The bright and dark sides of individual and group innovation: a Special Issue introduction

ONNE JANSEN1*, EVERT VAN DE VLIERT1 AND MICHAEL WEST2

1Department of Social and Organizational Psychology, University of Groningen, Groningen, The Netherlands
2Aston Business School, Aston University, Birmingham, U.K.

Summary

This introduction essay proposes a challenging program for researchers eager to explore factors and process mechanisms contributing to the benefits and costs individuals and groups incur from pursuing innovative approaches. With respect to individual innovation, such moderating factors might be found in the characteristics of the innovative idea, the innovator, co-workers, supervisors, the broader organizational context, and in national culture. Examples of factors that are likely to shape the beneficial and detrimental outcomes of group innovation include knowledge, skills and ability of group members, group tenure, diversity among group members, group processes (clarifying group objectives, participation, constructive management of competing perspectives), and external demands on groups. This Special Issue contains a state-of-the-science paper, three articles dealing with the benefits and costs of individual innovation, and three articles addressing the bright and dark sides of group innovation. Copyright © 2004 John Wiley & Sons, Ltd.

Introduction

Innovation is widely claimed to have beneficial influences on the effectiveness and long-term survival of organizations (e.g., Amabile, 1988; Ancona & Caldwell, 1987; Kanter, 1988; Mumford, 2000; Woodman, Sawyer, & Griffin, 1993). The foundation of all innovation is creative ideas, and it is individuals or groups who generate, promote, discuss, modify, and ultimately realize ideas (Scott & Bruce, 1994; Van de Ven, 1986). Accordingly, in the past decades, theory and research have devoted considerable attention to identifying personal factors, contextual factors, and their interactions that facilitate or inhibit individual and group innovation (for reviews, see Amabile, 1988; Kanter, 1988; Mumford, 2000; West, 1990, 2002; Zhou & Shalley, 2003).

However, while the rapidly growing body of literature significantly contributes to our understanding of the role of personal and contextual factors in cognitive and motivational processes underlying innovative behavior, the virtually exclusive focus on determinants of innovation implies that too little attention has yet been given to the outcomes of innovation. Based on the general presupposition that

* Correspondence to: Onne Janssen, Social and Organizational Psychology, University of Groningen, Grote Kruisstraat 2/1, 9712 TS Groningen, The Netherlands. E-mail: o.janssen@ppsw.rug.nl

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organizations need innovation to survive, most studies examined innovation as the dependent variable and left the profits or price that individuals and groups gain or pay for taking an innovative approach out of consideration. The objective of the current Special Issue is to make a beginning in filling this void by publishing a collection of papers that focuses on the bright and dark sides of innovation in terms of outcomes at the individual and group levels. In this introduction, we first discuss the importance of research on the outcomes of individual and group innovation, and then give an overview of the papers included in this Special Issue.

Benefits and Costs of Innovation

Innovation can be defined as the intentional generation, promotion, and realization of new ideas within a work role, group or organization, in order to benefit role performance, the group, or the organization (cf. West & Farr, 1989). According to this definition, individuals and groups undertake innovative activities from the intention to derive anticipated benefits from innovative change. However, innovation processes are by definition unpredictable, controversial, and in competition with alternative courses of actions (Kanter, 1988). As a consequence, innovation derives from risky work behaviors that may lead to unintended costs for the innovators involved despite their intention to produce anticipated benefits. Research is needed to identify the critical factors and process mechanisms that regulate positive and negative outcomes of innovation for individuals and groups when they take the risk of engaging in innovative activities. To give an impulse to the formation of thoughts and development of theories, we indicate here some particular benefits and costs of individual and group innovation, respectively, and propose some moderating factors that might regulate the bright and dark sides of innovation.

Benefits and costs of individual innovation

At the individual level, innovation begins with the activation of an employee to generate creative ideas (Kanter, 1988). Generating creative ideas is often triggered by work-related problems, incongruities, and discontinuities which employees are confronted with at work (Drucker, 1985; Kanter, 1988). As such, these problems and irregularities can be captured as psychological stressors that provide an elevated state of arousal in a worker (Anderson, De Dreu, & Nijstad, 2004; Bunce & West, 1994; Janssen, 2000). Based on person–environment fit theory (e.g., Caplan, 1983; French, Caplan, & Van Harrison, 1982), this elevated state of arousal activates a worker to cope by adapting oneself or by modifying elements of the work context. Adapting oneself may involve renewing and restructuring cognitions, expectations, abilities, and behavioral repertoires (Anderson et al., 2004) in order to be able to handle the job problems experienced, while modifying elements of the workplace refers to changing task objectives, working methods, job approaches, job design, allocation and coordination of tasks, interpersonal communication, etc. Some research studies suggest that employees consider and apply innovation as a problem-focused strategy for coping effectively with job-related problems and deviations that give rise to strain (e.g., Bunce & West, 1994; Janssen, 2000; West, 1989). Modifying oneself or the work environment through innovation can help employees to adapt effectively to the job, leading to anticipated benefits such as demand–ability fit, performance enhancement, job satisfaction, reduced stress levels, better interpersonal relationships, well-being, and personal growth.

