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Flourishing in Teams: Developing Creativity and Innovation

Michael A. West and Claudia A. Sacramento

Introduction

Team working offers a powerful and ubiquitous strategy for managing organizational change, and team innovation is often the manifestation of teams' efforts to cope successfully with the changes in their work environments. Developing team innovation will enhance an organization's ability to redirect and focus resources effectively, appropriately and more quickly than its competitors, because it enables all members of the organization to respond to the demands for change, and to make appropriate changes at a local level.

In order to manage and implement change we therefore need to understand how to develop innovative teams. In this chapter, we review relevant research and present twelve principles that theorists and practitioners can use as guides for understanding and promoting innovation in teams.

Innovation can be defined as '... the intentional introduction and application within a job, work team or organization of ideas, processes, products or procedures which are new to that job, work team or organization and which are designed to benefit the job, the work team or the organization.' (West and Farr, 1990, p. 9). Innovation is a two-component non-linear process, encompassing both creativity and innovation implementation. At the outset of the process, creativity dominates, to be superseded later by innovation implementation processes.

Innovation represents a particular category of change – it is intentional, designed to benefit, and new to the unit of adoption. If a change incorporates these three elements, according to this definition, it is innovation.

A framework for research on team innovation

In this chapter we describe research which examines the relationships between aspects of the *team task* (intrinsically and extrinsically motivating task characteristics); *team composition* (personality of team members, skill and diversity); *organizational context* (rewards, learning and development practices, climate); *team processes* (including

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norms for innovation, leadership, reflexivity, inter-group relations, conflict and dissent) and the likely effectiveness of team innovation.

The task

- 1 Intrinsically motivating
- 2 High level of extrinsic demands

Group composition

- 3 Selection of innovative people
- 4 Diversity in skills and demography

The organizational context

- 5 Rewards for innovation
- 6 A learning and development climate
- 7 A climate for innovation

Process

- 8 Norms for innovation
- 9 Reflexivity
- 10 Leadership supportive for innovation
- 11 Conflict and dissent
- 12 Bridging across teams

1 Ensure the team task is intrinsically motivating

The task a group performs is a fundamental influence on the team, defining its composition, structure, processes and functioning. A lifeboat rescue team will be very different on all these dimensions from a pharmaceuticals research and development (R & D) team. The content of tasks also motivates team members to innovate. For example, Oldham and Cummings (1996) found that the five core job characteristics – skill variety and challenge, task identity, task significance, task feedback, and autonomy (Hackman and Oldham, 1980), predicted individual innovation at work. Skill variety refers to the degree to which a job requires different activities in order for the work to be carried out and the degree to which the range of skills and talents of the person working within the role is used. Task identity is the degree to which the job represents a whole piece of work. It is not simply adding a rubber band to the packaging of a product, but being involved in the manufacture of the product throughout the process, or at least in a meaningful part of the process. Task significance is the impact of task completion upon other people within the organization or in the world at large. Monitoring the effectiveness of an organization's debt collection is less significant than addressing the well-being of elderly people in rural settings, and may therefore evoke less innovation. When people receive feedback on their performance they are more likely to become aware of 'performance gaps'. Consequently they are more attuned to the need to initiate new ways of working in order to fill the gaps. Of course this also implies that they have clear job objectives. Finally, autonomy refers to the freedom, independence and discretion of employees in how they perform the task – determining how to do their work and when to do it.

Gulowsen (1972) suggests the degree of autonomy of the work group can be assessed in relation to group influence over:

- the formulation of goals – what and how much it is expected to produce
- where to work and number of hours (when to work overtime and when to leave)
- choice about further activities beyond the given task
- selection of production methods
- internal distribution of task responsibilities within the group
- membership of the group (who and how many people will work in the group)
- leadership – whether there will be a leader and who will be the leader and how to carry out individual tasks.

To encourage innovation in teams we could therefore ensure they have a whole task which: requires a broad range of appropriate high level skills; requires members to work interdependently to perform the task; is perceived by team members as significant; and allows team members to have autonomy in deciding the means to achieve their task goals and accurate and timely feedback on team performance.

2 Ensure a high level of extrinsic demands

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. People, groups and organizations will innovate partly in response to external demands. But such demands can inhibit creativity. Several studies suggest that, in general, creative cognition occurs when individuals feel free from pressure, safe, and experience relatively positive affect (Claxton, 1997, 1998). For example, using the Luchins Water jars problems, Rokeach (1950) demonstrated how time pressures inhibit creative problem-solving. Moreover, psychological threats to face or identity are associated with rigid thinking (Cowen, 1952). Time pressure can also increase rigidity of thinking on work-related tasks such as selection decisions (Kruglansky and Freund, 1983). Wright (1954) asked people to respond to Rorschach inkblots tests; half were hospital patients awaiting an operation and half were 'controls'. The former gave more stereotyped responses, and were less fluent and creative in completing similes (e.g. 'as interesting as...'), indicating the effects of stress or threat upon their capacity to generate creative responses.

In contrast, among individual health workers we have found in a number of studies that high work demands are significant predictors of individual innovation (Bunce and West, 1995; Bunce and West, 1996; West, 1989). Indeed, studies of work role transitions show that changing role objectives, strategies or relationships is a common response to the demands of new work environments (West, 1987). Of course, excessive work demands can have detrimental effects also on stress levels, absenteeism and turnover. But the point here is that individuals innovate at least partly in response to high levels of demand. Borrill, et al. (2000a) explored innovation in 100 UK primary

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health care teams. The external demands of the health care environment were assessed using a UK government index of health and illness for each local area (the Jarman Index). Perceived levels of participation by team members were measured using the Team Climate Inventory (Anderson and West, 1998). Where levels of participation in the team were high, team innovation was also high, but only in environments characterised by high levels of ill health, with associated strong external demands on the health care professionals. Our research in manufacturing organizations and in hospitals suggests that external demands have a significant impact also upon organizational innovation (and therefore will likely have an impact upon group innovation). A longitudinal study of 81 manufacturing organizations showed that the lower the market share of the companies in relation to their primary products, the higher the level of companies' product and technological innovation. It seems that the threat of being a small player in a competitive situation spurs 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 significant predictor of the degree of innovation in organizational systems, i.e., in work organization and people management practices (West and Patterson et al., 1998). Taken together, these findings suggest that if the environment of teams and organizations is demanding and uncertain, it is likely that they will innovate in order to reduce the uncertainty and level of demand.

