Managing for Innovation: The Two Faces of Tension in Creative Climates

Scott G. Isaksen and Göran Ekvall

Part of managing for innovation is creating the appropriate climate so that people can share and build upon each other's ideas and suggestions. Yet, there are increasing pressures and potential unproductive levels of tension within organizations. This article points out the distinction between two forms of tension that appear within the research on organizational climates for creativity as well as the conflict management literature. The Debate dimension is described as reflecting a more productive idea tension and the Conflict dimension suggests a more non-productive personal tension. A series of studies, across multiple levels of analysis, are summarized and a new study is reported in order to highlight the finding that relatively higher levels of Debate, and lower levels of Conflict are more conducive to organizational creativity and innovation. A practical model for the constructive use of differences is shared, along with a few strategies for reducing the negative tension associated with Conflict and increasing the positive aspects associated with Debate.

Introduction

The deliberate management of a climate supportive of innovation is a key challenge for those who lead and manage organizations. There is no question that these times reflect clear demands for dealing with the increasing pace of change, daunting levels of complexity and broadening competitive pressures. In addition to these sources of tension within organizations, we see increasingly high expectations for improved performance by stockholders and stakeholders, increased pressure to cut costs, particularly through downsizing; doing more with less, or doing everything better, faster and cheaper. In this rather stressful context, it is increasingly challenging for people to get along with each other (Fløistad, 2000) and keep meeting the innovation challenge on the strategic agenda (Isaksen & Tidd, 2006).

The first purpose of this article is to offer insights to those who manage the creative tension within organizations. There is sufficient theoretical support for the notion that creativity involves tension (Arieti, 1976). Creative tension results from the inherent difference between current reality and some desired new future (Fritz, 1991). It also results from the epistemological nature of the concept itself (Hausman, 1984). Creativity is often conceived as relating to something that is new, novel or original; and useful, relevant and valuable. Useful newness implies a conceptual overlay that often includes a synthesis of opposites and a resolution of creative tension (Rothenberg & Hausman, 1976; Rothenberg, 1979). How this creative tension is perceived and managed can make a meaningful difference in whether or not its resolution results in innovation – the implementation or use of new ideas and solutions. Further, although creativity is distinct from the concept of innovation (Shalley & Gilson, 2004), it is often conceived as either a prerequisite or necessary condition for innovation (West, 2002).

Second, this article explores the potential relationship the creativity literature may make to an area within the management literature. Xu and Rickards (2007) asserted that: 'creativity and management studies remain domains which have failed to become harmonized to mutual benefit' (p. 217). Two parallel, yet distinct, streams of research have yet to be harmonized. The first is within the domain of creativity research and includes a focus on the climate for creativity and innovation. The second is within the domain of management and organizational studies that deals with the management of conflict – and

doi:10.1111/j.1467-8691.2010.00558.x

particularly whether or not conflict can be productive.

The issues addressed in this article fit within the broader domain of literature regarding the importance of how a sense of positive engagement and well-being, at an individual and organizational level of analysis, affect creativity and innovation. It has been argued that setting appropriate conditions for creativity and innovation results in higher levels of organizational creativity and innovation, as well as better individual psychological well-being (Rasulzada & Dackert, 2009).

Theory, and some empirical evidence, suggest that when people experience positive interaction, lower levels of stress, and feel valued, they are more likely to engage in creative behaviours, generate creative ideas, and solve problems creatively (Fredrickson, 2001; Cohen-Meiter, Carmeli & Waldman, 2009). When employees feel a deeper sense of engagement and experience a climate conducive to creativity, numerous business benefits result, including higher levels of innovation (Harter, Schmidt & Keyes, 2002; Vincent, Bharadwaj & Challagalla, 2004).

The opposing condition results from unproductive manifestations of tension and is evidenced by high levels of occupational stress (Johnson et al., 2005), bullying in the workplace (Lutgen-Sandvik, Tracey & Alberts, 2007) and workplace incivility (Pearson & Porath, 2005). It is difficult, at best, to maintain a focus on creativity – the making and communicating of meaningful new connections – within a workplace environment filled with unproductive tension (Ekvall, 1997). The many forms of negative tension that exist in workplaces today serve as a barrier and distraction to effectively meeting the innovation challenges organizations face.

The final purpose of this article is to provide a model for the constructive use of differences and outline some practical ways leaders and managers can manage the two faces of tension in order to provide an improved climate for creativity and innovation.

Conflict in the Conflict Management Literature

Conflict in organizations is a core tension that arises naturally when people experience interdependencies, and they are embedded in structures and systems that attempt to constrain or control their behaviour (Gelfand, Leslie & Keller, 2008; Jaffee, 2008). Within the conflict stream of research, some studies point out the positive effects of conflict (e.g., Tjosvold, 2008) and others assert that conflict yields more negative and non-productive effects in the work environment (De Dreu, 2008).

The literature differentiates three types of conflict. The first is called task conflict and refers to disagreements focused on work content and includes differences in viewpoints, ideas and opinions. Some studies have found that this type of conflict can produce positive outcomes (Amason, 1996; De Dreu, 2006). Other studies have demonstrated that task conflict has a debilitating effect on employee performance (Kahn, Afzal & Rehman, 2009). Still other studies have argued for a curvilinear relationship between task conflict and organizational outcomes such as innovation (DeDreu, 2006; Jehn, 1995).

The second type is referred to as emotional, relationship or affective conflict and is characterized by anger, aggression, frustration or hostility among or between individuals on a personal level. This type of conflict has been consistently associated with harmful effects on task performance and satisfaction (Janssen, Van de Vliert & Veenstra, 1999; De Dreu & Weingart, 2003).

The third type is called process conflict and refers to disagreements over the approach to the task, the desired group processes, and the method the group chooses to follow. Process conflict, like affective or emotional conflict, has generally been linked to numerous negative effects (Jehn & Mannix, 2001). Some studies have found that high performing groups have moderately high levels of task conflict and little or no process conflict (Jehn, 1997). These different types of conflict have been shown to coexist within organizations (De Dreu & Weingart, 2003; Tidd, McIntyre & Friedman, 2004).

