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Group creativity in team and organizational innovation

Jakob Stollberger

Judge Business School,
University of Cambridge

Michael A. West

Lancaster University Management School,
Lancaster University

Claudia A. Sacramento

Aston Business School,
Aston University

Address correspondence to
Jakob Stollberger
Judge Business School
Trumpington Street, Cambridge
CB2 1AG
Email: j.stollberger@jbs.cam.ac.uk

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Innovation in Work Teams

Introduction

“Daring ideas are like chessmen moved forward; they may be beaten, but they may start a winning game.” (Johann Wolfgang von Goethe)

In this chapter we argue that in order to understand and promote innovation in teams it is necessary to consider not only the factors that facilitate creativity but also those that lead to the implementation of ideas into practice and action. We can think of innovation as a two-stage process, comprising both the *generation of ideas*, usually referred to as creativity, and characterised by suggestions regarding new processes, products, procedures, or strategies, that are novel in the workplace and can be of value (Amabile, 1996; West, 2002), and the *implementation of ideas*, which refers to the process undertaken to translate the initial suggestions into reality (Kanter, 2000; West, 2002). Most research conducted under the badge of either creativity or innovation has, however, treated creativity and implementation interchangeably, or has used measures which simultaneously tapped into both aspects of the innovation process (e.g., Scott & Bruce, 1994). Although this contributes to an understanding of the factors affecting the innovation process as a whole, we argue that a more fine grained approach would be of value, and it would help to explore how predictors of creativity and implementation differ. This would enable us to understand how to strategically promote team processes over the course of an innovation project appropriate to the requirements of each stage.

In this chapter we aim to provide an overview of the factors that influence team innovation as a whole, and to suggest the variation in importance of these factors at these different stages. As noted above, limited research has examined these elements in isolation,

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particularity when considering the implementation of ideas. There are some exceptions (e.g., Axtell et al., 2000; Baer, 2012; Clegg, Unsworth, Epitropaki, & Parker, 2002; Frese, Teng & Wijnen, 1999), and a recent meta-analysis, that identified a few different predictors for individual creativity and implementation (Hammond, Neff, Farr, Schwall, & Zhao, 2011), but we still know very little about possible differential effects across these stages. Thus, our reflections will often be exploratory rather than grounded on firm empirical evidence, but we hope these explorations will stimulate future research.

Figure 1 offers a framework of the factors identified in research as likely to influence innovation in work groups and uses an input-process-output structure. In our depiction, we additionally highlight those factors that we believe are more relevant for creative idea generation (marked with a “c”) and innovation implementation (marked with an “i”). Our framework artificially segments variables into inputs of teams such as the task the team is required to perform (e.g., provide health care), the composition of the group (such as functional, cultural, gender and age diversity), and the organizational context (e.g., manufacturing, health service, large or small). Group processes mediate the relationships between inputs and outputs and include levels of participation, support for innovation, and the management of conflict. These processes create climates of, for example, safety and trust or threat and anxiety. We propose that leadership in teams plays a crucial role in moderating the effects of organizational and team context upon team processes and thereby upon innovation outputs. Outputs include the number of innovations, magnitude of innovation, radicalness (changes to the status quo), novelty and effectiveness of innovation in achieving the desired end. We will consider each of these elements of the framework below. But first it is important to define what is meant by innovation.

We conceptualise innovation as a two-stage process consisting of creativity and innovation implementation (or idea implementation). Creativity at work is defined as a

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process outcome that is both novel and useful (Amabile, 1983). Innovation implementation, in turn, involves the implementation of novel and useful ideas in practice (Klein & Sorra, 1996). As creativity emphasises idea generation and innovation the implementation of these ideas, creativity is often conceptualised as a first step in the innovation process (Amabile, 1988; West, 2002). Creativity therefore predicts innovation implementation (Axtell et al., 2000; Baer, 2012) in the sense that for ideas to be implemented they need to be generated in the first place. However, while a person or team can be creative and generate ideas independently, the implementation of these ideas is a social-political process which will in most cases require the involvement of others (van de Ven, 1986). Thus although it is reasonable to assume that many factors are important for both processes (e.g., transformational leadership, Gumusluoglu & Ilsev, 2009), it is also likely that the weight of these factors on creativity and implementation will vary (Axtell et al., 2000); that the mechanisms by which certain factors affect creativity and implementation might also differ; and that factors that influence one might not be relevant for the other. This latter question was initially explored by Axtell and colleagues (2000), who found that suggestion of ideas was more strongly related to individual (personal and job) characteristics, whereas implementation was more strongly predicted by individual perceptions of group and organizational characteristics.

What input, process and output factors therefore influence levels of creativity and implementation, and consequently of innovation in work groups? We begin by considering the effects of two major categories of input factors: team context and organizational context.

-- Insert Figure 1 About Here --

Team Context

Inputs include, most importantly, the task that a team is required to perform as well as its characteristics. Then we consider the characteristics of the people who make up the team,

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the abilities and skills they bring, the role of team diversity (e.g., functional or knowledge diversity), and the length of time they have worked together.

Task characteristics

The task a group performs exerts a fundamental influence on the work group, defining its structural, process and functional requirements. For example, primary health care teams, which maintain and promote the health of people in local communities, have multiple stakeholders and a wide variety of tasks (Slater & West, 1999). Their team tasks vary in the extent to which they are difficult, unitary and divisible, or whether they provide a basis for conflict or co-operation; and demand both behavioral and conceptual responses. Task characteristics that foster innovation implementation include completeness (i.e., whole tasks), varied demands, opportunities for social interaction and learning, autonomy, development possibilities for the task, and task significance (Hackman & Oldham, 1976; West, 2002). The wholeness of a task refers to the degree of independence in goal setting, whereas task significance represents the meaningfulness of a task in affecting other people's lives (Hackman & Oldham, 1976). For example, the work of a nurse working on an intensive care unit is characterised by high task significance as its proper execution directly affects the health of patients. Such conditions, according to theorists, will produce 'task orientation', which is a state of interest and engagement produced by task characteristics (West, 2002). This is similar to the concept of intrinsic motivation that Amabile argues is so fundamental to creativity and innovation at work (Amabile, 1988).

Liu et al (2011) used George and Zhou's (2002) scale (which predominantly captures creativity) and found that a higher level organizational autonomy support compensated for the effects of both lower team-level autonomy support and team members' individual autonomy orientation in leading to creativity, and this effect was mediated by team members' harmonious passion for work (i.e., a state where work tasks are internalized as part of one's

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identity and personally enjoyable). Thus, when it comes to leveraging creativity at work by allowing employees to be more autonomous, introducing organization-wide policies for autonomy support seem to be more efficacious than team-level autonomy support or individual predispositions towards being more autonomous. Axtell and colleagues (2000) had before found that autonomy was more strongly related to idea generation than idea implementation, so together these findings would suggest that autonomy might be more important for the generation of ideas than for their implementation. If team members perceive high levels of autonomy they will be more likely to share their views on how problems could be solved, processes improved, and potential new products developed. This in turn will lead to more intensive communication, stronger task focus, and increased information elaboration which in turn are associated to individual and team creativity. Autonomy is, of course, still relevant when it comes to finding the means to put ideas into practice. For instance team members will be more likely to seek support if organizations give them discretion to do so, but the role of autonomy at this stage is less critical, as most teams with high levels of autonomy are still dependent on other organizational stakeholders and resources to implement their ideas.

Several studies have investigated the impact of goal interdependence on innovation as a means of facilitating social interactions and learning at work (van der Vegt & Janssen, 2003; Wong, Tjosvold, & Liu, 2009). For example, Wong and colleagues (2009) found that cooperative goals are related to team innovation via increases in group potency and a perceived climate for initiative. However, van der Vegt and Janssen (2003) paint a more complex picture by identifying boundary conditions of the relationship between group interdependence and innovation. Studying 343 members of 41 work teams, they showed that task interdependence is only related to team innovation where there are both high levels of perceived goal interdependence and of demographic and cognitive group diversity.