It is suggested therefore that external demands will *inhibit* creativity which occurs in the earlier stages of the innovation process, but that they will *facilitate* innovation (via innovation implementation) at later stages. Creativity requires an undemanding environment, while implementation requires precisely the opposite. Innovation implementation involves changing the status quo, which implies resistance, conflict and a requirement for sustained effort. A team that attempts to implement innovation is likely to encounter resistance and conflict among others in the organization, and therefore sustained effort is required to overcome these disincentives to innovate. But effort itself is aversive – like most species, we strive to achieve our goals while expending the minimum effort necessary. The effort required to innovate can be motivated, at least partly, by external demands. External demands often take the form of *uncertainty* (which can be experienced as potentially threatening). There is a strong relationship between environmental uncertainty and more organic structures in organizations, which themselves facilitate innovation. The price of crude oil is a constant uncertainty in petroleum refining and retailing organizations, and this prompts continuous innovation in retail operations to win customer loyalty. Another form of external demand is *time constraints* imposed by the organization or environment. Where customers demand ever-shorter lead times (the time from placing an order to its delivery), manufacturers or suppliers of services must innovate in their work processes in order to satisfy their customers' demands. *Competition* is clearly a form of demand which economists have long identified as a force for innovation. The *severity or challenge* of the environment is also an important influence. For example, two health care teams may perform exactly the same diagnostic, treatment and preventive

health care functions, but the team operating in a deprived inner city environment faces far greater demands than that in a well-to-do suburban area.

What is intuitively apparent is that the relationship between external demands and innovation implementation cannot be linear. Extreme demands or sustained high levels are likely to produce paralysis or learned helplessness. When individuals are confronted by sustained demands that they cannot meet, they are likely to respond with apathy or learned helplessness (Maier and Seligman, 1976). So either very low or very high levels of demands will be associated with relatively low levels of innovation implementation – an inverted U relationship.

Create conditions within which teams are exposed to high but not excessive levels of external demands.

3 Select a team of innovative people

To build an innovative team, we must ensure that members are inclined towards innovation. Researchers examining the relationships between team members' 'Big Five' personality characteristics and innovation have found teams made up of individuals with high levels of 'openness' display high levels of innovation (whilst the other four characteristics: conscientiousness, extraversion, agreeableness and neuroticism do not predict innovation) (Barrick et al., 1998).

More specifically there is some evidence that innovative team members are both creative and good at implementing innovation. They are people who have a preference for thinking in novel ways; who think globally instead of locally (distinguishing the wood from the trees). They have appropriate intellectual abilities, including synthetic abilities (to see problems in new ways and escape the bounds of conventional thinking); analytic abilities to recognize which ideas are worth pursuing; and the practical contextual abilities to persuade others of the value of their ideas (Sternberg and Lubart, 1996). To be innovative we also require sufficient knowledge of the field to be able to move it forward, while not being so conceptually trapped in it that we are unable to conceive of alternative courses (Mumford and Gustafson, 1988). People who are confident of their abilities are more likely to innovate in the workplace. In a study of role innovation among more than 2000 UK managers, Nicholson and West (1988) found that confidence and motivation to develop knowledge and skills predicted innovation following job change.

Innovative people also tend to be self-disciplined, with a high degree of drive and motivation, and a concern with achieving excellence (Mumford and Gustafson, 1988). This perseverance against social pressures presumably reduces the dangers of premature abandonment. Innovative people have a high need for freedom, control and discretion in the workplace and appear to find bureaucratic limitations or the exercise of control by managers frustrating (Barron and Harrington, 1981; West, 1987, West and Rushton, 1989).

Include team members who have the personality trait of openness, who think in novel and non-conventional ways, who are persuasive, knowledgeable about their field, confident, with high tolerance for ambiguity, and who are self-disciplined and persistent.

4 Select people with diverse skills and backgrounds

One can differentiate diversity in attributes that are relevant to the person's role or task in the organization (e.g. organizational position and specialized knowledge), and differences that are inherent in the person (e.g. age, gender, ethnicity, social status and personality) (Maznevski, 1994). Jackson (1992) believes that the effects of diversity on team performance are complex: task-related and relations-oriented diversity have different effects that depend also on the team task. For tasks requiring creativity and a high quality of decision-making, the available evidence supports the conclusion that task diversity is associated with better quality team decision-making (Jackson, 1996).

The relationship between group diversity and group innovation has interested many scholars (O'Reilly and Williams, 1998). One significant study of innovation in teams is a UNESCO sponsored international effort to determine the factors influencing the scientific performance of 1222 research teams (Andrews, 1979; see also Payne, 1990). Diversity was assessed in six areas: projects; interdisciplinary orientations; specialities; funding resources; R & D activities; and professional functions. Overall, diversity accounted for 10% of the variance in scientific recognition, R & D effectiveness, and number of publications, suggesting that diversity does influence team innovation.

One explanation for these findings is that creativity and innovation require diversity of knowledge, professional orientation or disciplinary background because the integration of diverse perspectives creates the potential for combinations of ideas from different domains. For example, having doctors, nurses, counsellors, social workers, and physiotherapists in primary health care teams is associated with high levels of innovation in patient care (Borrill et al., 2000b). If people who work together in teams have different professional training, skills, experiences, and orientations, they will bring usefully differing perspectives to the group. Such a divergence of views will create multiple perspectives, disagreement and conflict. If informational conflict is processed in the interests of effective decision-making and task performance rather than on the basis of motivation to win or prevail, this generates improved performance and more innovative actions will be the result (De Dreu, 1997; Hoffman and Maier, 1961; Pearce and Ravlin, 1987; Porac and Howard, 1990; Tjosvold, 1985, 1991, 1998). But diversity also demands extra efforts at integration since diversity creates the potential for conflict as much as for creativity (De Dreu, 1997; Pelled et al., 1999).

Are teams which are composed of very different people (gender, culture, age, organizational tenure) more innovative than those whose members are similar? There is some evidence that heterogeneity in both relations-oriented and task-oriented domains is associated with group innovation, including heterogeneity in personality (Hoffman and Maier, 1961), leadership abilities (Ghiselli and Lodahl, 1958), attitudes (Willems and Clark, 1971), gender, (Wood, 1987), and education (Smith et al., 1994). Empirical research on the effects of demographic diversity on work team outcomes has provided mixed results (Milliken and Martins, 1996; Webber and Donahue, 2001; Jehn et al., 1999). 'Sometimes the effect of diversity seems positive, at other times negative, and in other situations, there seems to be no effect at all' (Shaw and Barret-Power, 1998: 1307). The relationship between demographic diversity and innovation

may therefore be curvilinear (see also West, 2002). One study to test this possibility showed a curvilinear relationship between age, gender and tenure diversity and team innovation, and this was usually mediated by the task focus of the team. If teams were tightly focused on the task then moderate levels of demographic diversity seemed to promote innovation. Very high or low levels of demographic diversity were associated with low levels of innovation (Gonzalez-Roma et al., 2002).