Conflict appears to be an inevitable part of the work environment. A recent global survey found that 85 per cent of employees across levels in organizations experience conflict to some degree (CPP, 2008). According to this same survey, US employees spent 2.8 hours per week dealing with conflict at an estimated cost of $359 billion in paid hours for 2008.

One of the challenges within the conflict literature is the argument about whether or not, and under what conditions, conflict can be positive and productive (DeChurch, Hamilton & Haas, 2007; Behfar et al., 2008), or distinguishing between the constructive and destructive aspects of conflict (Deutsch, 1973). Tjosvold (2008) argued that since conflict is both inevitable and potentially constructive, organizations should become 'conflict positive'. This position is based on establishing conditions in which conflict can be managed co-operatively and workers can discuss their differences openly. De Dreu's (2008) position

was that conflict generally hinders, rather than helps, individuals and teams, and that constructive controversy and integrative negotiation are critically needed to mitigate the negative effects of workplace conflict.

Gelfand, Leslie and Keller (2008) offer support for the need to improve our understanding of the features within organizations that constrain or enable appropriate conflict management – to understand how best to manage conflict in organizations. They argue that conflict management processes must be intricately linked to the organizational context. The distinctions being drawn within the conflict management literature appear to have parallels with the creative climate literature. The next section will highlight our approach to understanding and assessing the climate for creativity and innovation.

The Climate for Creativity and Innovation

Research and inquiry into the quality of the work environment has become a compelling and vibrant area of scholarship and application (Kuenzi & Schminke, 2009). The question of climate in organizations and work groups that support creativity and innovation, as one facet of the larger work environment literature, has been the subject of studies and theory construction for several decades (Johns, 2006). In a recently published meta-analysis and review of 42 such studies including data from 14,490 participants, climate assessments were found to evidence sizable, non-trivial relationships with creative achievement across studies (Hunter, Bedell & Mumford, 2007). The study concluded that 'all the dimensions commonly examined in the climate studies produced sizeable effects with respect to measures of creativity and innovation' (p. 76).

Questionnaires with rating scales for recording the organization members' perceptions of climate conditions have been applied in several research programmes concerning the creative climate. Often, the climate concept has been considered 'objectivistic' (Ekvall, 1987), implying that the climate is conceived as an organizational reality, a property of the organization containing recurrent patterns of behaviour, attitudes and feelings that characterize life in the organization. Aggregated values of the ratings, usually mean scores of the climate dimensions identified in the ratings, allow for the measurement of climate. Organizational climate, in this sense, is distinct from organizational culture, which reflects the deeper and more stable aspects of values, traditions, rituals and history (Denison, 1996). Research on organizational culture has typically focused on the underlying assumptions and values of the organization that are deeply embedded and can often be subconscious, hidden and taken for granted (Schein, 2004). Climate, on the other hand, is seen as a collective perceptual construct reflecting a lower level of abstraction based on observed patterns of interaction and behaviour (Schneider, 2000).

Two co-ordinated research programmes, one in Scandinavia (Ekvall, 1996, 1997) and one in the US (Isaksen & Ekvall, 2007), have identified two distinct kinds of tension in organizational climate that have an impact on creative and innovative outcomes.

The questionnaire measuring climate in Scandinavia is called the Creative Climate Questionnaire (CCQ) and the questionnaire applied in the US studies is designated the Situational Outlook Questionnaire (SOQ). The CCQ and SOQ have been shown to have adequate levels of internal reliability (Cronbach's alphas ranging from 0.69 to 0.92) and stability over time (Isaksen & Ekvall, 2007). As a result of a series of exploratory factor analyses using a variety of extraction and rotation approaches, the dimensions of both measures have shown a coherent internal factor structure reflecting the dimensions they are designed to measure (Isaksen, 2007a). The results from these studies consistently show that the dimensions are factorially independent. Confirmatory factor analysis on 225 samples of convenience including 7,345 respondents to the SOQ items resulted in a goodness of fit index (GFI) of 0.88, an adjusted goodness-of-fit index (AGFI) of 0.87, a normed-fit-index (NFI) of 0.89, and a root-mean-square error of approximation (RMSEA) of 0.047, indicating an adequate fit of the nine-dimensional model. Given the relatively large and diverse sample, these results are likely a conservative estimate of fit (Cheung & Rensvold, 2002).

The climate dimensions of both measures have supportive evidence of their relationship to other variables and measures. For example, the climate dimensions correlate significantly, and in expected directions, with the Survey of Creative and Innovative Performance (Puccio, Treffinger & Talbot, 1995) and the Work Environment Inventory, an earlier version of KEYS (an assessment of the work environment for creativity; Ryhammer, 1996). The climate dimensions are described in Table 1.

The climate dimensions have shown positive relationships to a number of outcome variables including higher sales volume, market share, productivity and profitability, reported greater impact from implementing new social and technical systems (like self-managed

Table 1. The Creative Climate Dimensions

Dimension	Definition
Challenge/Involvement	The degree to which people are involved in daily operations, long-term goals, and visions. High Challenge/Involvement implies better levels of engagement, commitment and motivation.
Freedom	The degree of independence shown by the people in the organization. High levels of Freedom imply more perceived autonomy and ability for individual discretion.
Trust/Openness	The emotional safety in relationships. In high Trust/Openness situations, people feel more comfortable sharing ideas and being frank and honest with each other.
Idea-Time	The amount of time people can, and do, use for elaborating new ideas. When Idea-Time is high, people can explore and develop new ideas that may not have been included in the original task.
Playfulness/Humour	The spontaneity and ease displayed within the workplace. Good-natured joking and laughter and a relaxed atmosphere (lower stress) are indicators of higher levels of Playfulness and Humour.
Conflict	The presence of personal and emotional tensions (a negative dimension – in contrast to the Debate dimension). When Conflict is high, people engage in interpersonal warfare, slander and gossip, and even plot against each other.
Idea-Support	The way new ideas are treated. In a high Idea-Support situation, people receive ideas and suggestions in an attentive and professional manner. People listen generously to each other.
Debate	The occurrence and open disagreement between viewpoints, ideas, experiences and knowledge. In the Debating situation, many different voices and points of view are exchanged and encouraged.
Risk-Taking	The tolerance of uncertainty and ambiguity. In a high Risk-Taking climate, people can make decisions even when they do not have certainty and all the information desired. People can and do 'go out on a limb' to put new ideas forward.

teams), and improved ability to implement more complex work designs (Firenze, 1998). Davis (2000) conducted a global innovation survey and found that those organizations with better scores on the climate dimensions had higher levels of growth in market capitalization, revenues and profitability.