However, despite the intention to accomplish benefits, performing innovative activities is a risky endeavor that may lead to unintended costs for individual innovators. Janssen (2003) argued and found
that innovative employees are likely to run the risk of conflict with and resistance to change from other actors who want to prevent change. A worker pushing innovative ideas for change is likely to challenge elements of the established framework of work goals, work methods, task relationships, informal norms, and expectations that actors in the workplace have of one another. As such, innovative change implies that new and often threatening sets of theories and practices have to be developed and adapted to the needs of the new situation. Co-workers and supervisors can be expected to resist an employee’s innovative ideas for change because of their tendency to avoid the insecurity and stress surrounding change, their habits and preferences for familiar practices and actions, their propensity to avert cognitive dissonance, and their interest and commitment to the established framework of theories and practices (Janssen, 2003; Jones, 2001).

Because of the emerging conflicts, taking innovative initiatives can cause frustration, antagonism, and animosity, and may therefore lead the innovator to have less positive feelings about the relationships with co-workers and supervisors (Janssen, 2003). Moreover, conflict about innovative ideas uncovers and emphasizes dissimilarity between the innovative employee and the resisting actors in the workplace. Based on the similarity–attraction paradigm, experiences of dissimilarity are likely to give rise to factionalism, message distortion, and other communication difficulties that may impede employees to feel attracted and committed toward each other (e.g., Harrison, Price, & Bell, 1998; Jehn, Northcraft, & Neale, 1999; Williams & O’Reilly, 1998).

Additionally, in another paper in this Special Issue, Janssen (2004) emphasizes that the innovative activities of developing, promoting, discussing, modifying, and implementing ideas require a broad variety of substantial cognitive and socio-political efforts and investments from the innovative employee (e.g., Kanter, 1988). Besides quantitative and complex demands, convincing resistant workers and supervisors of the anticipated benefits of innovation can be difficult and emotionally taxing. Given its demanding nature, innovative behavior may give rise to stress reactions.

To date, we lack comprehensive theory and research that can clarify why individual employees sometimes gain the profits and other times pay the costs for taking an innovative approach. So, in the coming decades, we have to develop research models which treat innovation as the independent variable and identify factors that regulate the good and bad outcomes of employee innovation. Exemplars of such moderating factors might be found in the characteristics of the innovative idea, the innovator, co-workers, supervisors, the broader organizational context, and in national culture as is summarized in Figure 1.

With respect to idea characteristics, innovative ideas developed and promoted by individual employees vary on some dimensions that might be important factors in shaping the innovation process and outcomes. Ideas vary from incremental innovations directed to modest, evolutionary changes in existing, established frameworks of theories and practices to proposals for radical innovations directed to unbinding problems from their customary definitions and introducing new ways of doing things in the sense of a paradigm shift (Argyris & Schon, 1978; Buchanan & Boddy, 1992; Janssen, De Vries, & Cozijnsen, 1998; Kanter, 1988). Innovative workers propagating radical rather than incremental ideas might be more likely to run the risk of falling into conflict with co-workers and supervisors who react from the established framework and may have interest in safeguarding it (cf. Buchanan & Boddy, 1992). In the same vein, innovative ideas vary in the extent to which they are directed to the core or the periphery of the primary task of individuals or work groups. Core-directed innovative change implies resetting of key goals and strategies and may therefore lead to resistance among actors in the work environment who stick to their primary task and the existing arrangements (cf. Buchanan & Boddy, 1992). Moreover, ideas vary in scope from large-scale ideas with repercussions for the whole organization, to much smaller-scale ideas related to affairs within the boundaries of the role or work domain of the innovative employee. Since larger-scale ideas have implications and consequences for many more actors in the organization than smaller-scale ideas, there is a larger amount of potential
sources of resistance against the ideas with a relative large scope. Taken together, innovative ideas that are radical rather than incremental, core-directed rather than peripheral, and large-scale rather than small-scale in nature, are more likely to give rise to resistance among actors in the work environment who want to prevent innovative change.

With respect to innovator characteristics, a broad variety of traits, states, values, needs, abilities, and skills of employees may moderate the benefits and costs of their innovative efforts. To highlight an exemplar, Janssen (2003) combined literature on resistance to change and identity theory (e.g., Burke, 1991; Frone & Major, 1988; Thoits, 1991) to develop theoretical logic for the hypothesis that innovative workers are more likely to pay the price of interpersonal conflict with co-workers if job performance is more central to their self-concept or sense of identity. That is, such high levels of job involvement lead innovative employees to interpret and experience the resistance of co-workers against their innovative performance as an identity-relevant value dissensus. As is known from theory and research on social conflict and negotiation, people react strongly to opposing parties and are reluctant to compromise or giving in and prone to force when identity-relevant issues are at stake (e.g., Druckman, Broome, & Korper, 1988; Janssen, Van de Vliert, & Veenstra, 1999). Accordingly, more highly job-involved innovators were found to experience and produce greater interpersonal conflict as resisting co-workers obstruct them in satisfying psychological needs which are salient to their sense of identity (Janssen, 2003). This conflict appeared to be an obstacle for innovative employees to develop or maintain satisfactory relations with those co-workers.