Select team members who have task relevant skills, a diverse a range of skills and professional backgrounds and ensure the team is tightly focused on getting the work done.

5 Provide organizational rewards for innovation

The organizational context of team work has a significant effect on the team's innovation (Guzzo, 1996; Hackman, 1990). Organizational cultures that resist innovation will of course reduce the likelihood that teams will innovate. One of the most tangible marks of organizational support for innovation is whether employees' attempts to introduce new and improved ways of doing things are rewarded. While some theories of creativity and flow suggest that creative work is primarily sustained by intrinsic motivation (Amabile, 1983; 1988), emerging research evidence suggests that rewards can complement intrinsic motivation. Rewards appear to be counter-productive only if they serve to displace attention from the task towards the reward (Eisenberger and Cameron, 1996). There is evidence that extrinsic rewards encourage both creativity and innovation implementation (Abbey and Dickson, 1983; Eisenberger and Cameron, 1996). There is also a body of work examining 'gainsharing' as a device for stimulating productivity and innovation that suggests the value of reward for innovation (Cotton, 1996; Heller et al., 1998). Gainsharing is the term used to describe systems used in commercial organizations to involve staff in developing new and more effective means of production. If employees develop ways of increasing production or improving quality, they are rewarded with a share of the financial gains of the innovation. Evaluations of 'gainsharing' programmes suggest they are effective in increasing innovation, productivity and employee involvement in decision-making (Cotton, 1996).

It makes sense to argue that what should be rewarded is not the success of innovation but genuine attempts at innovation. Otherwise it is likely that employees will simply play safe with innovations that are neither radical nor novel (staying within existing paradigms).

Find ways of rewarding teams that innovate, even if the innovations don't work out.

6 Create a learning and development climate in the organization

For teams to innovate in organizations they must learn, be it from customers, suppliers, training experiences or any other domain. Learning means changing our understanding, and changing understanding is fundamental to innovation. Those who study organizational learning emphasize the importance of practices that encourage 'outward focus' in order to bring new knowledge into the company (Burgoyne et al., 1999). Recruitment and selection can help determine whether or not people are employed with the necessary attributes to make a contribution to the knowledge

creation process. Induction and training activities can help shape the psychological contract, potentially enhancing motivation and developing skills as well as the required questioning, sharing and challenging behaviours. Appraisal and remuneration strategies play a role in clarifying expectations and rewarding effective performance, defined in terms of willingness to learn, take risks and communicate well. Human Resource Management (HRM) activity therefore can help shape the learning agenda, providing the impetus and incentive for individuals to explore learning and develop their communication and team-working skills with others.

Various organizational learning mechanisms can assist in generating a variety of perspectives in teams. Presenting team members with the opportunity to visit customers or suppliers, regardless of their job role, potentially provides liaison with the external environment and provokes questioning of the appropriateness of organizational practices and goals (McGrath, 1984). Similarly, intra-organizational secondments are likely to be beneficial in challenging thinking and generating the flow of new ideas. Opportunities for team members to learn outside the constraints of their immediate jobs will facilitate the transfer of knowledge internally and enrich individuals' perceptions of the challenges faced by other organizational members (Tsai, 2001). The extent to which knowledge is then captured and disseminated can play an important role in determining whether or not the opportunities presented for variety can be made available across the organization as a whole (Kogut and Zander, 1992). Companies can develop these learning mechanisms in several ways. Firstly, they can enable visits to external suppliers or customers for teams that would not normally have such contact as part of their job responsibilities. Furthermore, teams working on the factory floor in one department can be seconded to another department so that they can learn more about the processes and procedures in that area. Companies can also provide support for team member learning/training that is not directly work related. Finally, companies can implement systems that keep record of teams' solutions to problems and facilitate knowledge transfer (problem solutions or best practice) across teams.

Encourage team innovation by developing supportive HRM practices (recruitment, selection, induction, training and appraisal), and encourage organizational learning via secondments, visits to external organizations, a broad approach to training support, and knowledge management which involves recording and communicating teams' solutions and best practices.

7 Develop a climate for innovation in the organization

In a study comparing the work environments of highly creative projects against less creative projects, Amabile and colleagues found that five aspects of the work environment consistently differed between the two groups (Amabile et al., 1996). 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 an urgent, intellectually challenging problem (Amabile, 1988; Amabile et al., 1996; Hennessey, 2003). The authors distinguish challenge from excessive workload pressure, which they argue is negatively related to innovation, 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 includes three aspects of the work environment. 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 final aspect refers to the important role of collaborative idea flow across the organization, participative management, and decision-making, in the stimulation of innovation.

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.

The supervisory encouragement measure includes goal clarity, open supervisory interactions, and perceived supervisory or leader support. Goal clarity is likely to enable more focused problem-solving laying the groundwork for insightful and creative work. Amabile and colleagues (1996) 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 necessary for creativity. However, research on impediments to creativity is still comparatively limited.

Senior managers should focus on managing the climate or culture of the organization in order to increase employees' experience of positive challenge; organizational encouragement for innovation; teamworking; supervisory goal clarity, support and openness; and to decrease their perceptions of chronic organizational hostility, conservatism and rigid formal structures. Determining and increasing the factors that promote employee satisfaction may also lead to higher levels of team innovation.

8 Establish team norms for innovation

Support for innovation involves the expectation, approval and practical support of attempts to introduce new and improved ways of doing things in the work environment

(West, 1990). Within teams, new ideas may be routinely rejected or ignored, or attract verbal and practical support. Such group processes powerfully shape individual and group behaviour and those which support innovation will encourage team members to introduce innovations. In a longitudinal study of 27 hospital top management teams, support for innovation was the most powerful predictor of team innovation of any of the group processes or group composition factors examined (Anderson and West, 1998; West and Anderson, 1996).

A manufacturing organization on the Isle of Wight that we visited provides a good example of how innovative team norms may develop from relatively seemingly trivial events. The main production team on the shop floor had complained about the storage of dirty materials, and was given time off from production, and a budget to design and build a suitable storage extension for the factory. They completed the task under time and budget, and thereafter began to suggest many more innovations in work processes and structures. The team, as a result of their good experience, developed clear norms for valuing and discovering innovation. In effect, the team was provided with the conditions to be innovative and, once empowered, proactively fostered innovative team norms.