The climate dimensions have been able to discriminate between best- and worst-case work environments (Isaksen et al., 2001), most and least creative teams (Isaksen & Lauer, 2002), and levels of perceived support for innovation (Isaksen & Lauer, 2001). The climate dimensions have also been shown to discriminate working environments that are more stress free and have higher levels of job satisfaction (Talbot, Cooper & Barrow, 1992; Turnipseed, 1994; Ślusarczyk, 2005). Thus, establishing a climate for creativity may mitigate many of the sources of tension outlined above.

The Two Faces of Tension in the Creative Climate

Ekvall initially developed the CCQ based on his practical experiences studying idea suggestion systems and the implementation of new management practices within Swedish industry (Ekvall, 1967, 1971). His experiences and research led him to observe that the successful implementation of these systems was dependent, in large part, on the working atmosphere within the organization. Within the early work on developing the CCQ, tension was conceived and measured as a single dimension (Ekvall, 1983; Ekvall, Arvonen &

Waldenström-Lindblad, 1983). Later, it became apparent that there were two very different kinds of tension within the climate. One appeared to be more healthy and supportive of creativity within the workplace focusing on idea or intellectual tension, and the other seemed to be more negative and suppressed creativity focusing on personal tension.

These two different forms of tension were labelled Debate and Conflict. From a purely conceptual standpoint, debate means the exchange of different or opposing points of view. A debate implies a regulated discussion during which opposing arguments are exchanged and considered. The conflict concept is usually defined as disagreement as well, but also carries a more negative and personal meaning. Conflict implies emotional and personal tension resulting from incompatible inner needs or drives and is synonymous with war and battle (Jehn, 1997). When applying these concepts to the task of defining climate dimensions – patterns of behaviour that characterize life in a workplace – the following descriptions result.

The Debate Climate Dimension

Debate within the climate is the occurrence of encounters and disagreements between viewpoints, ideas and differing experiences and knowledge (Isaksen & Ekvall, 2007). In the debating organization, many voices are heard and people are keen on putting forward their ideas for consideration and review. People can often be seen discussing opposing opinions and sharing a diversity of perspectives. Where debates are missing, people follow authoritarian patterns without question ($\alpha = 0.883$; Isaksen & Ekvall, 2007).

Examples of Debate items with manifest factor loadings include: 'many different points of view are shared here during discussion' (0.92), 'differences of opinion are frequently expressed here' (0.86), 'people here often exchange opposing viewpoints' (0.81), and 'a wide variety of viewpoints are expressed here' (0.78).

The Debate aspect of the creative climate has been touched upon in other research programmes and theories. Hunter, Bedell and Mumford (2007) presented a general taxonomy of 14 climate dimensions that encompassed 90 per cent of the climate variables appearing in prior research. One of these was labelled Intellectual Stimulation and defined as perception that debate and discussion of ideas (not persons) was encouraged and supported in the organization. Anderson and West (1998) described the Team Climate Inventory and the four-factor model of work group innovation and indicated the importance of 'exploration of opposing opinions'. Further support for the importance of debate comes from the domains of constructive controversy (Deutsch, 1949; Tjosvold, Wedley & Field, 1986) and procedural justice (Tyler & Blader, 2000). Studies have indicated that co-operation tends to promote greater productivity and more positive relationships, but some have argued that competition can be constructive as well. For example, Tjosvold et al. (2006) found that when competition is fun, engaging, and the actions of people involved are perceived as fair, tension can be productive.

Further support for the construct of Debate is found in the literature on creative leadership. For example, Mumford et al. (2002) found that one of the key elements in creating a climate for creativity was the role that leaders and managers play in establishing an environment that supports the generation and exchange of diverse ideas.

The Conflict Climate Dimension

Conflict, from a climate perspective, is defined as the presence of personal and emotional tensions in the organization (Isaksen & Ekvall, 2007). When the level of conflict is high, groups and individuals dislike and may even hate each other. The climate can be characterized by 'interpersonal warfare'. Plots, traps and power or territory struggles are usual elements in the life of the organization. Personal differences yield gossip, slander and backstabbing. In the opposite case, people behave with much less negative affect; they have psychological insight and control of their impulses. Also, people accept and deal effectively with diversity ($\alpha = 0.856$; Isaksen & Ekvall, 2007).

Examples of Conflict items with manifest factor loadings include: 'there is a great deal of personal tension here' (0.84), 'there are quite a few people here who cannot tolerate each other' (0.81), 'it is common here to have people plot against each other' (0.81), and 'there are power and territory struggles here' (0.76).

Conflict can manifest from high levels of occupational stress, in which employees and colleagues perceive so much pressure that they fail to control their impulses or behave in a mature manner having a detrimental effect on creativity (Talbot, Cooper & Barrow, 1992). Conflict can also be seen through the occurrence of bullying or incivility in the workplace (Pearson & Porath, 2005). Conflict can produce lower levels of job satisfaction and a decreased sense of well-being (Turnipseed, 1994).

