interactions and team processes determine how this raw material is developed into group-level creativity. Group processes enable the translation of individuals' knowledge, experience, and influence into the generation and implementation of creative ideas in groups. Taggar (2002) states that creativity-relevant processes should involve goal setting, preparation, participation in group problem solving, and synthesis of ideas. He found that creative members and high levels of creativity-relevant processes lead to the highest creativity in teams. When groups had a low level of team creativity-relevant processes, team creativity would decrease even if the team had highly creative members. Some scholars state that team creativity emerges from group functions, in which team members can link ideas from multiple sources to find better or unique approaches to a problem, or seek out innovative ways of performing a task. For example, West (2002) considers that team creativity requires group integration processes which includes clarifying commitment to shared objectives, participation in decision making, managing conflict effectively, minority influences, supporting innovation, developing intra-group safety, and reflexivity. Pirola-Merlo and Mann's study (2004) found that team creativity is highest when teams have high ratings of individual creativity and also of creativity-relevant processes (e.g. team citizenship, effective communication). Team processes share a great deal of variance with team creativity. The meta-analytic study from Hulsheger, Anderson, and Salgado (2009) shows that team process variables of support for innovation, vision, task orientation, and external communication displayed the strongest relationships with creativity.

Although research has increasingly recognized the importance of group process on creativity, the creativity literature has primarily focused on creative outcomes. As researchers turn more attention to studying the creative process itself, valid and reliable process measures need to be developed (Shalley et al., 2004).

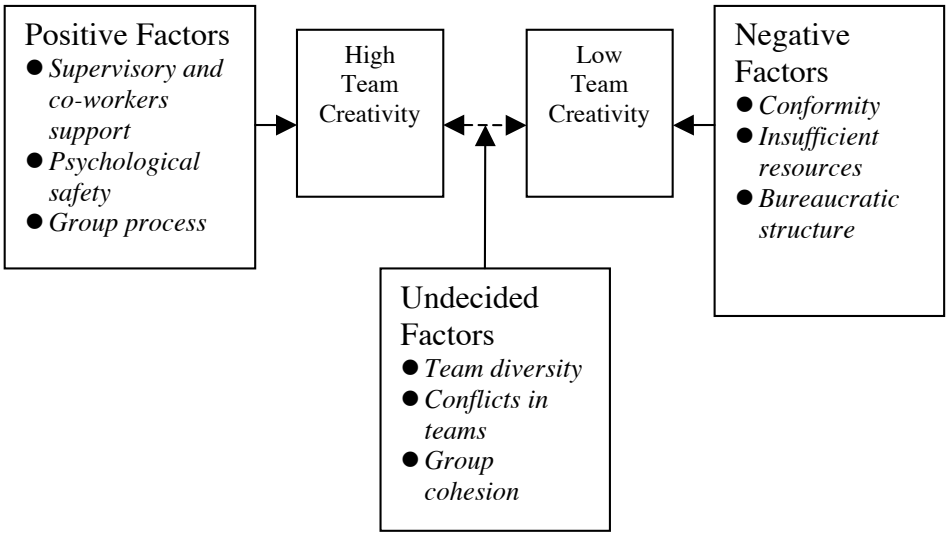

Figure 1. Factors related to the performance of creativity in work teams.

The factors that hinder team creativity

There are also a number of contextual factors that inhibit the productivity of creative ideas in groups. This article reviews the related literature and lists three contextual factors that hinder team creativity: (1) conformity, (2) insufficient resources, and (3) bureaucratic structure.

Conformity

Conformity is the fundamental value guiding attitudes and behavior in situations involving novel responses and change (Zhou, Shin, Brass, Choi, and Zhang, 2009), and is likely to affect creativity. Schwartz (1992) defined the conformity value as individuals' preferences for "restraint of actions, inclinations, and impulses that may upset or harm others, and violate social expectations or norms" (p. 89). Schwartz (1994) considers that tradition and conformity share a single motivational goal: subordination of the self in favor of socially imposed elements. Social pressures toward conformity may reduce

variation and diversity because of the desire for harmony in making decisions. Team members who have high levels of conformity tend to follow the existing expectations and norms in their team, rather than actively seize advantages and challenges.