Encourage teams to be innovative and verbally and practically support team members' ideas for new and improved products, services, or ways of working.

9 Encourage reflexivity in teams

Our research suggests that a key indicator of innovation in work teams is 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 adapt them accordingly (West, 1996; 2000).

Reflexivity can lead to radical change in the status quo and sometimes the creative destruction of existing processes. For example, one plastics packaging production team which we studied succeeded in removing management controls on intervention so they were able to discuss product specifications, pricing and delivery dates directly with customers. Productivity and quality improved, and the time from customers placing their orders to delivery dropped by a factor of three.

Reflexivity requires a degree of safety however, since reflection is likely to reveal gaps between how the team is performing and how it would like to perform. Edmondson's (1996; 1999) work helps us to understand the conditions within a team which encourage reflexivity or learning. She found major differences between newly formed intensive care nursing teams in their management of medication errors. In some teams, 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 teams 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 pump was identified as a source of consistent errors and so was replaced by a different type

of pump. She also illustrates how failure to discuss errors and generate innovations led to the costly failure of 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, or an unrelentingly positive affect. Safety is not the same as comfort; in contrast, it is predicted to facilitate risk.' (Edmondson, 1999: 14). European research on error management broadly supports Edmondson's interpretations (e.g. Van Dyck, 2000).

Teams benefit from taking time out from working to reflect on their work habits, objectives, team processes and outcomes, make plans for change, implement them and reflect again. A sense of safety helps teams self-reflectively explore in this way.

10 Ensure there is clarity of leadership in the team and that the leadership style is appropriate for encouraging innovation

The team leader normally has a potent and pervasive influence on team innovation and in particular team processes (Tannenbaum et al., 1996). The leader brings task expertise, abilities and attitudes to the team that can influence the group design and group norms (Hackman, 1990; 1992; 2002), and, through monitoring, feedback and coaching, can help develop these processes, to assist the team to achieve its tasks (McIntyre and Salas, 1995) and to innovate. The extent to which the leader defines team objectives and helps organize the team to ensure progress towards achieving these objectives can affect the level of team innovation.

Clarity of team leadership (team members are clear about where the leadership of the team resides) is critical to the role of leadership in fostering team innovation (regardless of whether leadership is shared). In a test of this proposition, West et al. (2003) sampled 3447 respondents from 98 primary health care teams, 113 community mental health teams, and 72 breast cancer care teams. The results revealed that leadership clarity was associated with clear team objectives, high levels of participation, commitment to excellence and support for innovation. Team processes consistently predicted team innovation across all three samples. Clarity of team leadership predicted innovation in the latter two samples and team processes partially mediated this relationship.

Several leadership scholars (c.f. Barry, 1991; Kim et al., 1999; McCall, 1988) identified roles which are central to effective project work and innovation. They concluded that leaders must engage in boundary spanning behaviour, facilitate teamwork, drive innovation and direct project work.

Leadership boundary spanning involves the management of external relationships including co-ordinating tasks, negotiating resources and goals with stakeholders as well as scanning for information and ideas. Waldman and Atwater (1994) studied 40 R & D projects teams and found that, out of a range of leadership behaviours examined (including transformation leadership and goal setting behaviour), boundary

spanning was the strongest predictor of research managers' ratings of project performance and innovation.

Facilitative leadership refers to encouraging safe team interactions, participation, sharing of ideas and open discussion of different perspectives. Kim et al. (1999) surveyed 87 R & D teams in six Korean organizations and found that the leader's performance of the team builder role was a significant predictor of team ratings of innovation. A leader who acts as an innovator envisions project opportunities and new approaches by questioning team assumptions and challenging the status quo. Leaders who question approaches and suggest innovative ways of performing tasks tend to lead innovative teams (Keller, 1992). Likewise Kim and colleagues (1999) found that the leader's technical problem-solving ability, in particular appraisal of problems and identification of new ideas, was significantly correlated with R & D project performance. Yukl et al. (1990) found that leaders who clarified tasks by communicating instructions and setting priorities, deadlines and standards, were most effective in leading innovative teams.

It generally helps to ensure that leadership in the team is clear to all team members and that there is no conflict over leadership. Ensure that leaders fulfil the roles that are critical to innovation such as boundary spanning, facilitating, and directing; but also train leaders to be aware of group processes; listen in order to understand rather than to appraise or refute; assume responsibility for accurate team communication; be sensitive to unexpressed feelings; protect minority views; keep the discussion moving; and develop skills in summarising.

11 Manage conflict constructively and encourage minorities to dissent within teams

Many scholars argue that the management of competing perspectives is fundamental to the generation of creativity and innovation (Mumford and Gustafson, 1988; Nemeth and Owens, 1996; Tjosvold, 1998). Such processes are characteristic of task-related conflict (as opposed to conflicts of relationship and process conflict, see De Dreu, 1997; Jehn, 1997). They can arise from a common concern with the quality of task performance in relation to shared objectives. Task conflict is an awareness of differences in viewpoints and opinions about a task. 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 (Tjosvold, 1982; Tjosvold and Field, 1983; Tjosvold and Johnson, 1977; Tjosvold et al., 1986; Tjosvold, 1998) have presented cogent arguments and strong supportive evidence that constructive (task-related) controversy in a co-operative group context, improves the quality of decision-making and creativity (Tjosvold, 1991). Constructive controversy is characterised 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 emphasized, 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.

For example, the most effective self-managing teams in a manufacturing plant that Alper and Tjosvold (1993) studied were those which had compatible goals and promoted constructive controversy. Members of teams which promoted inter-dependent conflict management (people co-operated to work through their differences), compared to teams with win/lose conflict (where team members tended to engage in a power struggle when they had different views and interests), felt confident that they could deal with differences. Such teams were rated as more productive and innovative by their managers. Apparently, because of this success, members of these teams were committed to working as a team.

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 and Clark, 1984; Nemeth, 1986; Nemeth and Chiles, 1988; Nemeth and Kwan, 1987; Nemeth and Owens, 1996; Nemeth and Wachtler, 1983).

De Dreu and De Vries (1993, 1997) suggest that a homogenous workforce, in which minority dissent is suppressed, will reduce creativity, innovation, individuality and independence (see also Nemeth and Staw, 1989). Disagreement about ideas within a group can be beneficial and some researchers even argue that team task or information-related conflict is valuable, whether or not it occurs in a collaborative context, since it can improve decision-making and strategic planning (Cosier and Rose, 1977; Mitroff et al., 1977; Schweiger et al., 1989). This is because task-related conflict may lead team members to re-evaluate the status quo and adapt their objectives, strategies or processes more appropriately to their situation (Cosier, 1970; Nemeth and Staw, 1989; Roloff, 1987; Thomas, 1979). However, De Dreu and Weingart (2003) suggest that high levels of conflict in teams, regardless of whether the conflict is focused on relationships or task, will inhibit team effectiveness and innovation.