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Initial evidence is also available on the impact of job variety (i.e., the degree to which a job involves various activities, requiring the development of further skills; Hackman & Oldham, 1976) on organizational innovation. Shipton and colleagues's (2006) study of 3717 employees in 28 UK manufacturing organizations showed that job satisfaction of employees is particularly positively related to organizational innovation where their work offers a high degree of job variety.

In summary, the extent of group autonomy (in an organizational context that supports innovation) and the task requirements of completeness, varied demands, opportunities for social interaction, opportunities for learning, and development opportunities will predict group creativity and innovation implementation, while we expect autonomy to play a stronger role in the former. In the next section, we consider another key input variable: team member characteristics.

Team member characteristics

Given a team task, the innovation process begins with the creativity of individuals. The generation of a new idea is a cognitive process, located within individuals, albeit fostered by interaction processes in teams (Amabile, 1988). Thus, first and foremost, innovative individuals are both creative and innovative (i.e., they don't just have creative ideas; they also try to implement them).

A number of studies have examined personal characteristics associated with creative and innovative individuals (for a review see Barron & Harrington, 1981; Feist, 1998). They are people who have appropriate *intellectual abilities*, including synthetic abilities (to see problems in new ways and escape the bounds of conventional thinking) and analytic abilities to recognise which ideas are worth pursuing, as well as practical contextual abilities to persuade others of the value of their ideas (West, 2002). For example, Miron-Spektor and colleagues (2011) investigated the role of cognitive style (i.e., an individual's preferred

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problem solving strategy) in 41 teams in a R&D company and showed that teams with members that have creative and conformist cognitive styles enhanced team radical innovation, whereas members with attention-to-detail cognitive styles stifled a team's radical innovative output. The researchers found that creative team members increase task conflict and hinder team adherence to standards, which potentially boosts team idea generation. Conformist team members on the other hand reduce task conflict as well as enhance team adherence to standards, which may facilitate the innovation implementation process. Therefore, the inclusion of both creative and conformist team members may ensure greater team equilibrium in relation to innovation.

Another relevant personal characteristic is regulatory focus (Higgins, 1998). According to Higgins, people differ in their motivational orientation, in the sense that some individuals are more motivated towards pursuing their ideals, seeking success, and taking risks (a promotion focus orientation), while others are more motivated to accomplish their duties and obligations, seek safety and security, and avoid risk-taking (a prevention focus orientation). Some studies have established a relationship between promotion focus and creativity (Lanaj, Chang, & Johnson, 2012). Promotion focus is associated with a more global processing style, relying more on heuristics and a stronger risk taking approach, factors which are associated with creativity (e.g., Friedman & Forster, 2000, 2001). Prevention focus, on the other hand, given its aversion to risk taking and more conservative, perseverant thinking style, has been proposed to be negatively associated with creativity (e.g., Friedman & Förster, 2000, 2001). However, the attention to detail, focus on duties, and need to avoid failure might be critical qualities when it comes to implementation of innovation, with the attendant barriers and difficulties which require both perseverance and attention to detail.

Substantial evidence shows that behavioral preferences of individuals working together converge over time to reflect a common focus on either prevention or promotion,

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thus leading to a collective regulatory focus (Faddegon, Scheepers & Ellemers, 2008; Levine, Higgins, & Choi, 2000; Sacramento, Fay & West, 2013; Sassenberg & Wolpin, 2008). It is then reasonable to expect that the different processing styles associated with promotion and prevention focus will translate at the team level into different patterns of interaction which are fitted to better serve the desired end-states of each foci - success (for promotion) and security (for prevention). A stronger team promotion focus will be likely to result in a more global, unstructured exchange of information, resulting in a larger number of ideas being exchanged and developed, and also in more risky decisions (Florack & Hartmann, 2007). A stronger prevention focus is more likely to result in a more focused and systematic discussion, in which all details are examined by team members in an effort to avoid pitfalls, qualities that are important when taking into account the numerous difficulties that occur over the course of implementing a new idea. Thus, while we expect individual and team promotion focus to lead to creativity, we argue that prevention focus might be more instrumental when it comes to the implementation of ideas.

Turning to peoples' self concept, people who are *confident of their abilities* are more likely to innovate in the workplace. Chen et al. (2013) reported in their study on 95 R&D teams across 33 Chinese organizations that employee's perceived confidence in the ability to proactively carry out work tasks (i.e., role-breadth self-efficacy) is positively related to individual innovative performance, which in turn facilitates team innovative performance. Moreover, *tolerance of ambiguity and complexity*, widely associated with innovation, enables individuals to avoid the problems of following mental ruts, and increases the chances of unusual responses and the discovery of novelty. For example, Wu and colleagues (2014) showed that employees with a high need for cognition (i.e., a tendency to enjoy novel, complex, and uncertain situations) exhibited increased innovation.

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Innovative people also tend to be self-disciplined, with a high degree of initiative and motivation, and a concern with achieving excellence (Mumford & Gustafson, 1988). They also tend to be *self-directed*, enjoying and requiring freedom in their work (Mumford & Gustafson, 1988). In line with this, a study by Miron and colleagues (2004) showed that creative employees display the highest levels of innovative performance in that they consistently take the initiative (i.e., if they have an active and self-starting approach to work). We propose that such characteristics – self-discipline, initiative, and being self-directed are not so critical for idea generation but are conducive to the type of behaviours required to push forward an idea, such as developing a structured plan, persevering in the face of difficulties, being able to establish alliances and connect to relevant partners. Having team members with such characteristics will increase the chances of a team being able to implement their ideas.

Another influence on team innovation is the extent to which team members have the relevant *knowledge, skills and abilities* (KSAs) to perform well individually as well as to work effectively in groups. These involve technical skills relevant for task performance (such as medical skills for a physician in a breast cancer care team) but also team integration skills, which include conflict resolution skills, collaborative problem-solving skills, and communication skills to facilitate team functioning (West, 2002). KSAs, we argue, are critical for both the generation of ideas and implementation. A team can only capitalise on each members' different pool of knowledge if team members are able to exchange their competing views fed by different sets of skills and experiences and successfully engage in conflict resolution and problem solving. Implementing these ideas again will require the ability to plan, coordinate, manage conflict and solve problems, which are of course KSAs for team work (Stevens & Campion, 1994).

Group member diversity

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Are groups composed of very different people (e.g., in terms of professional background, age, organizational tenure) more innovative than those whose members are similar? Does divergence of views, multiple perspectives, positive disagreement and conflict increase the innovative performance of teams (Guillaume, Dawson, Otake, Woods, & West, 2017)?

Of the different classification systems for diversity (Jackson, 1996; Maznevski, 1994), most differentiate between task-oriented diversity in attributes that are relevant to the person's role or task in the organization (e.g., specialised knowledge), and those that are simply inherent in the person and 'relations-oriented' (e.g., age, gender, ethnicity, social status and personality; Maznevski, 1994).

In a meta-analysis of 29 studies and a total of 3635 individuals, van Dijk and colleagues (2012) showed that diversity is positively related to innovation but also that this relationship depends on the type of diversity under investigation. For example, whereas diversity in education level or functional backgrounds was positively related to innovation, other types of diversity (e.g., ethnic or gender) were unrelated. Effects of diversity on innovation may depend on the type of innovative performance that is examined. For example, whilst Diaz-Garcia et al. (2013) reported a positive relationship between gender diversity and radical innovation, they did not find the same association when looking at incremental innovation.

Diversity in information, experience and skills that leads to more comprehensive and effective decision-making is the dominant explanation for the positive effects of diversity on team innovation. However, another explanation for the (still debated) effects of task-oriented diversity on team innovation is that functional diversity increases levels of external communication across departmental boundaries as well.