High conformity is likely to restrain team members' cognitive attention to the ideas that do not comply with tradition or potential rules in a team. Thus, team members may have greater difficulty in combining and synthesizing diverse and dissimilar information to form novel responses and produce creative ideas (Zhou, Shin, Brass, Choi, and Zhang, 2009). Rather, team members are likely to conform to existing structures and procedures in their team. High conformity is created by group norms may decrease creative performance (Woodman, Sawyer, and Griffin, 1993). The empirical study of Rice (2006) found that people who regard conformity as an important life goal are less likely to display creative behavior in the workplace because they are constrained by the cultural and psychological boundaries in the pursuit of being creative.

In addition, conformity will produce groupthink whereby group members try to reach a consensus decision without critical evaluation of alternative ideas or viewpoints. Thus, solutions and ideas of groups are not likely to be creative since diversity of thought and opinions will not be present (Jaussi and Dionne, 2003). Through previous research, we realize that conformity is harmful for the generation of creative ideas in a group and work teams. However, few prior studies have investigated the relationship between conformity and team creativity.

Insufficient resources

Group creativity is enhanced when a work environment provides sufficient resources (Amabile, Conti, Coon, Lazenby, and Herron, 1996; West, 2002). Resources including material, time, financial means, are needed both to allow and to enable creativity. The extracted cues from the work environment (e.g. availability of resources for creativity) are required to trigger people's creative behavior (Madjar, Greenberg, and Zheng, 2011). When creative people realize that the resources are available for them to think and explore, they are likely to generate more new ideas (Chen, Shih and Yeh, 2011). On the opposite side, individuals will not see the potential for their idea implementation, which limits the enactment potential of a creativity frame of reference when resources are insufficient (Madjar, Greenberg, and Chen, 2011).

As noted above, resources required to stimulate creativity include material, time, and financial means. Time is one of the main creative resources that has

been examined in the previous research. When a tight deadline is present, individuals are expected to feel pressured and this can result in lowered intrinsic motivation and creativity (Amabile, 1996). Andrews and Smith (1996) address a negative relation between experienced time pressure and the creativity of ideas produced by marketing professionals. The study from Baer and Oldham (2006) examined the possibility of a curvilinear relation between the creative time pressure employees experience at work and creativity. They argue that low or high levels of creative time pressure and activation are assumed to deviate from employees' characteristic levels, resulting in suboptimal stimulation and lower engagement. Although their empirical results cannot prove a curvilinear relationship between time pressure and creativity, they found an inverted U-shaped creative time pressure-creativity relation for employees who scored high on openness to experience while simultaneously receiving support for creativity. Generally speaking, if employees experience the time pressure or have insufficient time, they are likely to adopt reliable approaches rather than creative approaches.

Recently, some empirical results have shown that there is a negative relation or no relation between the availability of resources and creativity (Moreau and Darren, 2005; Herold, Jayaraman, and Narayanaswamy, 2006). One explanation for these mixed results from Madjar, Greenberg, and Chen (2011) may be the type of creativity and type of resources (general vs. specific for creativity) that are considered. Thus, it is worth exploring under what conditions resources would play a different role although insufficient resources usually have a negative effect on team creativity.

Bureaucratic structure

The structure may play a critical role in enhancing or hindering creativity. While structures can promote open, ongoing contact with information seeking from different or multiple sources that are related to creativity, they can create vertical and horizontal boundaries that impede communication and consequently harm creative behaviors in groups. Woodman, Sawyer, and Griffin (1993) regard structure as one of the antecedents of group creativity, and suggest the probability of creative outcomes may be highest when structure is organic rather than mechanistic. It is apparent that there is an interrelatedness and interdependence of structure design and goal pursuit. In general, management theory has assumed that the bureaucratic structure is conducive to the maximum attainment of organizational goals. However, the bureaucratic structure strongly emphasizes the pursuit of efficiency, which hinders the occurrence of creativity and innovation.