Table 2. Debate and Conflict Scores Across Studies[a]

Description of study	Average Debate scores	Average Conflict scores
Ekvall (1991) Study of Innovative and Stagnated Organizations		
10 Innovative organizations ($N = 630$)	158	78
5 Stagnated organizations ($N = 275$)	105	140
Isaksen & Lauer (2001) Perceived Support for Innovation		
Not supportive ($N = 201$)	128	178
Supportive to some extent ($N = 609$)	167	136
Fairly supportive ($N = 702$)	201	108
Highly supportive ($N = 318$)	233	77
Aerts (2008) Study of Best and Worst-Case Climates		
Best case ($N = 213$)	214	59
Worst case ($N = 213$)	88	156
Isaksen & Lauer (2002) Study on Most and Least Creative Teams		
Most creative ($N = 154$)	231	27
Least creative ($N = 154$)	83	123
Akkermans (2008) Study of Leadership Support for Innovation		
Not at all effective ($N = 12$)	178	174
Effective to some extent ($N = 40$)	193	120
Fairly effective ($N = 53$)	218	69
Effective to a high degree ($N = 35$)	243	50

[a] Both Debate and Conflict dimensions have a theoretical range of 0–300.

Results from Previous Climate Studies on Debate and Conflict

The Scandinavian studies with the CCQ, and the US studies with the SOQ, present information about the two tension dimensions that might be of importance for leadership and organizational policy concerning innovation and development. The distinction made between idea tension in the Debate dimension and personal tension within the Conflict dimension may provide an additional conceptual lens within the scientific argument for and against conflict (De Dreu, 2008; Tjosvold, 2008).

The following summaries are presented to illustrate the clear difference between Conflict and Debate across cultures, and on a variety of levels of analysis. The original cited sources provide more detail on the purposes, methods, sampling and results. It should be noted that these studies are descriptive in nature, and that we cannot be sure if the climate affects innovation, or if it is the other way around. Perhaps the higher levels of innovation impact the climate. Further research will be required to establish the causal nature of the relationships.

Ekvall (1991) studied the innovative capacity of 30 small Swedish companies (no more than 200 employees each). Ten of the companies were distinctly innovative in developing new products and services to meet changes in the market, whereas five of them had not succeeded in doing that; they had performed innovatively earlier, but lost those capacities and stagnated. Table 2 presents mean scores on the Debate and Conflict dimensions of the companies, as well as the means for the other studies summarized in this article. People in the innovative companies perceive considerably more Debate ($x^2 = 0.52$, $p < 0.01$) and less Conflict than people in the stagnated companies ($x^2 = –0.61$, $p < 0.001$).

Perceived support for innovation has been identified as an important element within the working environment that supports creativity (Amabile et al., 2004). Isaksen and Lauer (2001) studied the level of support for innovation of 1,830 individuals and compared their climate results for four groups: 'Not supportive', 'Supportive to some extent', 'Fairly supportive' and 'Highly supportive'. A one-way analysis of variance (ANOVA) showed that the differences were significant. Regarding the

Table 3. Inter-Correlations among SOQ Dimensions (n = 7345)

Dimension	1	2	3	4	5	6	7	8	9
Challenge/Involvement	1.00								
Freedom	0.50	1.00							
Trust/Openness	0.62	0.41	1.00						
Idea-Time	0.46	0.50	0.39	1.00					
Playfulness/Humor	0.52	0.42	0.51	0.48	1.00				
Conflict	–0.36	–0.15	–0.47	–0.19	–0.32	1.00			
Idea-Support	0.65	0.51	0.59	0.61	0.59	–0.40	1.00		
Debate	0.52	0.45	0.46	0.47	0.49	–0.19	0.67	1.00	
Risk-Taking	0.55	0.58	0.47	0.57	0.49	–0.16	0.66	0.60	1.00

All correlations are significant at $p < 0.01$ level (source: Isaksen & Ekvall, 2007).

Debate dimension, the mean scores are higher for the more supportive environments ($F = 216.80$, $p < 0.001$, d.f. = 3, 1,826). On the Conflict dimension, the tendency is the opposite: the higher the mean score, the less the work environment is supportive of creativity ($F = 158.53$, $p < 0.001$, d.f. = 3, 1,826).

Aerts (2008) examined the differences in the climate for creativity between respondents' best- and worst-case work experiences on a sample of 213 participants. There was more than sufficient support for aggregating the best- and worst-case climate scores (best-case $r_{wg} = 0.91$, $p < 0.0001$; worst-case $r_{wg} = 0.85$, $p < 0.0001$). A one-way ANOVA was conducted and the results clearly indicated that Debate was significantly higher ($F = 464.88$, $p < 0.0001$, $\eta^2 = 0.10$, d.f. = 1) and Conflict lower ($F = 171.89$, $p < 0.0001$, $\eta^2 = 0.06$, d.f. = 1) in the best-case work situations and vice versa for the worst-case work situations. Isaksen et al. (2001) found similar results with samples of managers and graduate and undergraduate students.

Isaksen and Lauer (2002) studied the differences between most and least creative teams with 154 participants within a large global professional services firm. When the respondents considered their most creative team situations, Debate was significantly higher ($t = 15.2$, $p < 0.01$, d.f. = 2, 152) and Conflict lower ($t = –0.31$, $p < 0.001$, d.f. = 2, 152). When they reflected on their least creative team experiences, they reported significantly lower Debate and higher Conflict.

Akkermans (2008) examined differences in climate in relation to levels of leadership effectiveness in deliberately creating a climate for innovation with 140 participants from 103 different companies located in ten different countries. The differences among the levels of effectiveness of leaders in creating an environment supportive of innovation and climate results were examined by conducting a one-way ANOVA. The more effective the leaders were, the higher the Debate ($F = 7.335$, $p < 0.0001$, d.f. = 3, 136) and lower the Conflict scores ($F = 18.33$, $p < 0.0001$, d.f. = 3, 136).

The Current Study: The Relationship between Debate and Conflict in Climate for Innovation

These consistent, albeit descriptive, findings clearly demonstrate that tension can be viewed positively as Debate and negatively as Conflict across multiple levels of analysis, yet another question that emerges is the exact nature of the relationship between these two dimensions when considering level of innovation. Although the dimensions of the SOQ are factorially independent, and the nine-dimensional model represents a good fit to the data, we would expect some inter-correlation among the dimensions. The correlation matrix for the nine dimensions is given in Table 3. Conflict relates negatively to all other climate variables, and has a relatively small, yet significant, negative correlation to Debate.