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Several other studies report a positive relationship between functional diversity and team innovation depending on a number of team-related factors (Drach-Zahavy & Somech, 2001; Fay, Borrill, Amir, Haward, & West, 2006; Lovelace, Shapiro, & Weingart, 2001). For example, whilst Lovelace and colleagues (2001) acknowledged that functional diversity may lead to task disagreement between team members, the means by which this conflict is resolved (e.g., collaboratively or contentiously) will determine team innovative success. Similarly, Drach-Zahavy and Somech (2001) showed that functional diversity increased team innovation when team interaction processes pertaining to information exchange, learning, or mutual motivation amongst team members were in place. When team knowledge sharing decreases under low levels of affect-based trust, Cheung et al. (2016) reported a negative relationship between functional diversity and team innovation. Fay and colleagues (2006) reported that team multidisciplinary only increased the quality of team innovations (but not their number) where there were positive team processes (e.g., a strong vision, team interdependence, reflection on work processes, and a safe working climate).

In a similar vein, Gibson and Gibbs (2006) reported that high levels of national (or cultural) diversity (i.e., encapsulated in different ways of thinking, feeling, and behaving based on differences in national backgrounds) decreased team innovation because such diversity hinders constructive communication. The authors argue that these effects can be overcome by creating a psychologically safe communication climate (Gibson & Gibbs, 2006). The activation of gender faultlines (which occurs when the existence of different gender categories is made salient to those involved), has also been found to negatively affect team creativity. The authors explained that activated faultlines cause inter-group communication to break down and member participation to diminish, thus inhibiting the exchange of knowledge and experiences (Pearsall, Ellis, & Evans, 2008).

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So does diversity predict group innovation? The research evidence suggests that functional or knowledge diversity is associated with innovation. However, when diversity begins to threaten the group's safety and integration (e.g., task disagreements, lack of communication) then creativity and innovation implementation are likely to suffer. Where diversity reduces group members' clarity about and commitment to group objectives, levels of participation (interaction, information-sharing and shared influence over decision-making), task orientation (commitment to quality of task performance), and support for new ideas, then it is likely that innovation attempts will be resisted.

Another relevant question is whether diversity affects the different stages of the innovation process via the same mechanisms. The positive effects of diversity on creativity can be attributed to the existence of a wider pool of knowledge, skills and abilities which combined with good information elaboration can lead to improved idea generation. For instance, diversity of perspectives has been found to lead to team creativity via information elaboration when members engage in perspective taking (Hoever, van Knippenberg, van Ginkel, & Barkema, 2012). In relation to implementation of innovation, perhaps the most relevant contribution of diversity is a consequence of the varying pools of contacts each member brings to the team. Individuals' networking ability and strong social ties were found to be critical in the relationship between generating ideas and their implementation (Baer, 2012). If teams are composed for example of individuals from different backgrounds or different functional areas they may be more likely to have non-overlapping networks and could thus substantially increase the team's network and with that the access to key stakeholders and resources which are critical when teams implement their ideas. Thus,

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although diversity might positively affect both aspects of the innovation process, the pathways to these effects might be different¹.

We now turn to consider how the tenure or age of a work team is likely to affect innovation.

Group tenure

In order to encourage innovation should we try to keep work teams together over time or constantly ensure a change of membership and therefore maintain its diversity? Research on diversity in teams suggests that longer tenure might be associated with increasing homogeneity and therefore low levels of innovation (Jackson, 1996). This stance is also supported by research carried out by Choi and Thompson (2005), who found that membership change increases group creativity as an important precursor to innovation. However, it is also conceivable that tenure homogeneity could be positively related to frequency of communication, social integration within the group, and innovation. This may be because the longer people work together, the more they create a predictable and therefore safe psychological environment, which may facilitate innovation (West, 2002).

The resolution of these positions may lie not in issues of tenure, diversity and safety per se, but in the balance between these factors. It may be that tenure, diversity and psychosocial safety interact in their influence on innovation. Where long tenure leads to high safety this will lead to creativity and implementation, all other things being equal, since it will be safer to take risks and to continually introduce diverse perspectives. Another possibility is that the longer teams work together the more likely they are to develop and apply ways of working that enable them to achieve shared objectives, to implement appropriate participation

¹ We would like to thank a reviewer for pointing this out.

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strategies, and effective communication and decision making processes, which in turn lead to innovation (West & Anderson, 1996).

The task a team is required to perform determines to a large extent the level of innovation a team can implement. High levels of autonomy ceded to the group over the performance of its work, interdependence in the work of the team members, and task identity (the team performs a whole task) together will influence the level of innovation. At the same time the characteristics of group members (innovativeness, ability to work in teams, the diversity of skills, perspectives and knowledge they bring to the task, and the length of time for which the members have worked together) will influence the level of innovation. The reader can consider his or her own team and ponder on the extent to which the task demands innovation. Is the team composed of people who have a propensity to innovate? And do the team members embody a diversity of knowledge, skills and perspectives which, when combined, lead to ideas for new and improved ways of working? Are the team members skilled at integrating their perspectives, activities and knowledge, thus enabling interdependent team working? Have they worked together for a long enough period of time that they are reasonably efficient at decision-making and achieving a shared representation of their work and ways of working? If so, we would argue that the likelihood is that the team has the capacity to be highly innovative, but this capacity can be constrained or enabled by the organization within which the team works in powerful ways. It is to a consideration of the organizational context for team innovation that we turn to next.

Organizational Context

How do organizations enable or inhibit team innovation? In this section, we suggest that the culture and the climate of the organization powerfully determine whether teams will attempt to introduce innovation. The demands an organization places on teams to perform will

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also affect innovation in a positive and powerful way since innovation usually occurs because of demands in the environment. Necessity, we shall argue, is indeed the mother of invention.

Organizational culture and climate

Organizations create an ethos or atmosphere within which creativity is either nurtured and blooms in innovation, or is starved of support. Supportive and challenging environments are likely to sustain high levels of creativity (Mumford & Gustafson, 1988; West, 2002), especially those which encourage risk taking and idea generation. Employees frequently have ideas for improving their workplaces, work functioning, processes, products or services but where climates are characterized by distrust, lack of communication, personal antipathies, limited individual autonomy and unclear goals, implementation of these ideas is inhibited (Gibson & Gibbs, 2006; Hülsheger, Anderson, & Salgado, 2009).

Creative, innovative organizations are those where employees perceive and share an appealing vision of what the organization is trying to achieve – one therefore that is consistent with their values (West, 2002). Innovative organizations have vigorous and mostly enjoyable interactions and debates between employees at all levels about how best to achieve that vision. Conflicts are seen as opportunities to find creative solutions that meet the needs of all parties in the organizations rather than as win-lose situations. And people in such organizations have a high level of autonomy, responsibility, accountability, and power – they are free to make decisions about what to do, when to do it and who to do it with. Trust, cooperativeness, warmth and humor are likely to characterize interpersonal and intergroup interactions (Anderson, Potocnik, & Zhou, 2014). There is strong practical support for people's ideas for new and improved products, ways of working or of managing the organization.

Considerable research has been undertaken to examine the impact of indicators of culture and climate on innovation (e.g., Amabile, Conti, Coon, Lazenby, & Herron, 1996;

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Patterson et al., 2005). For instance, Bain and colleagues (2001) showed that a climate for innovation, which is a work climate characterised by participative safety (i.e., an interpersonally non-threatening atmosphere with opportunities for participation), support for innovation, a clear and attainable vision, as well as a shared concern for excellence in task performance increases team innovative performance. Studying 33 R&D teams, Eisenbeiss, van Knippenberg, and Boerner (2008) showed that the relationship between individual facets of a climate for innovation are more complex than previously anticipated. Specifically, the researchers reported that team support for innovation only increased team innovation in situations where the team had shared norms for excellence regarding the performance output each team member strives for (i.e., a shared climate for excellence). The researchers argued that the existence of a climate for excellence would motivate team members to critically reflect on the feasibility of their innovative ideas before expressing them to the team, and would also make them more likely to improve and modify their ideas based on feedback received from colleagues, which ultimately increases a team's innovative output (Eisenbeiss et al., 2008).