Cummings (1965) argues that three main bureaucratic norms may operate to inhibit creativity. Firstly, the bureaucratic structure tries to avoid conflict and different opinions, yet a diversity of opinions encourages creative persons to facilitate idea generation. The emergence of divisive opinions is often perceived by the administrative hierarchy as inefficiency, which should be constrained. Secondly, the bureaucratic structure encourages secrecy rather than information sharing. Creative persons may depend heavily upon the extra-organizational professionals to increase the quality of new ideas. A lack of extra-organizational professionals will impede the production of creativity and innovation. Thirdly, the control and evaluation systems of the bureaucratic structure are built by stability, calculability, and routinization. This structure design simply reacts to a stable environment, not responding to an increasingly dynamic and continually changing environment, and fits the requirements of creativity.

Some empirical evidences support the negative effect of structure on creative or innovative performance. Damanpour (1991) conducts a meta-analysis of prior studies examining the relationship between structure and innovation to answer what structural variables are consistently related to innovation. The certain specific structural variables, including strong financial control, strong process control, and administrative communications, tend to inhibit innovation (Katz and Tushman, 1979; Quinn, 1989). On the other hand, Cardinal (2000) suggests that the relation between structural shaping and innovation displays remarkable generality. One of the implications of this study indicates that a flat structure of groups can promote ongoing communication, and in turn improve employees' creative behaviors.

These theoretical considerations and empirical findings are noteworthy in team creativity because they suggest that certain specific structural variables may belong to negative contextual influences that prevent creative people from focusing on the work. However, organizational structure is not easy to change in a short time. Future study therefore should seek some solutions to buffer creative people under the existing organizational structure, such as translational leadership, a supportive climate, resources reallocation, and so on.

The factors are undecided

In the final section of the impact of contextual factors, the study highlights three factors, namely team creativity, conflicts in teams, and group cohesion, to explore the inconsistent debate on team creativity based on the previous literatures.

Team diversity

Diversity has been regarded as the key factor that influences team creativity. Since creativity requires finding fresh solutions to old problems, and combining previously unrelated processes, products, or materials into something new and better (Mumford and Gustafson, 1988), teams should allow access to heterogeneous inputs that can capitalize on the varied skills and expertise of its members (Pearsall et al., 2008). Exposure to different backgrounds, approaches, and perspectives is thought to stimulate crucial processes such as divergent and flexible thinking (Granovetter, 1982). Team members, by being exposed to different knowledge and perspectives, are likely to lead to problem-solving approaches that can help teams to induce more creative ideas. But recent research results have shown that heterogeneity does not always lead to desirable team outcomes such as creativity (e.g. Jackson et al., 2003; Lawrence, 1997; Milliken and Martins, 1996). Heterogeneity may decrease liking, effective communication, cohesiveness, and psychological attachment and these negative reactions are likely to negatively affect team creativity (Milliken et al., 2003). Diversity includes demographic diversity and knowledge diversity. Most researchers acknowledge that demographic diversity appears to be a double-edged sword, increasing the opportunity for creativity as well as the likelihood that group members will be dissatisfied and fail to identify with the group (Milliken and Martins, 1996).

Research on demographic diversity in groups suggests that demographic diversity disrupts group processes and negatively affects attitudes and performance outcomes (e.g. Jehn, 1995; Murnighan and Conlon, 1991). Increasing demographic diversity can actually hamper team creativity by inducing internal friction and negatively influencing the exchange of creative ideas (Pearsall, Ellis, and Evans, 2008). However, team creativity requires the interaction process where team members collaboratively contribute their knowledge and unique skills in the team (Tiwana and Mclean, 2005). Group diversity can generate different perspectives and improve creative problem solving (Shalley and Gilson, 2004). Some scholars therefore argue that it is beneficial to team creativity when diversity can increase the range of knowledge, skills, and perspectives available within a group (e.g. McLeod and Lobel, 1992).

Accordingly, the relationship between knowledge diversity and team creativity should be greatly considered. Knowledge diversity refers to "deep-level diversity" to distinguish it from demographic diversity such as the variables of age, gender, and race (Taylor and Greve, 2006). Teams in which the members have had exposure to more diverse knowledge will have access to

more knowledge components and will as a result be more creative. Leenders et al., (2004) demonstrate that the NPD team creativity requires teams to combine and integrate input from multiple NPD team members. Through this process, teams can facilitate the exchange of information and create new knowledge and insights, and then in turn determine team creativity. West (2002) suggests that knowledge diversity will lead to creative performance or innovation because knowledge diversity can create variety, flexibility, and constructive controversy. However, team creativity will suffer when increasing diversity influences a group's integration. Thus, the challenge is how to create sufficient diversity, which can bring some potential benefits on team creativity.