In order to delve deeper into the relationships among and between these two dimensions, we examined how the various combinations of Debate and Conflict affected level of innovation. We hypothesized that these dimensions would be two conceptually distinct forms of tension within the broader climate construct.

Sample

Respondents were drawn from four samples of convenience. The sample of 140 participants from Akkermans' (2008) global survey of

Table 4. Descriptive Results (N = 481)

Dimension	Mean	Range	SD	Cronbach's alphas	r_{wg}
Challenge/Involvement	216	43–300	53.106	0.850	0.903
Freedom	175	0–300	61.148	0.860	0.853
Trust/Openness	174	0–300	59.093	0.774	0.815
Idea-Time	135	0–300	70.089	0.897	0.803
Playfulness/Humor	175	0–300	68.326	0.901	0.826
Conflict	103	0–300	68.868	0.862	0.771
Idea-Support	182	0–300	66.627	0.906	0.839
Debate	198	0–300	59.224	0.883	0.882
Risk-Taking	147	0–300	61.081	0.834	0.835
Level of Innovation	3.532	0–6	1.491	0.811	0.667

Note: Theoretical range of climate dimension scores is 0–300.

103 organizations was supplemented by a global innovation study of a pharmaceutical company including 270 participants. These were drawn from Europe (83), Latin America (29), North America (88), Middle East and Asia (70), and included a full range of management (front-line to senior executives). In addition, 71 nursing staff from two Veterans Administration Hospitals were included. One was located in Florida (30) and the other in Minnesota (41). This resulted in a total sample of 481. For those who provided demographic information ($n = 197$), the age range was 26–65, with an average age of 42.3 (SD = 7.29). A total of 36 females and 65 males indicated their gender.

Procedure

The respondents completed the web-based version of the Situational Outlook Questionnaire including 53 items assessing the nine climate dimensions and responded to two additional questions to assess the degree of innovation. These were combined and averaged to allow for a single score, ranging from 0 to 6, and functioned as the dependent variable. The questions were: 'We are successful in implementing new ideas to obtain results in my work unit' and 'In general, my organization has been successful at innovation'.

We examined the level of innovation among four groupings: low Debate–low Conflict, low Debate–high Conflict, high Debate–low Conflict, and high Debate–high Conflict. We removed those who scored within a half standard deviation from the mean (in both directions) for all four groups resulting in an examination of 311 respondents who had clear low and high scores. This allowed for an analysis of the combination of both climate dimensions across the means on level of innovation of the four groups.

The next step included hierarchical stepwise linear multiple regression applied to the complete data set to examine the potential differences in the amount of variance accounted for by both Debate and Conflict in predicting the level of innovation.

Results

The correlation between Debate and Conflict scores was –0.21 ($p < 0.0001$) for this sample. The correlation between Debate and level of innovation was 0.48 ($p < 0.0001$) and between Conflict and level of innovation it was –0.32 ($p < 0.0001$). The means, ranges, standard deviations, Cronbach's alphas and IRR (r_{wg}) results for the total sample are reported in Table 4.

The means, ranges and standard deviations for the four groups are reported in Table 5. The highest average level of innovation was found for the high Debate–low Conflict group, and this average was significantly better than the high Debate–high Conflict group ($F = 17.53$, $p < 0.0001$, partial $\eta^2 = 0.076$, d.f. = 1, 212), the low Debate–high Conflict group ($F = 55.71$, $p < 0.0001$, partial $\eta^2 = 0.225$, d.f. = 1, 192), and the low Debate–low Conflict group ($F = 8.79$, $p < 0.003$, partial $\eta^2 = 0.047$, d.f. = 1, 179). The only non-significant difference was found between the low Debate–low Conflict and high Debate–high Conflict groups ($F = 0.16$, $p < 0.69$, partial $\eta^2 = 0.001$, d.f. = 1, 115). These results indicated that the optimum condition for level of innovation was relatively higher levels of Debate and lower levels of Conflict.

Table 5. Results for Groupings on Innovation (n = 311)

Groupings	N	Mean	Range	SD
Low Debate-Low Conflict	42	3.38	2.97–3.79	1.31
Low Debate-High Conflict	55	2.44	2.11–2.76	1.21
High Debate-Low Conflict	139	4.15	3.90–4.41	1.52
High Debate-High Conflict	75	3.28	2.98–3.58	1.31

Visual inspection of the standardized residuals on the regression lines for both Debate and Conflict indicated linearity. The variance inflation factors for both dimensions were 1.044, well below the problematic number of 10 that would indicate multicollinearity (Kleinbaum, Kupper & Muller, 1988). The regression of both Debate and Conflict against level of innovation resulted in a coefficient of multiple determination (R^2) for Debate of 0.229 ($F = 141.51$, d.f. = 1, 476, $p < 0.0001$). When Conflict was added to the equation, the R^2 was 0.281 ($\Delta R^2 = 0.052$, F for $\Delta R^2 = 34.44$, d.f. = 1, 475, $p < 0.0001$) showing significant additional explanatory impact. Debate was the more potent predictor for level of innovation (β for Debate was 0.432, SE = 0.001, $t = 10.887$, $p < 0.0001$; β for Conflict was –0.233, SE = 0.001, $t = –5.869$, $p < 0.0001$).

When we controlled for Debate the R^2 decreased from 0.256 to 0.092 ($F = 48.671$, $p < 0.0001$, SE = 0.001, d.f. = 1, 479, $\beta = –0.304$). When controlled for Conflict the resulting R^2 was 0.210 ($F = 127.15$, $p < 0.0001$, SE = 0.001, d.f. = 1, 479, $\beta = 0.458$). The partial correlation between Conflict and level of innovation was –0.241 ($p < 0.0001$), and for Debate it was 0.424 ($p < 0.0001$). Debate was consistently the more potent predictor variable, although each dimension made a unique contribution in explaining the variance for level of innovation.