Amabile's componential model of creativity and innovation (Amabile, 1983, 1988) provides a link between the work environment, individual and team creativity, and organizational innovation. The organizational work environment is conceptualized as having three key characteristics: Organizational motivation to innovate describes an organization's basic orientation toward innovation, as well as its support for creativity and innovation. Management practices include the management at all levels of the organization, but most importantly the level of individual departments and projects. Supervisory encouragement and work group support are two examples of relevant managerial behavior or practices. Resources are related to everything that an organization has available to support creativity at work. Amabile proposes that the higher the concurrent levels of these three aspects of the

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organizational environment, the more the innovation in organizations. The central statement of the theory is that elements of the work environment will impact individual and team creativity by influencing expertise, task motivation, and creativity skills. The influence of intrinsic task motivation on creativity is considered essential; even though the environment may have an influence on each of the three components, the impact on task motivation is thought to be the most immediate and direct. Furthermore, creativity is seen as a primary source of organizational innovation.

In a study examining whether and how the work environments of highly creative projects differed from the work environments of less creative projects, Amabile and colleagues (Amabile et al., 1996) found that five dimensions consistently differed between high-creativity and low-creativity projects. These were challenge, organizational encouragement, work group support, supervisory encouragement, and organizational impediments.

Challenge is regarded as a moderate degree of workload pressure that arises from the urgent, intellectually challenging problem itself (Amabile et al., 1996; Amabile, 1988). The authors carefully distinguish challenge from excessive workload pressure, which is supposed to be negatively related to creativity, and suggest that time pressure may add to the perception of challenge in the work if it is perceived as a concomitant of an important, urgent project. This challenge, in turn, may be positively related to intrinsic motivation and creativity.

Organizational encouragement refers to several aspects within the organization. The first is encouragement of risk taking and idea generation, a valuing of innovation from the highest to the lowest levels of management. The second refers to a fair and supportive evaluation of new ideas; the authors underline this by referring to studies that showed that whereas threatening and highly critical evaluation of new ideas was shown to undermine creativity in laboratory studies, in field research supportive, informative evaluation can enhance the intrinsically motivated state that is most conducive to creativity. The third aspect of

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organizational encouragement focuses on reward and recognition of creativity; in a series of studies, Amabile and colleagues showed that reward perceived as a bonus, a confirmation of one's competence, or a means of enabling one to do better, more interesting work in the future can stimulate creativity, whereas the mere engagement in an activity to obtain a reward can be detrimental towards it (see Amabile et al., 1996). The final aspect refers to the important role of collaborative idea flow across the organization, participative management, and decision making, in the stimulation of creativity.

Work group support indicates the encouragement of activity through the particular work group. The four aspects thought to be relevant for this are team member diversity, mutual openness to ideas, constructive challenging of ideas, and shared commitment to the project; whereas the former two may influence creativity through exposing individuals to a greater variety of unusual ideas, the latter two are thought to increase intrinsic motivation.

Supervisory encouragement stresses the aspects goal clarity, open supervisory interactions, and perceived supervisory or leader support. Whereas goal clarity might have an effect on creativity by providing a clearer problem definition, Amabile et al. argue that open supervisory interactions as well as perceived supervisory support may influence creativity through preventing people from experiencing fear of negative criticism that can undermine the intrinsic motivation necessary for creativity.

In reporting the last of the five factors, organizational impediments, Amabile et al. (1996) refer to a few studies indicating that internal strife, conservatism, and rigid, formal management structures represent obstacles to creativity. The authors suggest that because these factors may be perceived as controlling, their likely negative influence on creativity may evolve from an increase in individual extrinsic motivation (a motivation through external factors but not the task itself) and a corresponding decrease in the intrinsic motivation

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necessary for creativity. However, research on impediments to creativity is in comparison to research on stimulants of creativity still comparatively limited.

When it comes to understanding what are the characteristics of climates that support implementation of an innovation, the work of Klein and Sorra (1996) is particularly insightful. According to the authors, a strong climate for implementation is one that fosters the use of an innovation by (a) ensuring that employees are skilled in using the new innovation, (b) provides incentives for innovation use, and (c) removes obstacles to its use. Thus organizations should support teams in implementing their ideas by ensuring all relevant organizational members are trained so they can use and benefit from the innovation, they are rewarded for doing so, and any factors constraining the use of the innovation are removed. The authors were of course focusing on a situation in which the organization has already decided to proceed with the implementation of an idea and wants to ensure staff members adhere to it, so the implementation is successful. However the same principles should apply when aiming to create a climate that encourages teams to move forward and implement their ideas. Organizations should provide teams with opportunities to address any gaps in knowledge, should create rewards for teams who seek to implement their ideas, and should try to remove any obstacles that come in their way (e.g., red tape, lack of resources). Such actions will signal that the organization not only welcomes new ideas but values and support their implementation.

Organisations can also promote creativity and implementation of innovation by investing in their human resource practices and developing High Performance Work Systems (HPWS). HPWS refers to a group of separated but related human resource practices designed to maximise employees' skills, effort (Takeuchi, Lepak, Wang, & Takeuchi, 2007). Indeed, recent research on High Performance Work Systems (HPWS) has revealed new pathways for how organizations can create a climate that promotes both creativity and implementation of

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ideas (e.g., Chang, Jia, Takeuchi, & Cai, 2014; Lee, Pak, Kim, & Li, 2016). For instance, organization branches applying high performance work practices for creativity were found to have more creative employees and in turn more satisfied customers (which implies that employees were not only having more ideas but were also implementing them, and thereby improving customer satisfaction; Martinaityte, Sacramento, & Aryee, 2016). In a sample of 454 organizations Jeong and Shin (2017) found that when companies were going through a major change, HPWS led to more collective learning, which in turn led to higher creativity. Thus organizations should invest in job design, reward, selection and training initiatives that facilitate creativity and implementation of ideas.

External demands

We argue that external demands on teams (competition with other organizations, time pressures and challenging targets for examples) impair idea generation but are likely to stimulate innovation implementation in teams that have effective group processes (West, 2002). Creativity is more likely to occur when team members are happy, feel safe and are free of pressures, as such factors impair creative cognition (e.g., Claxton, 1997, 1998; Cowen 1952). Supporting this idea, Zhu, Gardner, and Chen (2016) found that while collaborative team climate had a direct positive effect on creativity, the same was not the case for competitive climate. On the other hand, such factors, at least up to a certain level, can have the opposite effect when it comes to moving ideas forward. Research in manufacturing organizations (West, Patterson, Pillinger, & Nickell, 2000) suggests that the lower the market share held by manufacturing organizations, the higher the level of product innovation. Moreover, the extent of environmental uncertainty reported by senior managers in these organizations (in relation to suppliers, customers, market demands and government legislation), was a strong predictor of the degree of innovation in organizational systems, e.g., in people management practices (see also West & Anderson, 1992). Taken together, these

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findings suggest that if the environment of organizations is demanding, these organizations (or the teams within them) are more likely to innovate in order to reduce the demand or uncertainty. This is likely also to influence the level of innovation of groups at work. The effort of initiating change in organizations, with all the attendant resistance, conflicts and experiences of failure is likely, in most instances, to elicit strong aversive reactions among group members. The impetus to maintain innovation attempts (in the absence of strong intrinsic motivation) must therefore be provided by an expectation of high rewards or by the perception of high demands, threat or uncertainty.