Conflicts in teams

Conflict is a perception on the part of the parties involved of inconsistencies, incompatible expectations, or irreconcilable desires (Jehn and Mannix, 2001). When team members perceive different preferences, the tension between them often results in conflicts (De Dreu, Harinck, and Van Vianen, 1999). This study follows previous research and distinguishes between two types of conflict, namely task and relationship conflict (e.g. Amason and Sapienza, 1997; Cosier and Rose, 1977; Guetzkow and Gyr, 1954; Jehn, 1997, 1999; Pelled, 1996; Pinkley, 1990).

Task conflict refers to the disagreement about the tasks being performed, including priorities, goals, alternatives, and appropriate choices for actions (Jehn, 1995). Task conflict concerns the distribution of resources, procedures and policies, and judgments and interpretation of facts (De Dreu and Weingart, 2003). When actors among the parties have an awareness of differences of viewpoints and opinions about a group task, task conflict may take place (Amason and Sapienza, 1997). Relationship conflict refers to a perception of interpersonal incompatibilities, such as dislike among group members and feelings of annoyance, frustration, and tension (Jehn, 2001).

Though many useful and interesting ideas and perspectives come out when team members work together, the different preferences and perspectives among members may lead to conflicts. Most scholars regard relationship conflict as obviously damaging (e.g. Amason et al., 1995; Jehn, 1995, 1997; Pelled, 1996), but both theoretical arguments and empirical findings on the effects of task conflict on creativity or innovation in teams have been inconclusive (see Hulsheger, et al., 2009). Early conflict and group theorists have focused on the negative effects of team conflict (see De Dreu and Weingart, 2003). Conflict will reduce satisfaction and efficiency because it

produces tension, antagonism, and distracts team members from performing the task.

While some scholars claim that task conflict may harm team creativity or innovation (e.g. Kurtzberg and Mueller, 2005; Lovelace et al., 2001), a body of research has found that task conflict can lead to increased satisfaction with the group decision (Amason, 1996; Hoffman and Maier, 1961; Korsgaard, Schweiger, and Sapienza, 1995). For example, Simons (1993) found that task conflict is related to effective performance when decisions are made quickly on top management. But for slower decisions, task conflict is associated with low performance. Jehn (1994, 1995, 1997) also maintains that task conflict can be beneficial under certain specific circumstances, such as working on non-routine tasks. Matsuo (2006) also argues that task conflict has a positive effect on innovativeness in Japanese sales departments.

Recently, several scholars have claimed that task conflict at moderate levels can be beneficial to team creativity (Anderson, De Dreu, and Nijstad, 2004; De Dreu, 2006). This positive effect of task conflict, however, may break down quickly when the conflict becomes more intense (De Dreu, 2003). A curvilinear relationship has been reported in the literature as well. Comparing high and low task conflict, De Dreu (2006) declared that moderate task conflict could benefit team innovation by drawing in different opinions, ideas, and perspectives. Meanwhile, Farh, Lee, and Farh (2010) found that work teams are more innovative when the level of task conflict is moderate instead of low or high.

A recent meta-analysis from Hulsheger, Anderson, and Salgado (2009) found no conclusive outcome between task conflict and team creativity. They call for future studies to focus on exploring these forces that influence the positive or negative effect of task conflict on creativity. Accordingly, the mix of findings in the literature may indicate that the connection between task conflict and team creativity is complex, and other variables may have a role in this relationship (Gamero, González-Romá, and José, 2008; Jehn, 1997; Simons and Peterson, 2000) and we therefore need to detect those circumstances in new research.

Group cohesion

Group cohesion has been widely studied as an important aspect of a group characteristic, which is related to team creativity. Shaw (1981) considered that cohesion could be defined as "the degree to which members of the group are attracted to each other" (p. 213). Dobbins and Zaccaro (1986) regarded cohesion as the result of all the forces influencing all the members to remain in the group. This study is in line with previous research and defines group

cohesion as the degree of members' attraction to the group. Group cohesion is often described as a psychological force that binds people together (Keyton and Springston 1990).