Figure 1. Moderating factors that may shape the benefits and costs of individual innovation
However, effective conflict management might prevent innovative employees from escalatory dissent and dissatisfactory relationships with other actors in the workplace who resist new ideas for change. That is, the way the innovator handles emerging issues about innovation is another important moderator that might affect the innovation process and outcomes. When the innovator lacks the ability or willingness to discuss and resolve the disagreements, conflict is likely to disturb the further development and implementation of the innovative ideas propagated and to harm the quality of relationships. Conversely, conflict might have less detrimental or even beneficial outcomes when the innovator is able to identify and scrutinize the issues at stake and find ways to integrate the different perspectives and interests needed to produce high-quality implementations of innovative ideas (e.g., Amason, 1996; Janis, 1982; Janssen et al., 1999; Jehn, 1995; Tjosvold & Deemer, 1980; Van de Vliert, Nauta, Giebels, & Janssen, 1999). To provide a better understanding of the role of interpersonal conflict in innovation processes, research is needed that may further link the insights from the separate paradigms on innovation, resistance to change, and social conflict.

It would be an exaggeration to assert that co-workers always obstruct innovative employees. Co-workers might welcome novel and useful ideas especially when they are in need of finding new ways to adapt to emerging problems or new situations. This need for innovative ideas should be stronger when existing theories and practices become less appropriate for resolving problems or seizing opportunities. So the felt necessity for innovative change by co-workers in the workplace is likely to shape the consequences for employees who produce and promote creative ideas. But it has to be noted that even innovative ideas initially welcomed by co-workers might provoke disagreement in the next stages of the innovation process. Innovation implies that generated ideas have to be further elaborated and ultimately worked out into definite changes in, for example, tasks, role relationships, working methods, procedures, informal norms, or habits (Jones, 2001; Kanter, 1988). For the reasons given above, the process of developing and implementing these structural and cultural changes is likely to uncover divergent personal interests and preferences among the innovator and co-workers, and will therefore give rise to interpersonal conflict. Whether such conflict will lead to beneficial or costly outcomes depends on the motivation and skills of both the innovator and co-workers to resolve the emerging issues about innovative change.

Furthermore, a crucial party in the social work environment that can make or break ideas for innova-tive change are the employees’ immediate supervisors (Saunders, Sheppard, Knight, & Roth, 1992). In the authority ranking relationship, an innovative employee depends on his or her supervisor for the information (data, expertise, political intelligence), resources (materials, space, time), and socio-political support (endorsement, legitimacy, backing) necessary to further develop, protect, and implement the innovation-in-progress (Kanter, 1988). Previous research indeed suggested that an effective implementation of innovative ideas generated by innovative employees depends on a supportive supervisory style (Axtell et al., 2000). Based on the achievement goal theory and research (e.g., Barron & Harackiewicz, 2000; Duda, 1992; Dweck, 1999; Nicholls, 1984; Pintrich, 2000; Van de Vliert & Janssen, 2002; VandeWalle, Brown, Cron, & Slocum, 1999; Van Yperen & Janssen, 2002), the type of goals supervisors tend to adopt in work situations might influence how they approach, interpret, and respond to innovative ideas voiced by employees. Supervisors with a mastery orientation strive to develop their competence, skills, and ability. Given this focus, innovative ideas voiced by employees should be of interest because these ideas provide supervisors not only with valuable information about emerging work-related problems identified by innovative employees but also with creative concepts for the resolution of these problems. Mastery-oriented supervisors may tend to utilize those sources of information and solutions to adapt to problems or opportunities emerging in their domain of responsibility. As such, supervisors with a mastery orientation seek to learn from innovative employees in order to safeguard their goal of improving ability and skill. In contrast, supervisors with a performance orientation strive to demonstrate their superiority in competence towards subordinate employees.
Given this focus, superiority-oriented supervisors tend to perceive innovative employees as a threat because their ideas for change make problems and irregularities in the workplace manifest for which they as supervisors can be held accountable. Moreover, when subordinate employees generate creative ideas for adjusting to these problems, it might seem that their intelligence and ability are superior to those of the supervisor. Consequently, supervisors with a performance orientation have interests in disqualifying innovative ideas voiced by employees in order to uphold their goal of demonstrating superior competence. Conclusively, innovative employees are likely to gain more profits and to pay less costs when their supervisors approach and manage their innovative ideas from a mastery orientation rather than a performance orientation.

Another type of moderator that might play a role in regulating the processes and outcomes of employee innovation is the broader organizational context. Taking an innovative approach in a mechanistic organization designed to protect predictable courses of actions would seem to be more likely to provoke conflict than in a more organic organization in which employees are stimulated to adapt innovatively to rapidly changing situations and unusual circumstances (Mintzberg, 1979). So, the type of organization can be expected to moderate the conflict-provoking effects of innovative behavior and thus shape the benefits and costs for innovative employees.