The external context of the group's work, be it organizational climate, support systems, market environment, or environmental uncertainty, is likely to have a highly significant influence both on its creativity and innovation implementation as organizations innovate at least partly in response to external demands. Research evidence for this interrelationship is for example provided by Jung and colleagues (2008), who show that the impact of a CEO's transformational leadership on firm innovation depends on environmental factors such as high competition or high uncertainty. In a similar vein, Jansen et al. (2006) showed that environmental dynamism (i.e., the rate of change and degree of instability of organizational environments) and competitiveness influence the extent to which innovation can be translated into financial gains of organizations. The researchers found that whereas high environmental dynamism and competitiveness increase organizational financial performance, low levels of both environmental factors lead to decreases in financial gains.

In sum, while external demands are proposed to impair creativity, the relationship between external demands and innovation implementation is more complex. Extreme demands or sustained high levels (as may be found in war time or in disaster situations) are likely to produce paralysis or learned helplessness. However, within the bounds of most work

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environments, which are not characterised by extreme demands, levels of external demands (we propose) will positively predict levels of team innovation implementation.

In conclusion therefore, we suggest that the organizational culture, climate and level of demands provides a context which determines the level of group innovation both directly and via their impact on team inputs and team processes. Clearly the culture will influence the group's task (the amount of autonomy they are given), the group's composition (cross functional teams are more likely in organic organizations), and group processes (team members are more likely to be supportive of innovation in a culture which recognizes and rewards ideas for new and improved ways of doing things). We cannot treat work teams as isolated islands if we wish to understand creativity and innovation at work. The organizational context plays a powerful part in influencing both the level and type of innovation. But, we argue below, the most important factors are the interaction and socio-emotional processes that occur within teams.

Team Processes and Emergent States

The literature has differentiated between team processes, which refer to the nature of the members' interactions (e.g., information sharing, conflict management), and emergent states (e.g., cohesion, psychological safety, collective efficacy, support for innovation), which describe cognitive, motivational and affective states of teams that are typically dynamic in nature and vary as a function of the team context, inputs, processes, and outcomes (Marks, Mathieu, & Zaccaro, 2001). Team emergent states do not represent team interactions or team actions and therefore can not lead directly to outcomes, but they can influence (and be influenced by) team processes that are relevant for innovation, and also exert a boundary effect in the relationships between processes and both inputs and outcomes (e.g., Fairchild & Hunter, 2014). Thus, both team processes and team emergent states are important for team innovation.

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Task characteristics, group diversity and organizational context will all influence team processes and emergent states affecting the development and redevelopment of shared objectives, levels of participation, management of conflict, and support for new ideas (West, 2002). These processes and emergent states, if sufficiently integrated (i.e., there are shared objectives, high levels of participation, constructive, co-operative conflict management, high support for innovation, and leadership which enables innovation) will foster creativity and innovation implementation. Moreover, effective group processes will be both sustained by and increase the level of psychosocial safety in the group.

Developing shared objectives

In the context of group innovation, clarity of team objectives is likely to facilitate innovation by enabling focused development of new ideas, which can be filtered with greater precision than if team objectives are unclear. Theoretically, clear objectives will only facilitate innovation if team members are committed to the goals of the team since strong goal-commitment will be necessary to maintain group member persistence for implementation in the face of resistance among other organizational members. Ferreira Peralta and colleagues (2015) examined the role of goal clarity and commitment in the relationship between innovation processes and team effectiveness (i.e., operationalised as performance) using two samples (i.e., 207 call centre teams and 32 sports teams). The researchers found that innovation processes were more positively related to performance when goal clarity and commitment in teams is high.

Participation in decision-making

To the extent that information and influence over decision-making are shared within teams, and there is a high level of interaction amongst team members, the cross fertilisation of perspectives which can spawn creativity and innovation (Mumford & Gustafson, 1988) is

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more likely to occur. More generally, high participation in decision-making means less resistance to change and therefore greater likelihood of innovations being implemented (West, 2002). Meta-analytically examining 37 studies with an overall sample of 23,146 employees, Hülsheger and colleagues (2009) revealed a small association between team participative safety (i.e., a measure of participation in decision making and intragroup safety) and innovation ($r = .15$) and advised to interpret this result with some caution. Gajendran and Joshi (2012) recently reported a positive relationship between member influence on team decisions and team innovation using data from 40 globally distributed teams. However, the determinants of member influence on team decisions were characterised by complex interrelationships, good team member relationship quality with the respective team leader (i.e., high leader-member exchange) and frequent leader-member communication. This joint effect in predicting member influence on team decision-making was stronger in teams whose members were globally dispersed.

Axtell and colleagues' study (2000) found that participation in decision-making predicted both suggestion-making and implementation. They proposed that individual perceptions of group and organizational variables (e.g., participative safety, support for innovation, management support) would affect implementation while perceptions of job and individual characteristics (e.g., role breadth self-efficacy, production ownership, problem solving demand) would predict creativity. They also proposed that participation in decision making would affect both components. Similarly, we expect this factor to affect both creativity and implementation because it facilitates the development of creative ideas and provides the agency to implement them.

Conflict

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Many scholars believe that the management of competing perspectives is fundamental to the generation of creative ideas and innovation implementation (Anderson et al., 2014; Mumford & Gustafson, 1988). Such processes are characteristic of task-related conflict (as opposed to conflicts of relationship and process conflict; see De Dreu, 1997). They can arise from a common concern with quality of task performance in relation to shared objectives. Task conflict includes the appraisal of, and constructive challenges to, the group's performance. In essence, team members are more committed to performing their work effectively and excellently than they are either to bland consensus or to personal victory in conflict with other team members over task performance strategies or decision options.

Dean Tjosvold and colleagues (e.g., Tjosvold & Field, 1983; Tjosvold, 1998) have presented cogent arguments and strong supportive evidence that such constructive (task-related) controversy in a co-operative group context improves the quality of decision-making and creativity (Tjosvold, 1991). Constructive controversy is characterized by full exploration of opposing opinions and frank analyses of task-related issues. It occurs when decision-makers believe they are in a co-operative group context, where mutually beneficial goals are emphasised, rather than in a competitive context; where decision makers feel their personal competence is confirmed rather than questioned; and where they perceive processes of mutual influence rather than attempted dominance.

However, a meta-analysis carried out by Hülsheger and colleagues (2009) failed to establish a linear relationship between task conflict and team innovation. A study by Carsten de Dreu (2006) may shed light on the theory-contradicting results presented by Hülsheger et al. De Dreu reports that moderate (but not high or low) levels of task conflict foster team innovation (i.e., a curvilinear effect). He further showed that moderate levels of task conflict facilitate team innovation by increasing collaborative problem solving within work teams (De Dreu, 2006).

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Another perspective on conflict and innovation comes from minority influence theory. A number of researchers have shown that minority consistency of arguments over time is likely to lead to change in majority views in groups (Maass & Clark, 1984; Nemeth & Owens, 1996; Nemeth, 1986). In a study of newly formed postal work teams in the Netherlands, De Dreu and West found that minority dissent did indeed predict team innovation (as rated by the teams' supervisors), but only in teams with high levels of participation (De Dreu & West, 2001). It seems that the social processes in the team necessary for minority dissent to influence the innovation process, are characterized by high levels of team member interaction, influence over decision-making, and information sharing. This finding has significant implications for our understanding of minority dissent in groups operating in organizational contexts. In a study of 32 work teams, De Dreu (2002) established another boundary condition in the relationship between minority dissent and team innovation, namely reflexivity (i.e., the tendency to reflect upon the group's objectives, strategies, and processes, and adapt them to current or anticipated circumstances). He reported that teams are more innovative and effective where there was high minority dissent in combination with high levels of team reflexivity.

Overall, therefore, moderate task-related (as distinct from emotional or interpersonal) conflict and minority dissent in a participative climate will lead to creativity by encouraging debate (requisite diversity) and to consideration of alternative interpretations of information available, leading to integrated and innovative solutions.