Group cohesion emphasizes a united effort, encouraging closeness, bonding, and similarity among employees (Brockman and Morgan, 2006). Thus, cohesion has been associated with performance at the group level (Craig and Kelly, 1999), in which it has been discussed as a high-commitment work system (Woodman, et al., 1993). The meta-analytic study of Evans and Dion (1991) has indeed revealed that a small but positive relationship exists between group cohesion and group performance. Mullen and Copper's (1994) meta-analytic study indicated that task cohesion appears to be the critical and primary component of cohesiveness in the cohesiveness performance effect, suggesting that teams that perform well are committed to successful task performance and regulate their behavior toward that end. Brockman and Morgan (2003) found a positive association between cohesiveness and shared interpretation, helping an organization achieve a shared understanding of new information, but that comprehension might not be accurate or useful for innovation and performance.

Although group cohesion is regarded as a positive association with team performance, research regarding group cohesiveness and creativity supports this negative relationship between the two (cf. Mumford et al., 2002; Nystrom, 1979). Because of the inconsistency, some evidences suggest a curvilinear relationship between group cohesiveness and creative performance (Woodman et al., 1993). In general, group cohesion can bring a number of positive consequences to a group, including more and better group interaction, stronger group influence, greater involvement in group affairs, and less absenteeism and conflicts (McGrath, 1984; Shaw, 1981). However, group cohesion may hinder creativity because group cohesion promotes insularity and resistance to external stimuli (Wong, 2004). As new information is diffused within a group, it interacts with existing knowledge (Schulz, 2001). During such conditions, it is important to have open communication and acceptance of new ideas and different perspectives (Brockman and Morgan, 2006). However, cohesive climate may discourage opposing viewpoints (Moorman et al., 1993). Group cohesion can increase conformity and inhibit divergence within the group, creating groupthink (Janis, 1972). When groupthink occurs, diversity of thought and opinions will not be present, and in turn groups are not likely to be creative (Jaussi and Dionne, 2003). Jaussi and Dionne (2003) therefore argue and prove that

cohesion and group creative performance is positively related only when the group's intrinsic motivation for creativity is high.

Accordingly, besides team creativity and conflicts in teams, group cohesion is expected to be an undecided contextual factor that is worth exploring with respect to the effect on team creativity.

Discussion and conclusion

Before the 1950s, studies of creativity were relatively rare. Over the course of the last decade, an overall and wider range of discussion and research has been investigated. Scholars have reached a general agreement to the definition of creativity and distinguished creativity from other related forms of behavior (Mumford, 2003). Since creativity has become well known for its positive benefits to the performance of groups or firms, more and more research has been conducted on individual or employee creativity, including empirical studies. However, most studies have focused on the determinants of creativity exhibited by individuals. They investigated and examined the personal and contextual factors that enhance or restrict it (e.g. Amabile, 1983, 1996; Ford, 1996; Oldham and Cummings, 1996; Woodman et al., 1993; Zhou and Oldham, 2001). While a considerable body of research has investigated the issue of creativity, comparatively little attention has been paid to team creativity (George, 2007; Shalley, Zhou, and Oldham, 2004).

Thus, the purpose of this article is to review and integrate some of the important literatures on creativity to provide a synthesis of what we currently know about creativity. In general, contextual theories of creativity contend that it is the psychological meaning of the work environment and social interaction that largely influence generation of creativity. This article therefore suggests several possible contextual variables that are likely to affect creativity at the team level, and conducts new directions for creativity research in the future.

From previous studies, although we know about several contextual factors that influence the occurrence of creative behaviors, it is not yet clear how they influence creativity in groups. As discussed in this article, research has begun to indicate what types of contextual features of the work environment are more or less conducive to team creativity. The author mentions that supervisory and co-workers support, psychological safety, and group process are among some of the contextual factors that seem to facilitate creativity in groups. Although both empirical and field research of workgroups seem not to directly reach their potential effects on creativity, the article infers the

relationship between these contextual factors and team creativity by using the results and statement from the previous related literature. While considering the positive factors on team creativity, work is needed to determine if there are negative, unintended consequences of creativity that offset any possible benefits. Since few studies have directly examined this possibility, this article sorts out three possible negative factors, namely conformity, insufficient resources, and bureaucratic structure, to increase the understanding of the concept of team creativity.