Finally, no innovator can duck out of one’s own societal situation and national culture. It will no doubt make a difference for the balance of positive and negative outcomes whether the innovator works in South Africa where approximately half the population thinks that ‘new ideas are generally better than old ones,’ or in Japan or China where more than 85 per cent of the population thinks that ‘ideas that have stood the test of time are generally best’ (source Inglehart, Basañez, & Moreno, 1998). In general, compared to employees in northern Europe, North America, and South-East Asia, employees in southern Europe, South America, and North-East Asia will feel threatened more by uncertain or unknown situations (source Hofstede, 2001), with the likely effect that they will underestimate the bright sides and will overestimate the dark sides of innovative contributions. In line with this argument, an individual-level study across 43 organizations in 68 nations (Shane, 1995) has shown that employees in countries with more uncertainty-avoidant cultures champion innovations less in several respects. They hamper creative solutions to existing problems by failing to provide innovators with autonomy from the organizational rules and procedures, they closely monitor innovators thus keeping them from making proper use of organizational resources, and they fail to persuade other members of the organization to provide support for innovations.

In summary, Figure 1 depicts an heuristic research model containing exemplars of idea factors, innovator factors, and context factors (co-workers, supervisor, organization, and national culture) that might shape the benefits and costs of employee innovation. The purpose of this initial model is to inspire researchers in the innovation domain to start building empirically based theories that identify critical factors and process mechanisms regulating the benefits and costs for employees when they take an innovative approach in the workplace.

Benefits and costs of group innovation

Innovations commonly involve changes to an array of processes, and are rarely the result of the activity of one individual. Thus, for an innovation to be implemented effectively, teamwork and cooperation are essential (West, Tjosvold, & Smith, 2003). Traditionally, researchers have tended to explore group-level innovation by segmenting variables into an input–process–output structure:

\[
\text{INPUTS} \rightarrow \text{PROCESSES} \rightarrow \text{OUTPUTS} \\
(\text{e.g., team diversity}) \rightarrow (\text{e.g., leadership}) \rightarrow (\text{e.g., innovation, novelty})
\]
Inputs include (for example) the tasks the team is required to perform, the composition of the group, team diversity, and the organizational context. Group processes, it is argued, mediate relationships between inputs and outputs, and include (for example) levels of participation, support for innovation, leadership, and the management of conflict. These processes create climates of, for example, safety and trust or threat and anxiety. Outputs include number of innovations, magnitude of innovation, radicalness (changes to the status quo), novelty, and effectiveness of innovation in achieving the desired end (West & Anderson, 1996; West, 2002; West & Hirst, 2003).

In considering the benefits and costs of group innovation, the model is dramatically changed. The output becomes benefits and costs and the inputs to the group model include (for example) the success or failure of the innovation, the extent of conflict about the innovation, conflicts over leadership, and the effects of innovation on the workload in the group. The inputs and processes depicted in the traditional input–process–output model are likely to be mediators of the relationships between independent and dependent variables.

Figure 2 illustrates a model that we believe is helpful for conceptualizing how group innovation will lead to benefits and costs for group members. The model also identifies likely key moderators of the relationships between group innovation and these positive or negative outcomes. Below we consider a number of examples of the costs or benefits of group innovation and we describe the factors which may moderate the relationships between group innovation, and these benefits and costs.

An innovation introduced by a group may succeed or fail. If the innovation succeeds, it is likely that group identity will be strengthened, and members will feel more warmly about each other. In effect,

![Figure 2. Moderating factors that may shape the benefits and costs of group innovation](image-url)
successful innovation is likely to lead to an increase in group cohesion (Mullen & Copper, 1994). The corollary is that if the innovation is unsuccessful it may lead to group members feeling less warm and supportive towards their fellow group members. As a consequence, cohesion may be undermined. Moreover, the group’s sense of its efficacy may also be affected with the failure undermining members’ confidence about likely future success in innovating (Guzzo & Shea, 1992) reducing group potency. Failure of an innovation may thus be a short-term and highly visible cost which, in turn, leads to longer-term and less visible costs of reduced group cohesion and group efficacy or potency.

For the reasons outlined earlier in this article, innovation is also likely to expose conflicts within the group. Some group members may be in favor of an innovation, while others may oppose it. Moreover, the exploration of group members’ attitudes to innovation may reveal underlying differences in group members’ values or underlying differences in their perceptions of what the group’s objectives should be. Much previous research has indicated that clarity of, and shared commitment to, team objectives is an important predictor of group performance (see, for example, West, Borriill, & Unsworth, 1998). Discovering such disagreements in goals might well lead to reduced group effectiveness and cohesion.

Another possibility is that one group member may propose an innovation which is resisted by the leader. If group members are particularly committed to introducing such innovations, their proposal could lead to conflicts over leadership within the group. The behavior of team leaders has the potential to influence all of the factors that contribute to team effectiveness and particularly team processes. The leader brings task expertise, abilities, and attitudes to the team that influence the group design and group norms (Hackman, 1992, 2002) and, through monitoring, feedback and coaching, develops those processes that enable the team to achieve its tasks (McIntyre & Salas, 1995). Where there is conflict over leadership, it is likely to reduce clarity of objectives, and result in mixed levels of participation amongst team members and team decision-making, diverging opinions about what constitutes quality in the team’s performance, and lack of support for subsequent innovations. Conflict over leadership is likely to create anxiety among team members, and therefore to a weaker sense of safety. This, in turn, is likely to inhibit future innovation. However, where innovation proposals help to clarify leadership within the group or team, they will be likely to have positive effects upon future team performance (West et al., 2003).