In light of the evidence above, we argue that constructive controversy and task conflict will be particularly beneficial when teams are generating ideas. Having a varied set of competitive views will lead to divergent lines of thought which will call for an in-depth discussion as team members compare, contrast and combine different possible approaches.

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This rich elaboration of information will in turn result in increased creativity (Hoever, van Knippenberg, van Ginkel, & Barkema, 2012). For idea implementation we argue that it is best if team members have developed a shared mental model of their task and therefore have less conflict about the content and process of their work (Mathieu, Heffner, Goodwin, Salas, & Cannon-Bowers, 2000). This is not to say that any task conflict will be negative at this stage; task conflict might be very useful when the team encounters problems (e.g., whilst implementing a creative idea), but we expect that conflict will be less important during idea implementation.

Support for Innovation

Innovation is more likely to occur in groups where there is support for innovation, and innovative attempts are rewarded rather than punished (Amabile, 1988). Support for innovation is the expectation, approval and practical support of attempts to introduce new and improved ways of doing things in the work environment (West, 1990). Within groups, new ideas may be routinely rejected or ignored, or attract verbal and practical support. Such group processes powerfully shape individual and group behavior and those which support innovation will encourage team members to introduce innovations (West, 2002). A longitudinal study of 27 hospital top management teams, found that support for innovation was the most powerful predictor of team innovation of any of the group processes so far discussed (Anderson & West, 1998; West & Anderson, 1996). In a comprehensive analysis of 39 studies and 15,604 employees, Hülshager and colleagues (2009) confirmed the initial results obtained by West and colleagues by reporting a strong positive relationship between support for innovation and team innovation ($r = .47$). A study conducted by Yuan and Woodman (2010) found that the relationship between perceived organizational support for innovation and innovative behaviour is explained by increases in expected positive performance outcomes (i.e., employees believe that their innovative behaviours will bring

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performance improvements or efficiency gains to their team). This suggests the existence of further mechanisms that underlie the effect of support for innovation on innovative performance.

We suggest that support for innovation, although beneficial for creativity, is more important during the implementation stage. The extent to which teams will be successful navigating the social and political channels necessary in order to gain support to implement an idea will be highly dependent on the extent to which the organization promotes and supports innovation and key stake holders offer support and make available the necessary resources.

Reflexivity

Team reflexivity is the extent to which team members collectively reflect upon the team's objectives, strategies and processes as well as their wider organizations and environments, and adapt them accordingly (West, 1996, p. 559). There are three central elements to the concept of reflexivity -- *reflection, planning and action or adaptation*. Reflection consists of attention, awareness, monitoring, and evaluation of the object of reflection (West, 2002). Planning is one of the potential consequences of the indeterminacy of reflection, since during this indeterminacy courses of action can be contemplated, intentions formed, plans developed (in more or less detail) and the potential for carrying them out is built up. High reflexivity exists when team planning is characterised by greater detail, inclusiveness of potential problems, hierarchical ordering of plans, and long as well as short range planning. More detailed implementation intentions or plans are more likely to lead to innovation implementation (Gollwitzer, 1996). Indeed the work of Gollwitzer and colleagues, suggests that goal-directed behavior or innovation will be initiated when the team has articulated implementation intentions. This is because planning creates a conceptual readiness for, and guides team members' attention towards, relevant opportunities for action and means to accomplish the team's goal. Action refers to goal-directed behaviors relevant to achieving

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the desired changes in team objective, strategies, processes, organizations or environments identified by the team during the stage of reflection.

Reflexivity can relate to team objectives, strategies, internal processes, development of group psycho-social characteristics, and external relations as well as the external environment. As a consequence of reflexivity, the team's reality is continually re-negotiated during team interaction.

In a study of 200 employees in 100 work teams, Tjosvold and colleagues's (2004) results confirmed that team reflexivity does indeed increase team innovation. Furthermore, their study revealed that setting cooperative (but not competitive or independent) goals stimulates team reflexivity, which eventually leads to benefits in terms of team innovative performance. Complementing Tjosvold et al.'s research, Schippers and colleagues (2015) showed that team reflexivity increases team innovation particularly in situations where teams are faced with a demanding work environment.

Taking into consideration previous research on group dynamics, we argue that team reflexivity is a more potent driver of innovation implementation than it is of idea generation. This is because group discussions with a view to generate creative ideas are likely to be influenced by groupthink (i.e., a pressure for premature consensus) or social loafing (i.e., people exerting less effort on a task when they are in a group compared to working alone), which can undermine the quantity and quality of ideas generated (Diehl & Stroebe, 1987; Mullen, Johnson, & Salas, 1991). In addition, dominant or extravert group members will disproportionately influence the course of a discussion and produce the ideas that may be ultimately adopted (Jung, Lee, & Karsten, 2012). This is not to say that reflexivity undermines creativity; however, it may be more useful to reflect upon ideas individually before coming together as a group to avoid the detrimental influence of certain group dynamics. Conversely, once a creative idea has taken shape, team reflexivity is likely to play

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a key role in innovation implementation. Because the implementation of ideas is a multistakeholder process, carefully reflecting and agreeing on various implementation procedures is likely to increase the success rate of creative proposals.

Group Psychosocial Safety

Group psychosocial safety refers to shared understandings, unconscious group processes, group cognitive style and group emotional tone (Cohen & Bailey, 1997). Examples include norms, cohesiveness, team mental models (members share an understanding of the nature of the group's task, its task processes, how team members are required to work together and the organizational context) and group affect. In groups with high levels of psychosocial safety, it is suggested, there will be high creativity. Creative ideas arise out of individual cognitive processes and, though group members may interact in ways which offer cognitive stimulation via diversity, creative ideas are produced as a result of individual cognitions. Evidence suggests that, in general, creative cognitions occur when individuals are free from pressure, feel safe, and experience relatively positive affect (Claxton, 1997). Moreover, psychological threats to face or identity are also associated with more rigid thinking (West, 2002). Time pressure can also increase rigidity of thinking on work-related tasks such as selection decisions (Kruglanski & Webster, 1996).

Edmondson (1996) found major differences between newly formed intensive care nursing teams in their management of medication errors. In some groups, members openly acknowledged and discussed their medication errors (giving too much or too little of a drug, or administering the wrong drug) and discussed ways to avoid their occurrence. In others, members kept information about errors to themselves. Learning about the causes of these errors, as a team, and devising innovations to prevent future errors were only possible in groups of the former type. Edmondson gives an example of how, in one learning-oriented team, discussion of a recent error led to innovation in equipment. An intravenous medication

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pump was identified as a source of consistent errors and so was replaced by a different type of pump. She also gives the example of how failure to discuss errors and generate innovations led to costly failure in the Hubble telescope development project. In particular, Edmondson (1996, 1999) argues that learning and innovation will only take place where group members trust other members' intentions. This manifests in a group level belief that well-intentioned action will not lead to punishment or rejection by the team, which Edmondson calls "team safety": "The term is meant to suggest a realistic, learning oriented attitude about effort, error and change - not to imply a careless sense of permissiveness, nor an unrelentingly positive affect. Safety is not the same as comfort; in contrast, it is predicted to facilitate risk." (Edmondson, 1999, p.14).

Complementing research carried out by Edmondson, Baer and Frese (2003) investigated the role of a climate for psychological safety on the ability of a firm to translate process innovations into increased firm performance. Studying 47 mid-sized German companies, they found that a firm's process innovations only resulted in improved firm performance (i.e., measured as change over time in return on assets) when there was a strong climate for psychological safety. Conversely, for companies with low levels of psychological safety, a firm's process innovations led to a decrease in firm performance. In this case firms were not able to reap the performance-related benefits of their process innovations.