In addition, some scholars' studies and arguments in the field of workgroup research (e.g. Bae and Oldham, 2009; De Dreu, 2001; De Dreu, 2006; Woodman et al., 1993) provide an explanation for the curvilinear effect of variables in the work context on creative performance. A growing stream of research shows that team diversity, conflicts, and group cohesion have became important determinants of team performance and creativity. However, the overall evidences and arguments of how these contextual factors influence creativity in groups are still inconsistent and contradictory.

Thus, based on the inferences and statements of nine contextual variables in this article, future research should continue to examine the effect of these contextual features in the work environment on team creativity and explore their associated managerial implications and human resource practices. For instance, what are the effects of team diversity, the different level of conflicts, and group cohesion on creative performance? In addition, more work is needed in areas such as how to effectively keep the positive factors, eliminate the negative factors, and control the undecided factors in the work environment for inducing more creative ideas in groups.

Although there have been considerable main contextual factors in understanding the team creativity in this study, many interesting issues remain to be resolved. The author encourages scholars to utilize empirical methods to examine the contextual factors and team creativity in future research. It would also be interesting to explore if and how each of the factors mentioned above affect team creativity in a positive, negative, or curvilinear way.

References

Amabile, T. M., Conti, R., Coon, H., Lazenby, J., and Herron, M. 1996. Assessing the work environment for creativity. ***Academy of Management Journal,*** 39(5): 1154-1184.

Baer, M., and Oldham, G. R. 2006. The curvilinear relation between experienced creative time pressure and creativity: Moderating effects of openness to experience and support for creativity. ***Journal of Applied Psychology,*** 91 (4): 963-970.

Beal, D. J., and Cohen, R. R. 2003. Cohesion and performance in groups: A meta-analytic clarification of construct relations. ***Journal of Applied Psychology,*** 88(6): 989-1004.

Carmeli, A. and Gittell, J.H. (2008) High-quality relationships, psychological safety, and learning from failures in work organizations. ***Journal of Organizational Behavior,*** 30(6): 709-729.

Carnevale, P.J., and Probst, T. (1998) Social values and social conflict in creative problem solving and categorization. ***Journal of Personality and Social Psychology,*** 74, 1300-1309.

Cole, S. M., Walter F., and Bruch, H. (2008) Affective mechanisms linking dysfunctional behavior to performance in work teams: A moderated mediation study. ***Journal of Applied Psychology,*** 93(5): 945-958.

Cosier, R. A., and Rose, R. L. (1977) Cognitive conflict and goal conflict effects on task-performance. ***Organizational Behavior and Human Performance,*** 19: 378-391.

Craig Y. T., and Kelly, R. J. 1999. Group Cohesiveness and Creative Performance. ***Group Dynamics: Theory, Research, and Practice,*** 3(4): 243-256.

Cummings, L. 1965. Organizational Climates for Creativity. ***Academy of Management Journal,*** 8(3): 220-227.

De Dreu, C. K. W., Harinck, F., and Van Vianen, A. E. M. (1999) Conflict and performance in groups and organizations. In C. L. Cooper and I. T.

Robertson (eds), ***International Review of Industrial and Organizational Psychology,*** 14: 369-414. Chichester, United Kingdom: Wiley.

De Dreu, C. K. W., and Weingart, L. R. (2003) Task versus relationship conflict and team effectiveness: A meta-analysis. ***Journal of Applied Psychology,*** 88:741-749.

De Dreu, C. K. W. (2006) When too little or too much hurts: Evidence for a curvilinear relationship between task conflict and innovation in teams. ***Journal of Management,*** 32(5): 673–720.

Edmondson, A. 1999. Psychological Safety and Learning Behavior in Work Teams. ***Administrative Science Quarterly,*** 44(2): 350-383.

Edmondson, A. C. 2003. Speaking up in the operating room: How team leaders promote learning in interdisciplinary action teams. ***Journal of Management Studies,*** 40: 1419-1453.