Implications for Future Inquiry

The findings of the current study support the hypothesized relationship that there are two distinct faces of tension when considering the climate for innovation and creativity, and that they are not merely mirror images of each other. Even though respondents were assured of anonymity, these results may be limited by common method variance (Podsakoff et al., 2003) and will require replication and extension with improved sampling and independent assessments of level of innovation.

The findings offer some assurance that Debate and Conflict are two independent forms of tension that coexist when people interact. The crucial questions revolve around how Debate promotes and how Conflict hampers creativity within workplaces. For some, the ability to think creatively is a matter of utilizing a wide variety of associations (Sternberg, Grigorenko & Singer, 2004). Combining and recombining these associations in new and useful ways can stimulate creativity in individuals, groups and organizations (Koestler, 1964; Taylor & Getzels, 1975). Psychosocial working environments characterized by constant exchange of different and unusual ideas and viewpoints create a fruitful soil for this sort of activity. The hampering effects of the Conflict dimension are also clear. In working environments where plots, power and prestige struggles characterize the atmosphere, the occurrence of constructive idea exchanges is reduced and may come at too high a cost. In order to stimulate and encourage creativity within the workplace, managers and leaders need to be aware of this critical difference in kind of tension and work to reduce the personal tension while finding an appropriate level of idea tension.

The findings within the creative climate studies have clear parallels within the conflict management literature. On a conceptual level the synergy between these two domains transcends semantics, and points to various areas for integration and complementary findings. Despite differences in nomenclature, both literatures distinguish between two forms of tension and agree that they coexist and must be managed effectively in order to produce innovation and creativity (De Dreu & Weingart, 2003). There are other potential benefits from 'harmonizing' these two domains.

Another parallel trend is that both domains are reporting valuable insights by pursuing multi-method and longitudinal inquiry (Jehn, 1995, 1997; Jehn & Mannix, 2001; Isaksen, 2007b). Future inquiries would surely benefit from both quantitative and qualitative methods, as well as considering the dynamic and longer-term understanding of how tension emerges and might be managed.

This study did not uncover a curvilinear relationship between Debate and innovation.

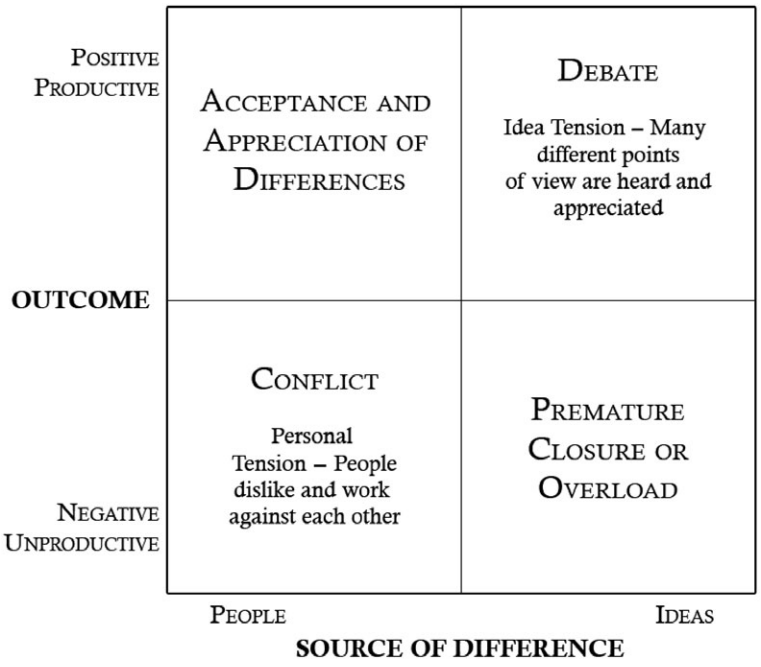

Figure 1. Constructive Use of Differences

Given Jehn's (1995) previous finding that task conflict demonstrated a non-linear relationship to outcomes when engaged in non-routine tasks, this issue deserves further attention. Jehn's (1995) indication was that there was an optimal level of task conflict for these groups. It is reasonable to theorize that organizations and teams can have too much of a good thing, and that Debate could be too high when considering other dependent measures. Both domains would benefit from further inquiry into the exact relationship of both kinds of tension on a number of outcome variables.

Another interesting area of synergy between these two literatures is the notion that tension can be productive under certain conditions. Although the current study focused on Debate and Conflict, other dimensions and variables may play important intervening roles. For example, Jehn (1995) indicated 'certain group members may have their own preferences for being open about or avoiding conflict' (p. 276). DeChurch, Hamilton and Haas (2007) reported 'the level of interrelation between task and relationship conflict was a function of the degree to which group members trusted one another' (p. 67). Future inquiry should examine the moderating or mediating effects of other climate variables (such as Trust) between both forms of tension and a variety of outcome measures related to innovation and creativity.

Practical Implications: Constructive Use of Differences

On a more practical level, there are a number of important implications to the way tension is perceived and managed. One way to consider these implications can be understood in terms of the potential outcomes from idea and people tension (see Figure 1).

Debate – Idea Tension

When the source of the tension is opposing ideas and the outcome is considered positive or productive, the situation can be called Debate. Consistent with the definition of Debate as a creative climate dimension, many different points of view can be exchanged, understood and appreciated. If there is too much Debate, there can be more talk and discussion than implementation, creating a productive avoidance situation. Individuals may speak and share their points of view, but there is little regard for actually understanding others' points of view. In these circumstances, the focus of conversation may be more individualistic and competitive, rather than on co-operative engagement with organizational goals. In short, it is possible to have too much diversity.

If there is too little Debate, people may not be willing to engage others in conversation

regarding new ideas, thoughts or concepts. Debate could be suppressed and limited to one-on-one, secretive conversations. This condition may result from the way new ideas have been treated in the past or from a lack of management support for open engagement of employees.

The aim is to find the most appropriate level of Debate for any specific context, organizational division or team. Managers and leaders can play a crucial role by clarifying and reinforcing the rationale for Debate by: increasing the degree to which formal and informal interaction takes place; modelling effective, generous and active listening; and promoting team building in an effort to promote constructive controversy.