We propose that group psychosocial safety exerts a more crucial influence on the implementation of ideas than their generation. This is because shared group norms or mental model that are part of psychosocial safety are likely to be instrumental in enabling agreement on procedural questions concerning the implementation of creative ideas in practice (Adarves-Yorno, Postmes, & Haslam, 2007). Whilst it is conceivable that group affective tone (as another contributing factor to psychosocial safety) positively relates to group creativity, the available research evidence only weakly supports this prediction. Tsai and colleagues (2012)

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showed that a positive effect of positive group affective tone on team creativity was only observed when team trust was low and group negative affective tone was high. Thus, we suggest that group psychosocial safety is a more relevant influencing factor at the later innovation implementation stage compared to the creative idea generation stage.

Leadership

Leaders of groups can seek ideas and support their implementation among members; leaders may promote only their own ideas; or leaders may resist change and innovation from any source. Thus, the importance of leadership for individual and team creativity and implementation is unquestionable (Mainemelis, Kark, & Epitropaki, 2015). We propose that leadership processes moderate the effects of inputs (team and organizational contexts) upon team processes and thereby affect the level and quality (magnitude, radicalness and novelty) of the innovation (see Figure 1). For example, leadership processes in teams have a profound influence in moderating the relationship between task characteristics and team processes: effective leadership can enhance the effects of autonomy (by encouraging risk taking and experimentation in task performance) or diminish their effects (when leadership inhibits the exploration of the limits of team members' autonomy).

We also propose that leadership processes in teams will moderate the relationship between team member characteristics, team processes and innovation. Leadership will either encourage or block the expression of behaviours and skills supportive of team innovation. A dominant, directive leader may prevent attempts by team members to bring about change and steadily reduce their confidence and perseverance in initiating innovation implementation. Moreover, such a leader might inhibit the expression of team KSAs by repeatedly dominating decision-making or discussion. A more transformational leadership style will be likely to enhance the impact of individual characteristics such as confidence, innovativeness and

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tolerance of ambiguity upon group processes (such as support for innovation) and thereby innovation implementation.

Furthermore, leaders who effectively integrate diverse perspectives and manage conflict effectively (for example by emphasising shared objectives and vision) are likely to enhance the influence of diversity upon innovation implementation in teams. Leadership processes that inhibit the integration of diverse perspectives (for example by exacerbating conflict between team members) will reduce or nullify the effect of diversity upon group processes and thereby, team innovation.

Leadership is also proposed to play an important part in buffering team members from the negative effects of organizational climate upon team innovation. A leader who fights for the autonomy of his or her team in an organization that is highly controlling will moderate the effects of organizational culture upon team innovation. Equally, a team leader who dominates the team, whether or not the organizational context is supportive of innovation and team autonomy, will be likely to dramatically reduce the positive influence of a supportive organizational culture upon group processes (such as team member participation in decision making) and thereby levels of team innovation.

What of transformational and transactional leadership? Transactional leaders focus on transactions, exchanges, contingent rewards and punishments to change team members' behaviour (e.g., Yukl, 2012). This style reflects an emphasis on the relationship between task-oriented leader behavior and effective group member performance. Transformational leaders influence group members by encouraging them to transform their views of themselves and their work. They rely on charisma and the ability to conjure inspiring visions of the future (Northouse, 2013). Such leaders use emotional or ideological appeals to change the behavior of the group, moving them from self-interest in work values to consideration of the whole group and organization. Although we might conclude that only the transformational style will

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promote innovation, it is likely that both styles will influence creativity and innovation by moderating the relationship between inputs and processes. Inspiration or reward could lead to individual propensity to innovate being translated into innovation implementation. Rewards used by the leader will influence group creativity and innovation where these rewards are directed towards encouraging individual and group innovation, such as performance related pay for new product development successes.

Empirical support for a positive association between transactional leadership and innovation is mixed. Whilst some studies demonstrate a positive effect of transactional leadership on business unit performance (Howell & Avolio, 1993), a study by Jung (2001) showed that teams with transformational leaders outperform those teams with a transactional leader in terms of team creativity. Stronger empirical evidence supports a positive relationship between transformational leadership and creativity and innovation in teams (Eisenbeiss et al., 2008; Gumusluoglu & Ilsev, 2009; Jung, Chow, & Wu, 2003; Jung et al., 2008). For example, transformational leadership was found to promote within-team knowledge sharing and team innovative performance via the development of team cooperative norms (Jiang & Chen, 2016). Some studies also suggest that the positive effects of transformational leadership are both more complex and dependent on contextual and environmental factors at work. For example, Gumusluoglu and Ilsev (2009) reported that transformational leadership exerts a positive effect on organizational innovation through increases in both employee psychological empowerment as well as follower creativity, which eventually translates into higher levels of organizational innovativeness. Similarly, Eisenbeiss and colleagues (2008) found that transformational leadership is beneficial for team innovation because it increases employee perceptions of their work environment as supportive of innovation. However, this positive effect only holds when there is a shared climate of excellence within the team.

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In relation to other aspects of leadership behaviour, Rosing and colleagues (2011) introduced the construct of ambidextrous leadership for team innovation. The authors assert that the innovation process consists of stages where exploration (i.e., creative idea generation) and exploitation (i.e., idea implementation) are explicit requirements and propose two antagonistic sets of leader behaviours (i.e., opening and closing behaviours) to motivate appropriate follower reactions at each stage. Opening leader behaviours encourage followers to do things differently, give room for independent thinking and acting, as well as support attempts to challenge established approaches. Closing behaviours, on the other hand, involve leaders taking corrective action, setting specific guidelines, or monitoring goal achievement (Rosing et al., 2011). Past research shows that ambidextrous leadership positively predicts team innovation over and above the effects of transformational leadership (Zacher & Rosing, 2015).

Another leadership concept that utilises the idea of paradox and tension aimed at fostering follower creative performance is leader emotional inconsistency (Rothman & Melwani, 2017). Emanating from the burgeoning literature on leadership and affect (for a review see van Knippenberg & van Kleef, 2016), leader emotional inconsistency involves leader expressions that fluctuate between different discrete emotions in leader-follower interactions (Stollberger & Guillaume, 2016). As a construct, leader emotional inconsistency represents a departure from previous conceptualisations of leader affect in that it allows for the expression of more than one discrete emotion in leader-follower interactions. As leader expressions of each discrete emotion may have discernible effects on follower affect, cognition, and behaviour (van Kleef, Homan, & Cheshin, 2012), leader emotional inconsistency thus opens up a whole host of discrete emotion combinations along with their effects on follower work-related outcomes. In a first empirical test, Stollberger and Guillaume (2016) reported that displayed leader emotional inconsistency between the discrete emotions

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happiness and anger increases the creative performance of followers by inspiring them to engage in the creative process, however, only in case followers are motivated to form a rich and accurate understanding of situations (i.e., high epistemic motivation followers). Thus, leaders who alternate between happy and angry displays in their interactions with followers spark creative performance but only when their followers are motivated to decode and make sense of such leader nonverbal communication.

We propose that certain leadership styles and behaviours are more effective for certain stages in the innovation process. For example, the charisma and inspiration as part of transformational leadership may be more suited to motivate follower idea generation, whereas contingent rewards as a facet of transactional leadership is likely to provide followers with the structure necessary for innovation implementation. Similarly, whereas some forms of paradoxical leader behaviors appear to be more beneficial for idea generation (e.g., leader emotional inconsistency; Stollberger & Guillaume, 2016), others may facilitate both idea generation and implementation (e.g., opening and closing behaviours; Zacher & Rosing, 2015). The reason for these diverging effects may lie in the time scale within which these leader behaviours are enacted. Whereas inconsistent leader emotional expressions are theoretically enacted in every leader-follower interaction, opening and closing behaviours as part of ambidextrous leadership are explicitly targeted and enacted at their corresponding stages in the innovation process (i.e., idea generation and idea implementation, respectively) and are thus likely to be displayed further apart in time. Further research is warranted to confirm or disprove this proposition as well as to further elaborate on the effects of paradox and tension in leadership with regards to the innovation process.