Evans, C. R., and Dion, K. L. 1991. Group Cohesion and Performance: A Meta-Analysis. ***Small Group Research***, 22(2): 203-216.

Ford, C. M. 1996. A theory of individual creative action in multiple social domains. Academy of Management Review, 21(4): 1112–1142.

George, J. M. 2008. Chapter 9: Creativity in Organizations. ***The Academy of Management Annals,*** 1(1): 439 - 477.

Hulsheger, U., Anderson, N., and Salgado, J. 2009. Team-Level Predictors of Innovation at Work: A Comprehensive Meta-Analysis Spanning Three Decades of Research. ***Journal of Applied Psychology,*** 94(5): 1128–1145.

Jaussi, K.S., and Dionne S.D. 2003. Leading for creativity: The role of unconventional leader behavior. ***Leadership Quarterly,*** 14:475-498.

Jehn, K. (1994) Enhancing effectiveness: An investigation of advantages and disadvantages of value-based intragroup conflict. ***International Journal of Conflict Management,*** 5: 223-238.

Jehn, K. 1995. A multi-method examination of the benefits and detriments of intragroup conflict. ***Administrative Science Quarterly,*** 40: 256-282.

Jehn, K. 1997. A qualitative analysis of conflict types and dimensions in organizational groups. ***Administrative Science Quarterly,*** 42: 530-557.

Jehn, K., and Mannix, E. 2001. The dynamic nature of conflict: A longitudinal study of intragroup conflict and group performance. ***Academy of Management Journal,*** 44: 238-251.

Keyton , J., and Springston , J. 1990. Redefining cohesiveness in groups. ***Small Group Research,*** 21(2): 234-254.

Kirton, M. J. 1994. Adaptors and innovators: Styles of creativity and problem solving (2nd ed.). New York: Routledge.

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(3): 285-294.

Kurtzberg, T. R. 2005. Feeling creative, being creative: An empirical study of diversity and creativity in teams. ***Creativity Research Journal,*** 17(1), 51-65.

Kwang, N. A., and Rodrigues, D. 2002. A big-five personality profile of the adaptor and innovator. ***Journal of Creative Behavior***, 36(4): 254–268.

Madjar, N., Greenberg, E., and Chen, Z. 2011. Factors for Radical **Creativity**, Incremental **Creativity**, and Routine, Noncreative Performance. ***Journal of Applied Psychology,*** 96(4): 730-743.

Mullen, B., Anthony, T., Salas, E., and Driskell, J. E. 1994. Group Cohesiveness and Quality of Decision Making: An Integration of Tests of the Groupthink Hypothesis. ***Small Group Research,*** 25(2): 189-204.

Milliken, F. J., and Martins, L. L. 1996. Searching for common threads: Understanding the multiple effects of diversity in organizational groups. ***Academy of Management Review,*** 21: 402-433.

Moorman, C., Zaltman, G., and Deshpande, R. 1993. Factors affecting trust in marketing research relationships. ***Journal of Marketing,*** 57: 314-328.

Mumford, M. D., and Gustafson, S. B. 1988. Creativity syndrome: Integration, application, and innovation. Psychological Bulletin, 103, 27 – 43.

Mumford, M.D. 2000. Managing creative people: Strategies and tactics for innovation. ***Human Resource Management Review,*** 10: 313–351.

Mumford, M. D., Scott, G. M., Gaddis, B., and Strange, J. M. 2002. Leading creative people: Orchestrating expertise and relationships. ***Leadership Quarterly,*** 13: 705 – 750.

Mumford, M. D. 2003. Where Have We Been, Where Are We Going? Taking Stock in Creativity Research. ***Creativity Research Journal,*** 15(2 and 3): 107–120.

Mumford, D. M., and Licuanan B. 2004. Leading for innovation: Conclusions, issues, and directions. ***Leadership Quarterly***, 15: 163–171.

Nemanich, L. A., and Vera, D. 2009. Transformational leadership and ambidexterity in the context of an acquisition. ***The Leadership Quarterly***, 20(1): 19-33.

Oldham, G. R., and Cummings A. 1996. Employee creativity: Personal and contextual factor at work. ***Academy of Management Journal,*** 39(3): 607-627.