Premature Closure or Overload

When the source of tension is opposing ideas and points of view, and the outcome is considered negative or unproductive, the situation can be described as premature closure or overload. In this situation many different and opposing ideas may be exchanged, but if they are not heard or understood effectively, the result could be closing down on an option too quickly and not considering or fully appreciating the full spectrum of possibilities. Janis and Mann (1977) have identified this condition as group-think. An alternative unproductive way this situation can occur is that too many alternatives are shared, so many that the group is overloaded and unable to make effective decisions or take productive action.

One of the main expressed benefits of productive conflict is the potential positive effects of exchanging different points of view and avoiding group-think (Tjosvold, 2008), but if the conditions are such that those with more influence close down the exchange too early, then the benefits cannot materialize. The other extreme could also be the case. Without appropriate management, groups could continue to generate, exchange and proliferate alternatives to the point that it is difficult to focus and converge effectively.

Conflict – Personal Tension

When the source of the tension is people, and the outcome is negative or unproductive, the situation can be called conflict (Jehn, 1997). Consistent with the definition of Conflict as a creative climate dimension, people dislike or even hate each other and attempt to devalue and show aggression towards each other. There are clear costs associated with workplace incivility including lost time at work, decreased productivity and job satisfaction, and increased burnout, anxiety and employee turnover (Sutton, 2007). These situations of high Conflict call for some sort of intervention to help people behave with more insight and maturity – aimed at understanding and appreciating differences.

No organizations involved within the Scandinavian or US programmes of research have obtained scores indicating non-existent (or zero levels) of Conflict. These results confirm Tjosvold's (2008) assertion that the 'conflict-free' organization is unrealistic. It seems that a certain degree of personal tension is inevitable and a complete lack of Conflict could reflect a lack of involvement or attachment to work. In these conditions it is likely that meetings become 'tell and forget' situations in which consensus is avoided, and that people lack any outward sign of motivation or interest in work. The implication for those who lead and manage within organizations is clear: they must generally encourage exchange of different points of view and discourage the personal tension associated with this diversity.

Acceptance and Appreciation of Differences

When the source of tension is differences in people and the outcome is perceived as positive and productive, the situation can be described as acceptance and appreciation of differences. In this situation, people accept and understand the differences in personality, style or other factors, and can both appreciate and make good use of them. The following section of this article focuses on strategies that promote acceptance and appreciation.

Potential Strategies for Promoting Constructive Use of Differences

If we can better understand the different ways the sources of tension operate and produce different kinds of outcomes, we are in a better position to manage them. A variety of methods can help manage or resolve conflict and they include: avoiding, collaborating, compromising, competing and accommodating (Deutsch, Coleman & Marcus, 2006; De Dreu & Gelfand, 2008). In addition to the traditional conflict management strategies, and in light of the two distinct faces of tension, there are additional strategies that might increase the positive aspects of Debate, improve the appreciation of differences and reduce the likelihood of premature closure and overload.

Deliberate Process Facilitation

Managing tension is a dynamic process. When people interact there is potential for role con-

fusion and ambiguity to emerge about how they are to work together. This potential can lead to process losses, decreased efficiency and satisfaction and increased personal tension. Having a dedicated facilitator role within groups, or training members in general facilitation, may help (Offner, Kramer & Winter, 1996; Oxley, Dzindolet & Paulus, 1996). A facilitator's role is focused on managing the process structure. Having and maintaining a process structure can help groups consider and integrate new divergent perspectives (Montoya-Weiss, Massey & Song, 2001; Paulus & Nakui, 2005).

An example of encouraging idea tension while reducing personal tension is the well-known creativity technique called brainstorming. Osborn (1953) initially described this technique as a way to encourage the creative collaboration of groups. Many studies have been conducted on the efficacy of brainstorming and identified key barriers to its effective application (Sutton & Hargadon, 1996). Isaksen and Gaulin (2005) found that when trained facilitators were used to help groups generate many, varied and original ideas, there was a 400–600 per cent improvement in fluency.

Facilitation can minimize the unproductive process losses that occur during group interaction whether the facilitator is one trained in conflict resolution strategies, mediation, negotiation or creative problem solving. Numerous facilitation strategies and programmes are available (Bohm, 1996; Stanfield, 2000) and further research needs to be done to better understand the impact of these strategies upon both the work climate and the production of organizational outcomes.

Use of Style Assessments

The study of human behaviour must consider the state of both the individual and the environment (Lewin, 1936; Murray, 1938). Individual differences are likely to play a role in perceptions of interaction and the nature of the context. Diverse groups are far more likely to experience higher potential for tension. When the source of tension is personal, helping people to better understand and appreciate their differences can help to reduce the tension. There are many different kinds of assessments designed to provide insights about individual differences. Many of these measure the level or capacity of individuals (like intelligence or other abilities). Others are designed to measure style or preferred mode of thinking or problem solving. It may be more effective to use style assessments to address personal tension as they are value neutral – no style is inherently better or worse than another.

One such measure is VIEW: an assessment of problem solving style (Treffinger, Selby & Isaksen, 2008). VIEW is based on theories of learning (Dunn & Dunn, 1993) and cognitive style (Kirton, 2003), psychological type (Myers & McCaulley, 1985), and includes three dimensions of problem-solving style. Problem-solving style was defined as consistent individual differences in the ways people prefer to plan and carry out generating and focusing activities in order to gain clarity, produce ideas and prepare for action. An individual's natural disposition towards change management and problem solving is influenced in part by mindset, willingness to engage in and respond to a situation as presented, and the attitudinal dimensions of one's personality. VIEW can be applied first to help individuals understand their own preferences, and then to help all members understand and appreciate the contributions of the diversity of styles within the group or team.