In sum, leadership processes have a considerable influence in determining whether the inputs (such as team task, team member characteristics, organizational culture and climate, and demands on the team) are translated into group processes that support innovation

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implementation or smother both creativity and innovation. In this chapter we have proposed that they play a major role in moderating the relationship between input variables and group processes, and thereby creativity and innovation implementation.

Conclusions

We have argued that researchers eager to understand group creativity must focus more on the implementation of ideas rather than their generation in the workplace. It is the implementation of a good idea that advances our progress as a species not merely the private creative idea generation process. Too little research effort has been directed at implementation rather than idea generation. We have also suggested that the task a team performs is a key to understanding innovation implementation. It is motivating and challenging tasks that lead teams of innovative people with diverse backgrounds and perspectives to innovate. If we are to encourage team innovation in the workplace we must offer teams tasks that give them autonomy, challenge and a sense of meaningfulness. But even with innovative people facing a challenging and motivating task, if the organization's culture is one of blame, suspicion, hostility and control, team members' efforts are unlikely to translate into innovation. It is organizations whose members share an appealing vision of what the organization is trying to achieve where vigorous debates how best to achieve that vision are the norm. Trust, cooperation, altruism, warmth and humor characterize the climate. Innovation is encouraged in organizations in demanding environments – the IT revolution occurred in highly competitive, rapidly changing and uncertain market environments.

We have proposed that, in order to understand innovation in work teams, we must also understand how leadership enables or inhibits the effects of inputs upon team processes in the team innovation, and therefore leadership is an important topic for future study in this important area. It is team leaders who play a leading role in buffering the team from the pernicious effects, or enhancing in the team the nurturing effects, of organizational culture.

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Team leaders also can ensure that team member and task characteristics influence group processes in a way that leads to rather than inhibits innovation. But ultimately, we have suggested, it is the integrating and social interaction processes in teams that determine whether they will implement innovation.

In the following, we aim to summarize whether each factor we discussed throughout this chapter is more likely to foster creativity or innovation implementation. We suggested that within the team context task characteristics are likely to facilitate both stages in the innovation process with the exception of autonomy, which may be more relevant for creativity.

Regarding team members characteristics, we suggested that KSAs facilitate both creativity and innovation implementation, whereas a promotion focus is likely to be more facilitative of creativity and self-discipline or a prevention focus a more potent driver of innovation implementation. We argued that diversity benefits both stages of the innovation process, however, a diversity of perspectives is likely to increase creative idea generation whereas a broader network due to, for example, team functional diversity, is likely to facilitate innovation implementation. Moreover, we suggested that group tenure is more facilitative of innovation implementation, whereas group member change may more readily spark creativity.

Concerning organizational context factors, we argued that cultures and climate are beneficial for both creativity and innovation implementation, however, different types of cultures or climates may be more facilitative for different stages of innovation. We further suggested that external demands, to the extent that they are not extreme in nature, are likely to foster innovation implementation.

Turning to team process, shared objectives and participation are likely to motivate both creativity and innovation implementation as different goals can be set for each stage and employee action is also relevant throughout the innovation process. Task conflict, we argued, is likely to predominantly facilitate creative idea generation more than their implementation.

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We also suggested that support for innovation is likely to be more relevant for innovation implementation as this stage requires navigating networks and gatekeepers, which is facilitated by managerial support. Furthermore, we argued that team reflexivity is more beneficial for innovation implementation because certain dynamics (e.g., group think) undermine the quality and quantity of ideas generated in team settings. Psychosocial safety, we suggested, may be more relevant for innovation implementation as shared norms and mental models are likely to make the implementation of ideas easier.

Lastly, we emphasized that leadership acts as a crucial boundary condition that influences how team and organizational factors translate in team processes, emergent states, and ultimately team innovation. In this respect, we argued that certain leader behaviours are likely to predominantly foster creativity (e.g., transformational leadership, leader emotional inconsistency, opening leader behaviours), or innovation implementation (e.g., transactional leadership, closing leader behaviours), respectively.

Throughout this discussion, we have treated innovation as though it was a positive end in and of itself. There is a final reason to consider how we can best create the conditions for effective work team innovation implementation. Opportunities to develop and implement skills in the workplace and to innovate are central to the satisfaction of people at work (Nicholson & West, 1988), while innovation is vital to the effectiveness of organizations in highly demanding and competitive environments (Anderson et al., 2014). The creative challenge for psychologists is to help implement climates and cultures within their own organizations, and those they advise, so that team innovation and human well-being are enabled.

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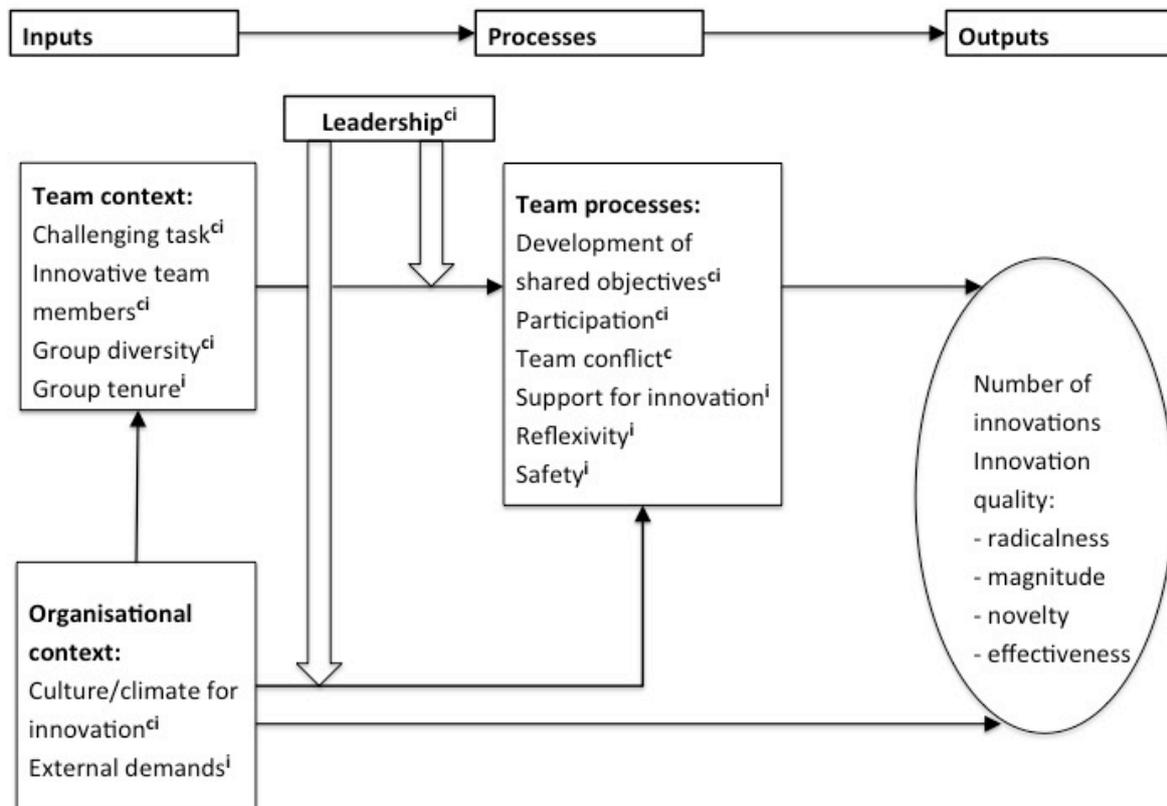


Figure 1: An input-process-output model of work group innovation.
Note: ^c= creativity, ⁱ= innovation implementation.