Paulus, P. B. 2000. Group Teams and Creativity: The creative potential of idea-generating groups. ***Applied Psychology***, 49(2): 237-262.

Pearsall, M.J., Aleksander P. J. Ellis, and Evans, M. J. 2008. Unlocking the Effects of Gender Fault Lines on Team Creativity: Is Activation the Key? Journal of Applied Psychology, 93(1): 225-234.

Pirola-Merlo, A., and Mann, L. 2004. The relationship between individual creativity and team creativity: Aggregating across people and time. ***Journal of Organizational Behavior,*** 25 (2): 235-257.

Rice G. 2006. Individual values, organizational context, and self-perceptions of employee creativity: Evidence from Egyptian organizations. ***Journal of Business Research,*** 59: 233 – 241.

Schulz, M. 2001. The uncertain relevance of newness: Organizational learning and knowledge flows. ***Academy of Management Journal,*** 44: 661–681.

Shalley, C. E. 1991. Effects of productivity goals, creativity goals, and personal discretion on individual creativity. ***Journal of Applied Psychology***, 76: 179-185

Shalley C. E., Zhou J., and Oldham, G. 2004. The Effects of Personal and Contextual Characteristics on Creativity: Where Should We Go From Here? ***Journal of Management,*** 30(6), 933–958.

Shalley, C. E., Gilson, L. L., and Blum, T. C. 2000. Matching Creativity Requirements and the Work Environment: Effects on Satisfaction and Intentions to Leave. ***Academy of Management Journal,*** 43: 215-223.

Shaw, M. E. 1981. ***Group dynamics: Psychology of small groups*** (3rd ed.). New York: McGraw-Hill.

Shin, J. S. and Zhou, J. 2007. When Is Educational Specialization Heterogeneity Related to Creativity in Research and Development Teams? Transformational Leadership as a Moderator. ***Journal of Applied Psychology***, 92(6): 1709–1721.

Spink, K. S., and Carron, A. V. 1994. Group Cohesion Effects in Exercise Classes. ***Small Group Research,*** 25(1): 26-42.

Taggar, S. 2002. Individual Creativity and Group Ability to Utilize Individual Creative Resources: A Multilevel Model. ***Academy of Management Journal,*** 45, 315–330.

Taylor, A., and Greve, H. R. 2006. Superman or the fantastic four? Knowledge. combination and experience in innovation teams. ***Academy of Management,*** 49: 723-740.

Tiwana, A., and Mclean, E. R. 2005. Expertise Integration and Creativity in Information Systems Development. ***Journal of MIS,*** 22(1): 13-43.

Van den Bossche, P., Gijselaers, W. H., and Segers. M. 2006 Social and Cognitive Factors Driving Teamwork in Collaborative Learning Environments: Team Learning Beliefs and Behaviors. ***Small Group Research,*** 37(5): 490-521.

West, M. A. (2002). Sparkling fountains or stagnant ponds: An integrative model of creativity and innovation implementation in work groups. ***Applied Psychology: An International Review,*** 51, 355 – 387.

Woodman, R. W., Sawyer, J. E., and Griffin, R. W. 1993. Toward a theory of organizational creativity. ***Academy of Management Review,*** 18(2): 293-321.

Zaccaro, S. J., and McCoy, M. C. 1988. The effects of task and interpersonal cohesiveness on performance of a disjunctive group task. ***Journal of applied social psychology***, 18(1): 837-851

Zhou, J., and Oldham, G. R. 2001. Enhancing creative performance: Effects of expected developmental assessment strategies and creative personality. ***Journal of Creative Behavior,*** 35: 151–167.

Zhou, J., and Shalley, C. E. 2003. Research on employee creativity: A critical review and directions for future research. In J. J. Martocchio and G. R. Ferris (eds), Research in personnel and human resource management, 22, 165-217. Oxford, England: Elsevier Science.

Zhou, J., Shin, S., Brass D., and Choi, J., and Zhang, Z. X. 2009. Social Networks, Personal Values, and Creativity: Evidence for Curvilinear and Interaction Effects. ***Journal of Applied Psychology***, 94(6): 1544–1552.