In two studies involving postal work teams, 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 and 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.

Encourage moderate task-related (as distinct from emotional or interpersonal) conflict and minority dissent, along with high levels of participation since this will lead to debate and to consideration of alternative interpretations of information available. This in turn will prompt integrated and creative solutions to work-related problems – to innovation.

12 Don't just bond ... bridge

The strengths of team-working in organizations are the involvement of all in contributing their skills and knowledge, in good collective decision-making and

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innovation – team bonding enables innovation. The fundamental weakness is the tendency of team based organizations to be driven by intergroup competition, hostility and rivalry with likely consequent negative impacts on organizational performance overall; in short, inter-group bias. Consequently, teams need to be persuaded to bridge these divides.

Mohrman et al. (1995) have pointed out that there are likely to be innovation benefits of good linkages between groups and teams and across departments within organizations. The cross-disciplinarity, cross-functionality and cross-team perspectives that such interactions can produce are likely to generate the kinds of dividends related to innovation that heterogeneity within teams could offer.

In a study of 45 new product teams in five high technology companies, Ancona and Caldwell (1992) found that when a work group recruited a new member from a functional area in an organization, communication between the team and that area went up dramatically. This would favour innovation through the incorporation of diverse ideas and models gleaned from these different functional areas. Consistent with this, the researchers discovered that the greater the group's functional diversity, the more team members communicated outside the work group's boundaries and the higher ratings of innovation they received from supervisors. The UNESCO research described above (Andrews, 1979) also showed that the extent of communication between research teams had strong relationships with scientific recognition of the teams, R & D effectiveness, number of publications, and the applied value of their work (all surrogate measures of innovation).

How can teams encourage good inter-group working? A fruitful avenue may be to look at the two main causes of dysfunctional inter-group relations: conflicting interests or goals, and the disruptive dynamics of salient social categorisation (Turner, 1985). One way for *the team* to improve relationships with other teams would be to make such improvement one of its four or five core work objectives. Teams can also use secondments and set up cross team work projects. Another strategy is to improve and encourage contact and open communication between teams. Such contacts usually lead to a weakening of perceptions of conflicting goals (Tjosvold, 1998). Open and collaborative communication are a means by which trusting cross team relationships can be created; such trusting relationships enable conflicts of interest to be managed constructively.

There are many ways *for the organization* to encourage inter-group working (see West, Tjosvold and Smith, 2003), including encouraging teams to downplay the salience of group boundaries by developing a common super-ordinate identity within the organization; rewarding the maintenance and development of cross team relationships; making team boundaries more permeable, e.g. through rotating team members in different teams (see also Katz and Allen, 1988).

Encourage different teams to work together, share best practice, develop joint projects and strive to find a common super-ordinate identity within the organization in order to encourage the innovation that springs from bridging boundaries. Reward inter-team working.

Conclusions

Based on research findings, we outlined a number of practical recommendations that can be applied in organizational settings where the intent is to encourage teams to be innovative. These recommendations can be summarized in four main points.

First the team's task must be a whole task: one that is perceived by the team as significant to the organization or the wider society; one that makes varied demands on team members and requires them to use their knowledge and skills interdependently; one that provides opportunities for social contact between them; and one that provides opportunities for learning, skill development and task development. The group should be relatively autonomous in the conduct of its work.

Second, the group should be given time during the early stages of the innovation process, in an unpressured environment, to generate creative ideas for new and improved products or ways of working. This may mean taking time away from the usual workplace and working in (ideally) a pleasant and relaxing environment. The services of a skilled facilitator, knowledgeable about research evidence on group creative processes (as opposed to popular belief and consultancy mythology), can help groups to maximize their creative output. An intra-group psychosocial environment experienced by group members as unthreatening will best facilitate such processes.

Third, at later stages of the innovation process, if group members feel pressured, or uncertain, they are more likely to implement innovations, as long as the demands and uncertainties are created by extra- not intra-group agents (this is sometimes called the 'burning platform' effect) and the level of demand is not crippling. Today, competition, threat, pressure and uncertainty are characteristic of most public and commercial sector environments, particularly as globalization increases apace – there is rarely reason to increase the level of demand. But there is much more reason to improve the level of safety and the integration skills of team members.

Fourth and above all, group members must individually and collectively develop the skills to work well as a team, encouraging integrating group processes to ensure that they innovate effectively. This means continually clarifying and ensuring group member commitment to shared objectives; encouraging information sharing, regular group member interaction, and shared influence over decision-making; and encouraging high levels of emphasis on quality, and practical support (time, money, and co-operation) for innovation. It means encouraging group members to regularly reflect upon and adapt their objectives, strategies and processes – consciously and continually improving their functioning as a group.

In sum, for creativity and innovation implementation to emerge from group functioning – for groups to be sparkling fountains of ideas and changes – the context must be demanding but there must be strong group integration processes and a high level of intra-group safety. This requires that members have the integration abilities to work effectively in teams; and that they develop a safe psychosocial climate and appropriate group processes (clarifying objectives, encouraging participation, constructive controversy, reflexivity and support for innovation). Such conditions are likely to

produce high levels of group innovation, but crucially too, the well-being which is a consequence of effective human interaction in challenging and supportive environments.