Innovation is often a response to uncertainties or high levels of demand in the environment (West, 2002). Groups innovate to reduce aversive uncertainty or demands in their environments (Bunce & West, 1994, 1996). A team introducing loyalty cards for customers in a supermarket is trying to reduce uncertainty in customer demand trends. A health care team may attempt to manage the high demand for their services from patients by introducing a triage system to cope more efficiently with these demands (see West, 2002, for a discussion). Where there is conflict within a group over leadership, the person who proposes an innovation that successfully reduces the uncertainty or demands will be likely to win the support of the group. His or her success will then lead to greater clarity within the group about leadership, and therefore to greater effectiveness over time.

Another potential cost of innovation in groups could be an increase in workload as a result of the innovation. Innovation requires change, and the attention the group has to devote to articulating, planning, and implementing the change is likely to represent an increase over the normal levels of attention they give to work. It may also create uncertainty as the innovation is implemented, both in terms of the changes to work processes, as well as the uncertainty associated with the eventual success of the innovation. Increased workload may well lead to lower levels of satisfaction, well-being, and long-term viability of the group, which in turn may threaten its long-term effectiveness. Alternatively, of course, the innovation may eventually lead to greater levels of effectiveness and efficiency in the group, as, for example, when nurses take on more of the responsibility of doctors in the treatment of patients, thereby reducing the number of home visits made by doctors, and cutting out duplication of services to patients. So innovation may lead to costs in terms of higher workload, or to benefits in terms of lower
workload and greater efficiency. There is evidence from studies in economics that innovation is associated with short-term losses but longer-term productivity and performance gains (Nickell, 1995).

Innovation can therefore lead to the group experiencing success or failure; resolved or unresolved conflict; changes in clarity about team objectives; conflicts over leadership; extra workload in the group; more efficient group performance; and, depending on whether the outcomes are beneficial or disadvantageous to the group, future resistance or future receptiveness towards innovation. Group innovation can lead to virtuous cycles of innovation or to suppression of attempts to introduce new and improved processes, products, and procedures.

Figure 2 suggests that a number of factors are likely to moderate the relationship between group innovation and these benefits or costs. Examples of these are team members’ knowledge, skills, and abilities; the effectiveness of group processes, external demands upon the group; group diversity; and national culture. Below we explore the moderating influence of these examples upon costs and benefits of group innovation.

A potent influence on team outcomes is the extent to which team members have the relevant knowledge, skills, and abilities to work effectively in teams—or integration skills. Stevens and Campion (1994) believe that team members require appropriate team knowledge, skills, and abilities (KSAs). These are distinct from the technical skills that are relevant to task performance (such as medical knowledge for a doctor). These team integration skills are individual, not team attributes, but their deployment directly affects group processes. They include conflict resolution skills, such as the skills to recognize and encourage desirable but discourage undesirable conflict, and the skill to employ integrative (win–win) negotiation strategies. Collaborative problem-solving skills include the ability to identify situations requiring group problem-solving; communication skills include the ability to utilize decentralized communication networks, to enhance communication; and to communicate openly and supportively (to send messages which are behavior-oriented, congruent and validating). Teamwork KSAs also include goal-setting and performance management, such as the skills to monitor, evaluate, and provide feedback on both overall team performance, and individual team member performance, and the skill to coordinate and synchronize activities, information, and tasks between members. The more of such skills the team possesses, the more likely it is that the team will manage to ensure that innovations lead to benefits, not to costs. While team members are skilled at working in teams, they are likely to be effective in implementing innovation. Moreover, they are likely to have the skills to work through conflicts about group objectives, and to come to a new, shared understanding of what they are trying to achieve. The greater the level of such skills that team members have for working in teams, the more likely they are to be able to resolve conflicts over leadership, such that clarity of leadership is achieved. Similarly, groups with high skill levels of team working are likely to be able to ensure that innovation leads to more effective and efficient group processes in terms of reduced workload but increased effectiveness. Indeed, this is likely to be an aim of their innovation attempts. Finally, because teams with stronger teamwork skills are likely to be effective in implementing innovation, the team is more likely to be receptive to future attempts to innovate.