References

- Abbey, A. and Dickson, J.W. (1983) R & D work climate and innovation in semiconductors. *Academy of Management Journal*, 26(2), 362–8.
- Alper, S. and Tjosvold, D. (1993) Cooperation theory and self-managing teams on the manufacturing floor. Paper presented at the International Association for Conflict Management, Eugene, OR.
- Amabile, T.M. (1983) The social psychology of creativity: A componential conceptualization. *Journal of Personality and Social Psychology*, 45, 357–76.
- Amabile, T.M. (1988) A model of creativity and innovation in organizations. In B.M. Staw and L.L. Cummings (Eds) *Research in organizational behavior*, 10. Greenwich, CT: JAI Press. (pp. 123–67).
- Amabile, T.M., Conti, R., Coon, H., Lazenby, J., and Herron, M. (1996) Assessing the work environment for creativity. *Academy of Management Journal*, 39, 1154–84.
- Ancona, D.G., and Caldwell, D.F. (1992) Bridging the boundary: external process and performance in organizational teams. *Administrative Science Quarterly*, 37, 634–65.
- Anderson, N. and West, M.A. (1998) Measuring climate for work group innovation: Development and validation of the Team Climate Inventory. *Journal of Organizational Behavior*, 19, 235–58.
- Andrews, F. M. (Ed.) (1979) *Scientific productivity*, Cambridge, England: Cambridge University Press.
- Barrick, M.R., Stewart, G.L., Neubert, M.J., Mount, M.K. (1998) Relating member ability and personality to work-team processes and team effectiveness. *Journal of Applied Psychology*, 83, 377–91.
- Barron, F.B. and Harrington, D.M. (1981) Creativity, intelligence and personality. In M.R. Rosenzweig and L.W. Porter (Eds) *Annual Review of Psychology*, 32, 439–76. Palo Alto, CA: Annual Reviews.
- Barry, D. (1991) Managing the bossless team: Lessons in distributed leadership. *Organizational Dynamics*, 20, 31–47.
- Borrill, C.S., Carletta, J., Carter, A.J., Dawson, J., Garrod, S., Rees, A., Richards, A., Shapiro, D. and West, M.A. (2000a) *The Effectiveness of Health Care Teams in the National Health Service*, Birmingham: Aston Centre for Health Service Organization Research.
- Borrill, C.S., West, M.A., Shapiro, D. and Rees, A. (2000b) Team Working and Effectiveness in Health Care. *British Journal of Health Care Management*, 6, 364–71.
- Bunce, D. and West, M.A. (1995) Changing work environments: Innovative coping responses to occupational stress. *Work and Stress*, 8, 319–31.
- Bunce, D. and West, M.A. (1996) Stress management and innovation interventions at work. *Human Relations*, 49, 209–32.
- Burgoyne, J., Pedler, M. and Boydell, T. (1999) *The Learning company, a Strategy for Sustainable Development*. New York: Maidenhead.
- Claxton, G.L. (1997) *Have Brain, Tortoise mind: Why Intelligence Increases When You Think Less*. London: Fourth Estate.
- Claxton, G.L. (1998) Knowing without knowing why: Investigating human intuition. *The Psychologist*, 11, 217–20.
- Cotton, J.L. (1996) Employee involvement. In C.L. Cooper and I.T. Robertson (Eds) *International Review of Industrial and Organizational Psychology*, 11. John Wiley & Sons Ltd. (pp. 219–42).
- Coser, L.A. (1970) *Continuities in the Study of Social Conflict*. New York: Free Press.
- Cosier, R., and Rose, G. (1977) Cognitive conflict and goal conflict effects on task performance. *Organizational Behavior and Human Performance*, 19, 378–91.
- Cowen, E.L. (1952) The influence of varying degrees of psychological stress on problem-solving rigidity. *Journal of Abnormal and Social Psychology*, 47, 420–424.

- De Dreu, C.K.W. (1997) Productive Conflict: The importance of conflict management and conflict issue. In C.K.W. De Dreu and E. Van De Vliert (Eds) *Using Conflict in Organizations*. London: Sage. (pp. 9–22).
- De Dreu, C.K.W. and De Vries, N.K. (1993) Numerical support, information processing and attitude change. *European Journal of Social Psychology*, 23, 647–62.
- De Dreu, C.K.W. and De Vries, N.K. (1997) Minority dissent in organizations. In C. K. W. De Dreu and E. Van De Vliert (Eds) *Using Conflict in Organizations*. London: Sage. (pp. 72–86).
- De Dreu, C.K.W. and Weingart, L.R. (2003) A Contingency Theory of Task Conflict and Performance in Groups and Organizational Teams. In M. West, D. Tjosvold and K. Smith (Eds) *International Handbook of Organizational Teamwork and Cooperative Working*. Chichester, England: Wiley. (pp. 151–65).
- De Dreu, C.K.W. and West, M.A. (2001) Minority dissent and team innovation: The importance of participation in decision-making. *Journal of Applied Psychology*, 68, 1191–201.
- Economist (2003) Innovating by numbers. *Economist: Economist Technology Quarterly*, June 21st, 2003, 3.
- Edmondson, A.C. (1996) Learning from mistakes is easier said than done: Group and organizational influences on the detection and correction of human error. *Journal of Applied Behavioral Science*, 32, 5–28.
- Edmondson, A.C. (1999) Psychological safety and learning behavior in work teams. *Administrative Science Quarterly*, 44, 350–83.
- Eisenberger, R. and Cameron, J. (1996) Detrimental effects of reward: Reality of myth? *American Psychologist*, 51(11), 1153–66.
- Ghiselli, E.E. and Lodahl, T.M. (1958) Patterns of managerial traits and group effectiveness. *Journal of Abnormal and Social Psychology*, 57, 61–66.
- Gonzalez-Roma, V., Peiro, J.M. and Tordera, N. (2002) An examination of the antecedents and moderator influences of climate strengths. *Journal of Applied Psychology*, 87(3), 465–73.
- Gulowsen, J.A. (1972) A measure of work group autonomy. In L.E. Davis and J.C. Taylor (Eds) *Design of Jobs*. Harmondsworth, England: Penguin. (pp. 374–90).
- Guzzo, R.A. (1996) Fundamental considerations about work groups. In M.A. West (Ed.) *Handbook of Work Group Psychology*. Chichester, England: Wiley.
- Hackman, J.R. (1990) *Groups that work (and those that don't)*. San Francisco: Jossey Bass.
- Hackman, J.R. (1992) Group influences on individual in organizations. In M.D. Dunnette and L.M. Hough (Eds) *Handbook of Industrial and Organizational Psychology (Vol. 3)*. Palo Alto, CA: Consulting Psychologists Press. (pp. 199–267).
- Hackman, J.R. (2002) *Leading Teams: Setting the Stage for Great Performances*. Harvard, CN.: Harvard Business School.
- Hackman, J.R. and Oldham, G.R. (1980) *Work Redesign*. Reading, MA: Addison-Wesley.
- Heller, F., Pusic, E., Strauss, G. and Wilpert, B. (1998) *Organizational Participation: Myth and Reality*. Oxford: Oxford University Press.
- Hennessey, B.A. (2003). Is the Social Psychology of Creativity Really Social?: Moving Beyond a Focus on the Individual. In P. Paulus and B. Nijstad (Eds) *Group Creativity: Innovation through Collaboration*. New York: Oxford University Press. (pp. 181–201).
- Hoffman, L.R. (1979) Applying experimental research on group problem solving to organizations. *Journal of Abnormal and Social Psychology*, 58, 27–32.
- Hoffman, L.R. and Maier, N.R.F. (1961) Sex differences, sex composition, and group problem-solving. *Journal of Abnormal and Social Psychology*, 63, 453–56.
- Jackson, S.E. (1992) Consequences of group composition for the interpersonal dynamics of strategic issue processing. *Advances in Strategic Management*, 8, 45–82.
- Jackson, S.E. (1996) The consequences of diversity in multidisciplinary work teams. In M.A. West (Ed.) *Handbook of Work Group Psychology*. Chichester, England: Wiley. (pp. 53–75).
- Jehn, K.A. (1997) A qualitative analysis of conflict types and dimensions in organizational groups. *Administrative Science Quarterly*, 42, 530–57.