Without effective group processes, groups are likely to buckle under the pressure of innovation, and are more likely to encounter costs than benefits. Ensuring clarity of and commitment to shared team objectives is a sine qua non for ensuring group effectiveness. When group processes are focused repeatedly on ensuring clarity of objectives, team members are much more likely to manage the pressures of innovation, and ensure that benefits result, rather than costs. Another group process is participation in decision-making. Research on participation in decision-making has a long history in both social and industrial/organizational psychology, and suggests that participation fosters integration and commitment (Heller, Pušić, Strauss, & Wilpert, 1998). Where there are high levels of participation in decision-making, information-sharing, and interaction within groups, it is much more likely that they will work through the difficulties associated with the introduction of innovation and encounter benefits,
rather than costs. For example, groups and teams that meet regularly, exchange information, and contribute to the decision-making process will more comprehensively process information and opinions about the innovation and the innovation process, and ensure a more effective outcome. Many scholars believe that the constructive management of competing perspectives is fundamental to effective teamwork (Nemeth & Owens, 1996; Tjosvold, 1998; Van de Vliert et al., 1999). Such processes are characteristic of task-related, or informational conflict (De Dreu & DeVries, 1997) and arise primarily from a concern with quality of task performance in relation to shared objectives. Informational conflict is evidenced by appraisal of, and constructive challenges to, the group’s task, processes, and performance. In essence, team members are more committed to performing their work effectively and excellently, than they are either to blind consensus or to personal victory and conflict with other team members over innovation and innovation processes (Tjosvold, 1998; Deutsch, 2003). Where there is a high level of commitment to the quality of task performance, and to constructive informational conflict, it is likely that innovation processes will lead to beneficial, rather than costly outcomes for the group.

The external context of the group’s work is likely to have a highly significant influence on its management of innovation and outcomes in terms of benefits or costs for the group. A number of studies have shown that work demands are significant predictors of innovation (Bunce & West, 1994, 1996). Groups innovate at least partly in response to high levels of demand. Borrill et al. (2000) explored innovation in 100 U.K. primary health care teams. External demands of their health care environments were assessed using a U.K. government index of health and illness for each local area. When levels of participation in the teams were high, team innovation was also high, but only in environments characterized by high levels of ill health, with the associated strong external demands on the health care professions. Research from economics suggests that external demands (such as heightened competition) can have a significant impact upon organizational innovation (Nickell, 1995) and therefore will likely have an impact on group innovation. In effect, research findings suggest that if the environment of teams is demanding and uncertain it is likely that they will have to innovate successfully in order to reduce the uncertainty and level of demand. Therefore, where the external demands on a group are high, it is more likely that their innovation attempts will lead to benefits rather than costs, since the imperative exists for them to be successful. This is a controversial claim, but it is eminently open to empirical test. In effect, it is proposing that where the demands upon the team are high then they have to clarify group objectives rather than become less clear if they are to cope; that they must resolve internal conflicts in order to meet demands; that they have to find clarity of leadership in order to be able to respond successfully to demands; and that they will seek ways of responding to the demands which do not load extra work on the group, since their aim will be to reduce demands overall, rather than increase them. In effect, we propose that high levels of external demands on groups will make it more likely that the group successfully innovates. Necessity will predispose them towards success and therefore to greater receptiveness towards innovation in the future.

We suggest that diversity of knowledge and skills in groups will also moderate the relationship between innovation and outcomes, dependent partly upon the sophistication of group processes. Groups composed of people with different professional backgrounds, knowledge, skills, and abilities will more successfully manage innovation processes than those whose members are similar, because they bring usefully different perspectives on issues to the group (Paulus, 2000). Their divergence of views offers multiple perspectives, and the potential for constructive controversy. Diversity contributes to the team’s total pool of task-related skills, information, and perspectives, and to the potential for more comprehensive or creative decision-making about the innovation process via informational conflict (Milliken & Martins, 1996; Simons, Pelled, & Smith, 1999). If this informational conflict is processed in the interests of effective decision-making about the innovation process, rather than on the basis of motivation to win or prevail, or because of conflicts of interest, this in turn will generate
improved performance, and benefits of innovation, rather than costs, are likely to be the result (De Dreu, 1997; Tjosvold, 1998; Paulus, 2000). We propose therefore that high group diversity along with effective group processes will lead to successful innovation. This will depend to some extent also on the tenure of the team. The longer a diverse team has been together, the more likely they are to achieve ways of working that utilize the potential of their diversity (Hackman, 2002).

It is important to add and to explicitly recognize that work groups and group-related innovation are much more important in some countries than in others. Whereas, for example, less than 15 percent of employees in France and Germany believe that most work is in a group where everybody counts and can count on the others, this is the experience of approximately half of the employees in Russia and the United Arab Emirates (source Trompenaars, 1993, pp. 51–52). South American, South-East Asian, and African regions, in particular, are inhabited by ‘societies in which people from birth onwards are integrated into strong, cohesive ingroups, which throughout people’s lifetime continue to protect them in exchange for unquestioning loyalty’ (Hofstede, 1991, p. 51). It would make sense if members of such collectivist cultures were to highlight group rather than individual motivation, and were to emphasize the bright sides at the expense of the dark sides of group innovations. In this vein, a country-level study (Shane, Venkataraman, & MacMillan, 1995) has indeed shown that innovators in more collectivistic countries are more strongly motivated to involve other organization members who can contribute, even if they are from other groups.

In summary, group innovation will lead to a variety of potential benefits and costs. We have not attempted to list these benefits and costs comprehensively. Instead we have described examples of how group innovation can lead to benefits such as the success of the innovation, greater clarity of and commitment to team objectives, increases in clarity of leadership within teams, more efficient and effective teamwork, and to increased receptivity to future innovation. Such outcomes will in turn lead to greater cohesion, overall performance improvement, and a better prognosis for the long-term tenure and viability of teams (West, 2002; West et al., 2003). Equally, for each of these potential outcomes, there could be the opposite potential cost. We have argued that a number of factors are likely to moderate the relationship between group innovation and beneficial or costly outcomes. The list of variables we have identified is not comprehensive, but includes those we regard as particularly potent, including the teamwork knowledge, skills, and ability of team members; group processes (clarifying group objectives, participation, constructive management of competing perspectives), external demands on groups, and the level of diversity among group members. Other factors which could be considered in this model include team tenure (the longer a team was together, the more effectively it might learn to manage the innovation dance successfully), organizational context (where the organization is supportive of teamwork and innovation, then benefits of group innovation are much more likely to accrue to the group than the costs), and national culture (where collectivist rather than individualistic work orientations may facilitate teamwork). The model we have explored at the group level therefore recapitulates the relationships described at the individual level of analysis and suggests a demanding program for researchers eager to explore the bright and dark sides of innovation.

Overview of the Papers

Authors around the world submitted 17 papers addressing a wide range of issues concerning the bright and dark sides of individual and group innovation. Of the 17 submissions, 11 were selected by the editors to enter into a blind review conducted by two reviewers for each paper. The seven papers that survived the review process can be categorized as a state-of-the-science contribution, three
contributions exploring benefits or costs of individual innovation, and three contributions addressing bright and dark sides of group innovation.

The first paper, by Anderson, De Dreu, and Nijstad, poses a series of questions and challenges to the state-of-the-science of innovation research. A small-scale content exploration of selected research published between 1997 and 2002 suggests a routinization of innovation research, with a heavy focus on replication–extension, cross-sectional designs, and a single level-of-analysis. In order to break through this routinization, the authors propose, discuss, and illustrate five innovative pathways for future work. In the spirit of the current Special Issue, their first innovative pathway is to study innovation as the independent rather than the dependent variable in order to explore the likely expansive range of impacts that innovation will have upon performance, psychological processes, and other outcomes at the individual, group, and organizational levels-of-analysis. Their subsequent pathways are: widening foci to include cross-cultural aspects of innovation initiation and implementation, using multilevel theory and designs, conducting meta-analyses, and relying more on multi-method designs.

Three papers explore factors and process mechanisms that shape the benefits or costs of individual innovation. Miron, Erez, and Naveh examine the intriguing question of whether the personal and contextual characteristics that facilitate employee innovation complement or compete with other characteristics that facilitate quality and efficiency. A questionnaire study among 349 engineers and technicians in 21 units of a large R&D company demonstrates that the personal characteristic of creativity promotes innovative job performance and that other characteristics such as attention to detail and conscientiousness contribute to high levels of quality and efficiency. The results also indicate that employees are able to maintain a balance between being creative and paying attention to detail when carrying out their differential job tasks. Likewise, a cultural context that supports employee innovation appears to complement a culture of quality and efficiency. The bright side of these findings is that the different personal and cultural characteristics necessary to promote innovation, quality, and efficiency seem to complement rather than compete with each other. On the dark side, the results show that the personal characteristic of creativity is insufficient for achieving innovative performance. Personal initiative and an innovative culture are necessary conditions for creative employees to implement their creative ideas and produce innovative products. Furthermore, creativity by itself may lead to lower levels of quality and does not contribute to efficiency. Consequently, other personal characteristics such as attention to detail and conscientiousness are important for the creative employee to attain sufficient levels of quality and efficiency.

Janssen explores an innovation–fairness–stress model that specifies the relationship between employee innovative behavior and stress using a fairness perspective on the exchange relationship between the innovative employee and the organization. The model proposes that the relationship between innovative behavior and stress is moderated by the interactive effect of distributive and procedural fairness. Distributive fairness is the ratio between investments made and rewards received at work and procedural fairness refers to the procedures used by the organization to determine employees’ investments and rewards. The results of a survey carried out among 118 first-line managers from six organizations in the public health domain demonstrate that performing innovative behaviors is stressful only when both distributive and procedural fairness are low. This suggests that perceptions of procedural fairness mitigate the stress reactions of innovative employees that would otherwise be maximized when their innovative efforts go together with experiences of an unfair balance between investments made and rewards received at work.

Drach-Zahavy, Somech, Granot, and Spitzer contribute by focusing on the implementation process of innovation. More specifically, they discuss and compare bureaucratic job structuring with person–job integration in an attempt to determine which of the two approaches is a better means for innovation implementation. Bureaucratic job structuring aims to augment employees’ performance via the standardization of work processes and minimization of deviations from these standards. Person–job
integration, in contrast, aims to facilitate employees’ performance by promoting autonomy, decentralizing decision-making, providing good learning conditions, and enhancing employees’ identification with jobs. A study among 70 incumbents of new linking roles in healthcare organizations indicates that the effectiveness of either implementation approach is largely ‘in the eye of the beholder.’ The bureaucratic job-structuring implementation approach leads to more favorable appraisals by colleagues of the incumbents’ performance, because the incumbents’ compliance with the organization’s role expectations and norms prevents colleagues from experiencing major role changes and role conflict. However, patients require strong emphasis on the person–job integration approach rather than on the bureaucratic job structuring in order to encourage incumbents to engage more in coordination and group-care, and devote less of their time to their traditional role of individual care. These findings suggest a trade-off between internal and external customers’ perspectives of innovation success. The importance of this trade-off is increased by the additional finding that the role incumbents’ burnout is minimized only if both implementation processes are maximized.