West and Sacramento

- Jehn, K.A., Northcraft, G.B. and Neale, M.A. (1999) Why differences make a difference: A field study of diversity, conflict, and performance in workgroups. *Administrative Science Quarterly*, 44, 741–63.
- Katz, R. and Allen, T.J. (1988) Investigating the Not Invented Here (NIH) syndrome: A look at the performance, tenure, and communication patterns of 50 R & D project groups. In: Michael L. Tushman and William L. Moore (Eds) *Readings in the Management of Innovation* (2nd ed.), (pp. 293–309).
- Keller, R.T. (1992) Transformational leadership and the performance of research and development research groups. *Journal of Management*, 18, 489–501.
- Kim, Y., Min, B. and Cha, J. (1999) The roles of R & D team leaders in Korea: A contingent approach. *R & D Management*, 29, 53–165.
- Kogut, B. and Zander, U. (1992) Knowledge of the firm, combinative capabilities, and the replication of technology. *Organization Science*, 3, 383–97.
- Kruglansky, A.W. and Freund, T. (1983) The freezing and unfreezing of lay influences: effects on impressional primacy, ethnic stereotyping and numerical anchoring. *Journal of Experimental Social Psychology*, 19, 448–68.
- Maass, A., and Clark, R.D. (1984) Hidden impacts of minorities: fifty years of minority influence research. *Psychological Bulletin*, 95, 428–50.
- Maier, S.F. and Seligman, M. (1976) Learned helplessness: Theory and evidence. *Journal of Experimental Psychology: General*, 105, 3–46.
- Maznevski, M.L. (1994) Understanding our differences: Performance in decision-making groups with diverse members. *Human Relations*, 47, 531–52.
- McCall, M.W. Jr. (1988) Leadership and the professional. In Katz, R. (Ed.) *Managing Professionals in Innovative Organizations*. Cambridge, M.A.: Ballinger.
- McGrath, J.E. (1984) *Groups, interaction and performance*. Englewood Cliffs, NJ: Prentice-Hall.
- McIntyre, R.M. and Salas, E. (1995) Measuring and managing for team performance: lessons from complex environments. In R.Guzzo & Salas (Eds) *Team Effectiveness and Decision-making in Organizations*. San Francisco, C.A.: Jossey-Bass.
- Milliken, F.J. and Martins, L.L. (1996) Searching for common threads: Understanding the multiple effects of diversity in organizational groups. *Academy of Management Review*, 21(2), 402–33.
- Mitroff, J., Barabba, N., and Kilmann, R. (1977) The application of behavior and philosophical technologies to strategic planning: a case study of a large federal agency. *Management Studies*, 24, 44–58.
- Mohrman, S.A., Cohen, S.G., and Mohrman, A.M. (1995) *Designing team-based organizations: New forms for knowledge work*. San Francisco: Jossey Bass.
- Mumford, M.D. and Gustafson, S.B. (1988) Creativity syndrome: Integration, application and innovation. *Psychological Bulletin*, 103, 27–43.
- Nemeth, C. (1986) Differential contributions of majority and minority influence. *Psychological Review*, 93, 23–32.
- Nemeth, C., and Chiles, C. (1988) Modelling courage: the role of dissent in fostering independence. *European Journal of Social Psychology*, 18, 275–80.
- Nemeth, C., and Kwan, J. (1987) Minority influence, divergent thinking and the detection of correct solutions. *Journal of Applied Social Psychology*, 9, 788–99.
- Nemeth, C. and Owens, P. (1996) Making work groups more effective: The value of minority dissent. In M.A. West (Ed.) *Handbook of Work Group Psychology*. Chichester, England: John Wiley. (pp. 125–42).
- Nemeth, C. and Staw, B.M. (1989) The trade offs of social control and innovation within groups and organizations. In L. Berkowitz (Ed.) *Advances in Experimental Social Psychology*. New York: Academic Press. (pp. 175–210).
- Nemeth, C.J. and Wachtler, J. (1983). Creative problem solving as a result of majority vs minority influence. *European Journal of Social Psychology*, 13, 45–55.
- Nicholson, N. and West, M.A. (1988) *Managerial Job Change: Men and Women in Transition*. Cambridge: Cambridge University Press.