The remaining three papers examine factors and dynamics leading to benefits and costs of group innovation. Traditionally, most innovation research tends to use as outcomes either individual creativity or group creativity. In their contribution, Pirola-Merlo and Mann note that each of these separate approaches has limitations. Using only individual-level creativity can lead to atomistic fallacies if the findings are used to make inferences about team-level relationships, whereas using only team-level creativity sheds little light on the specific mechanisms at the micro-level by which team-level relationships operate. To tackle these shortcomings, the authors develop a multi-level model which describes how creativity unfolds in teams over time, and how this is influenced by climate for creativity. Prior research suggests that individual creativity can provide the raw material of novel and useful ideas, but that team member interactions and team processes play an important role in determining how this raw material is developed into group-level creativity. Pirola-Merlo and Mann develop and test an alternative model that views team creativity as the simple aggregate of individual creativity, but which can account for prior findings that group creativity is more than the aggregated creativity of group members. In this model, group-level phenomena, such as team climate or team processes, facilitate individual creativity, and therefore indirectly (via that individual) have a positive influence on team creativity.

Pearce and Ensley longitudinally investigate how shared vision among team members relates to the dynamics and effectiveness of team innovation. They define shared vision as a common mental model of the future state of the team or its tasks that provides the basis for action. Their research was conducted with a sample of 71 product and process innovation teams. Results indicate a self-reinforcing cycle where initial effectiveness seems to significantly influence the degree to which team members subsequently share a vision about the purpose of the team and this enhanced sense of vision in turn ultimately leads to higher levels of team innovation. Moreover, shared vision appears to be reciprocally and longitudinally related to important team dynamic variables such as team potency, social loafing, and teamwork behaviors.

Finally, in their conceptual paper, Ford and Sullivan develop theoretical logic that the value of novel proposals will change in different phases of a project team’s life cycle. Based on the punctuated equilibrium model of project team development, it is argued that novel contributions create value for a project team in the first phase of its development. In this phase, the team’s primary goals are to learn more about a problem, search for useful information, and articulate tentative solutions. During this era of exploration, the generation of novel ideas creates value for project teams that are still struggling to find ways to meet project requirements. However, after a team’s midpoint transition, team members have to shift their attention toward executing the ideas and satisfying external stakeholders before a looming deadline. At this time of a project team’s life cycle, introducing novel ideas is likely to be experienced as a nuisance, a distraction, and/or a waste of valuable time. This inappropriate timing
of novel proposals can disrupt a team’s organizing efforts and induce frustration leading to negative consequences such as lower project quality, decreased team member satisfaction, and reduced team member learning. Ford and Sullivan develop a model and accompanying research propositions suggesting that the relationship between novel proposals and the value attributed to those proposals is contingent on timing with respect to a project team’s midpoint transition.

Conclusions and Acknowledgements

The heuristic models developed in this introduction paper and the theoretical logic and empirical findings presented within the seven papers provide insights into how critical moderating factors and process mechanisms may shape the profits and price that individuals and groups can gain or pay for pushing innovative ideas for change in the workplace. We hope that the collection of papers presented in this Special Issue will inspire scholars to conduct innovative and theoretically grounded research that can clarify why innovators sometimes dance in the bright side, and at other times are lost in the dark side of innovation.

Finally, the guest editors wish to emphasize that this Special Issue would not have been possible without substantial review efforts. Therefore, we would like to thank the following reviewers: Carolyn Axtell, John Cordery, Jonathon Crawshaw, Jeremy Dawson, Rolf van Dick, Carsten De Dreu, Ben Emans, Doris Fay, Vicente Gonzalez-Roma, Sarah MacCurtain, Michael Mumford, Gerardo Okhuysen, Karen van Oudenhoven-van der Zee, Grant Savage, Simon Taggar, Dean Tjosvold, Kerrie Unsworth, Gerben van der Vegt, Charles Vlekm, Roger Volkema, Mary Waller, Nico van Yperen, and Jing Zhou.

Author biographies

Onne Janssen is an Assistant Professor of Organizational Psychology at the University of Groningen, The Netherlands. He received his PhD from the same university. His research interests center on the determinants and consequences of employee innovative behavior.

Evert van de Vliert is a Professor of Organizational and Applied Social Psychology at the University of Groningen, The Netherlands. His current research interests focus on cross-national organization psychology, with an emphasis on the impact of atmospheric thermocline on performance motivation, work satisfaction, leadership, and human resource management.

Michael West is Director of Research at Aston Business School. He received his PhD from the University of Wales in 1977. He then spent a year working as a coal miner. He has produced 12 books and over 100 articles and chapters, many of which deal with creativity in teams.

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