- Oldham, G.R. and Cummings, A. (1996) Employee Creativity: Personal and Contextual factors at work. *Academy of Management Journal*, 39(3), 607–34.
- O'Reilly, C. and Williams, K.Y. (1998) Group demography and innovation: Does diversity help? In: Deborah H Gruenfeld, (Ed.) *Research on managing groups and teams, Vol. 1.*, 183–207.
- Payne, R.L. (1990) The effectiveness of research teams: A review. In M.A. West and J.L. Farr (Eds) *Innovation and Creativity at Work: Psychological and Organizational Strategies*. Chichester, England: Wiley. (pp. 101–22).
- Pearce, J.A. and Ravlin, E.C. (1987) The design and activation of self-regulating work groups. *Human Relations*, 40, 751–82.
- Pelled, H.L., Eisenhardt, K.M., and Xin, K.R. (1999) Exploring the black box: An analysis of work group diversity, conflict, and performance. *Administrative Science Quarterly*, 44, 1–28.
- Porac, J.F. and Howard, H. (1990) Taxonomic mental models in competitor definition. *Academy of Management Review*, 2, 224–40.
- Rokeach, M. (1950) The effect of perception of time upon the rigidity and concreteness of thinking. *Journal of Experimental Psychology*, 40, 206–16.
- Roloff, M.E. (1987) Communication and conflict. In C.R. Berger and S.H. Chaffee (Eds) *Handbook of Communication Science*. Newbury Park, CA: Sage. (pp. 484–534.)
- Schweiger, D., Sandberg, W., and Rechner, P. (1989) Experimental effects of dialectical inquiry, devil's advocacy, and other consensus approaches to strategic decision making. *Academy of Management Journal*, 32, 745–72.
- Shaw, J. B. and Barrett-Power, E. (1998) The effects of diversity on small work group processes and performance. *Human Relations*, 51(10), 1307–25.
- Smith, K.G. Smith, K.A., Bannon, D.P., Olian, J.D., Sims, H.P. and Scully, J. (1994) Top Management Team demography and process: The role of social integration and communication. *Administrative Science Quarterly*, 39, 412.
- Sternberg, R.J. and Lubart, T.I. (1996) Investing in creativity. *American Psychologist*, 51, 677–88.
- Tannenbaum, S.I., Salas, E., and Cannon-Bowers, J.A. (1996). Promoting team effectiveness. In M.A. West (Ed.) *Handbook of Work Group Psychology*. Chichester, UK: Wiley. (pp. 503–29).
- Thomas, K.W. (1979) Organizational conflict. In S. Kerr (Ed.) *Organizational Behavior*. Columbus, OH: Grid Publishing. (pp. 151–84.)
- Tjosvold, D. (1982) Effects of approach to controversy on superiors' incorporation of subordinates' information in decision making. *Journal of Applied Psychology*, 67, 189–93.
- Tjosvold, D. (1985) Implications of controversy research for management. *Journal of Management*, 11, 21–37.
- Tjosvold, D. (1991) *Team Organization: An Enduring Competitive Advantage*. Chichester, England: Wiley.
- Tjosvold, D. (1998) Co-operative and competitive goal approaches to conflict: accomplishments and challenges. *Applied Psychology: An International Review*, 47, 285–342.
- Tjosvold, D. and Field, R.H.G. (1983) Effects of social context on consensus and majority vote decision making. *Academy of Management Journal*, 26, 500–6.
- Tjosvold, D., and Johnson, D.W. (1977) The effects of controversy on cognitive perspective-taking. *Journal of Educational Psychology*, 69, 679–85.
- Tjosvold, D., Wedley, W.C. and Field, R.H.G. (1986) Constructive controversy, the Vroom-Yetton Model, and managerial decision-making. *Journal of Occupational Behavior*, 7, 125–38.
- Tsai, W. (2001) Knowledge transfer in intraorganizational networks: Effects of network position and absorptive capacity on business unit innovation and performance. *Academy of Management Journal*, 44(5), 996–1004.
- Turner, J.C. (1985) Social categorization and the self concept: A social cognitive theory of group behavior. In E.J. Lawler (Ed.) *Advances in group processes (vol. 14)*. JAI Press.
- Van Dyck, C. (2000). *Putting Errors to Good Use: Error Management Culture in Organizations*. Amsterdam: Kurt Lewin Institute.

West and Sacramento

- Waldman, D.A. and Atwater, L.E. (1994) The nature of effective leadership and championing processes at different levels in a R & D hierarchy. *The Journal of High Technology Management Research*, 5, 233–45.
- Webber, S.S. and Donahue, L.M. (2001) Impact of highly and less job-related diversity on work group cohesion and performance: A meta-analysis. *Journal of Management*, 27(2), 141–62.
- West, M.A. (1987) Role innovation in the world of work. *British Journal of Social Psychology*, 26, 305–15.
- West, M.A. (1989) Innovation among health care professionals. *Social Behavior*, 4, 173–84.
- West, M.A. (1990) The social psychology of innovation in groups. In M.A. West and J.L. Farr (Eds), *Innovation and creativity at work: Psychological and Organizational Strategies*. Chichester, England: John Wiley. (pp. 309–33).
- West, M.A. (1996) Reflexivity and work group effectiveness: A conceptual integration. In M.A. West, (Ed.) *Handbook of Work Group Psychology*. Chichester, England: Wiley. (pp. 555–79).
- West, M.A. (2000) Reflexivity, revolution, and innovation in work teams. In M.M. Beyerlein, D.A. Johnson and S.T. Beyerlein (Eds) *Advances in Interdisciplinary Studies of Work Teams: Product Development Teams* Stamford, Connecticut: JAI Press. (pp. 1–29).
- West, M.A. (2002) Sparkling fountains or stagnant ponds: An integrative model of creativity and innovation implementation in work groups. *Applied Psychology: An International Review*, 51, 355–87.
- West, M.A. and Anderson, N. (1996) Innovation in top management teams. *Journal of Applied Psychology*, 81, 680–93.
- West, M.A., Borrill, C.S., Dawson, J.F., Brodbeck, F., Shapiro, D.A. and Haward, B. (2003) Leadership clarity and team innovation in health care. *The Leadership Quarterly*, 14(4–5), 393–410.
- West, M.A., Borrill, C.S. and Unsworth, K.L. (1998) Team effectiveness in organizations. In C.L. Cooper and I.T. Robertson (Eds), *International review of industrial and organizational psychology*, 13, (1–48). Chichester, England: Wiley.
- West, M.A., and Farr, J.L. (1990) Innovation at work. In M.A. West and J.L. Farr (Eds), *Innovation and creativity at work: Psychological and organizational strategies* (pp. 3–13). Chichester, England: Wiley.
- West, M.A., Hirst, G., Richter, A. and Shipton, H. (2004) Twelve steps to heaven: Successfully managing change through developing innovative teams. *European Journal of Work and Organizational Psychology*, 13(2), 269–99.
- West, M.A., Patterson, M., Pillinger, T. and Nickell, S. (1998) *Innovation and Change in Manufacturing*. Institute of Work Psychology, University of Sheffield, Sheffield, S10 2TN.
- West, M.A. and Rushton, R. (1989) Mismatches in work role transitions. *Journal of Occupational Psychology*, 62, 271–86.
- West, M.A., Tjosvold, D. and Smith, K.G. (2003) (Eds), *International Handbook of Organisational Teamwork and Co-operative Working*. Chichester, England: Wiley.
- Willems, E.P. and Clark, R.D. III (1971) Shift toward risk and heterogeneity of groups. *Journal of Experimental and Social Psychology*, 7, 302–12.
- Wood, W. (1987) Meta-analytic review of sex differences in group performance. *Psychological Bulletin*, 102, 53–71.
- Wright, M. (1954). A study of anxiety in a general hospital setting, *Canadian Journal of Psychology*, 8, 195–203.
- Yukl, G., Wall, S. and Lepsinger, R. (1990) Preliminary report on validation of the Managerial Practices Survey. In K.E. Clark and M.B. Clark (Eds), *Measures of Leadership*. NJ: Leadership Library of America.

Note: This chapter is an abridged version of West, M.A., Hirst, G. et al. (2004). Twelve steps to heaven: Successfully managing change through developing innovative teams. *European Journal of Work and Organizational Psychology*, 13(2): 269–299.