For example, one dimension of VIEW assesses people's preferences for their ways of deciding. The task-oriented decider is someone who prefers to examine first choices that are logical, sensible, and that can be objectively justified, and focuses on results or outcomes that are the highest possible quality. The people-oriented decider is someone who prefers to consider first the effect or impact of the choices on people, their feelings, and focuses on the need to create and maintain harmony and positive relationships. Given the same observed behaviour, people-oriented deciders are more likely to be more sensitive to person-oriented tension, seeing more Conflict in situations than task-oriented deciders (Aerts, 2008). Given the potential for individual differences in style affecting the perception of the situation, obtaining insight from style assessments may help build awareness of these differences and assist in creating norms to maximize the productive use of them. There is a clear need for further research to be done considering individual differences in the work environment, and the work done by Aerts (2008) should be extended and replicated.

Deliberate Climate Assessments

Since relationship or personal Conflict has consistently been shown to harm group productivity, the only way task conflict or Debate can be productive is for it to remain distinct from Conflict. One way to manage this distinction is to regularly apply climate assessments. Hunter, Bedell and Mumford (2007) have

demonstrated that the highest effect sizes on innovation and productivity are obtained when standardized rather than 'home grown' climate assessments are applied. They recommend using well developed and researched instruments. The CCQ/SOQ climate assessments were reported to fit these criteria, and can be readily applied on a group or team, as well as at an organizational level. Further, these assessments go beyond simply providing data. They allow those who examine the results to identify likely behaviours observed, probable causes and potential strategies and tactics for climate improvement (Isaksen & Ekvall, 2007).

The application of these climate assessments can be focused on multiple levels. Leaders can benefit from examining their individual perceptions, and those of their constituents in order to improve conditions for creativity and innovation (Isaksen, 2007b). Teams can apply climate assessments to improve their explicit understanding of their current working conditions and develop strategies for improved performance (Anderson & West, 1998; Isaksen & Lauer, 2002). Climate assessments can be used on an organizational or divisional level in an effort to deliberately establish conditions for change and creativity (Amabile et al., 1996). Further research should be conducted to deepen our understanding of how the many facets of the organizational work environment may co-exist and to link climate to a variety of important organizational outcomes (Kuenzi & Schminke, 2009). In addition, further multimethod research should be conducted to establish the differential effects of both the Conflict and Debate dimensions of climate to better understand how much variance is accounted for each, and the more precise relationship between the two on a range of dependent measures.

Conclusion

Research and practice within the area of climates for creativity provide clear support for the existence of two distinct kinds of tension – Debate and Conflict. These two climate dimensions are factorially independent and inversely correlated. The picture that emerges across studies is that Debate reflects a more productive idea tension, whereas Conflict suggests a less productive personal tension. The management challenge for innovation is to create a climate that encourages the right level of Debate and exchange of different points of view without incurring the negative costs of Conflict.

The distinction between Conflict and Debate within creative climate research may add something of value to the current stream of the conflict management literature and vice versa. Debate and Conflict co-exist in the climates of varying levels of analysis, as do the different kinds of conflict described in the conflict management literature. The critical issue for further inquiry is how might those who manage, lead and work within organizations promote the more positive kind of tension and reduce the more negative. This issue could be explored further within the areas of conflict management, person-environment fit, and leadership for innovation.

Acknowledgements

The authors would like to express appreciation to Wouter Aerts and Erik Isaksen for their assistance in the statistical analyses performed in this article, and to the reviewers who offered helpful advice for its revision.

References

Aerts, W. (2008) Exploring the Relationships between Problem-Solving Style and Climates in Best and Worst-Case Work Environments. Unpublished Masters thesis, VLEKO University, Brussels, Belgium.

Akkermans, H. (2008) *Leadership Behavior and Climate: A Multi-Method Exploratory Investigation of the SOQ and Proximal Leadership Behaviors that Help and Hinder Innovation*. Unpublished Masters thesis, VLEKO University, Brussels, Belgium.

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.

Amabile, T.M., Schatzel, E.A., Moneta, G.B. and Kramer, S.J. (2004) Leader Behaviors and the Work Environment for Creativity: Perceived Leader Support. *The Leadership Quarterly*, 15, 5–32.

Amason, A.C. (1996) Distinguishing the Effects of Functional and Dysfunctional Conflict on Strategic Decision Making: Resolving a Paradox for Top Management Teams. *Academy of Management Journal*, 39, 123–48.

Anderson, N.R. and West, M.A. (1998) Measuring Climate for Work Group Innovation: Development and Validation of the Team Climate Inventory. *Journal of Organizational Behavior*, 19, 235–68.

Arieti, S. (1976) *Creativity: The Magic Synthesis*. Basic Books, New York.

Behfar, K.J., Peterson, R.S., Mannix, E.A. and Trochim, W.M. (2008) The Critical Role of Conflict Resolution in Teams: A Close Look at the Links between Conflict Type, Conflict Management Strategies, and Team Outcomes. *Journal of Applied Psychology*, 93, 170–88.

Bohm, D. (1996) *On Dialogue*. Routledge, London.
Cheung, G.W. and Rensvold, R.B. (2002) Evaluating Goodness-of-Fit Indexes for Testing Measurement Invariance. *Structural Equation Modeling*, 9, 233–55.
Cohen-Meiter, R., Carmeli, A. and Waldman, D.A. (2009) Linking Meaningfulness in the Workplace to Employee Creativity: The Intervening Role of Organizational Identification and Positive Psychological Experiences. *Creativity Research Journal*, 21, 361–75.
CPP (2008) Workplace Conflict and How Businesses Can Harness it to thrive: CPP Global Human Capital Report. Consulting Psychologists Press, Mountainview, CA.
Davis, T. (2000) *Global Innovation and Growth Survey*. PricewaterhouseCoopers, London.
DeChurch, L.A., Hamilton, K.L. and Haas, C. (2007) Effects of Conflict Management Strategies on Perceptions of Intragroup Conflict. *Group Dynamics: Theory, Research, and Practice*, 11, 66–78.
De Dreu, C.K.W. (2006) When Too Little or Too Much Hurts: Evidence for a Curvilinear Relationship between Task Conflict and Innovation in Teams. *Journal of Management*, 32, 83–107.
De Dreu, C.K.W. (2008) The Virtue and Vice of Workplace Conflict: Food for (Pessimistic) Thought. *Journal of Organizational Behavior*, 29, 5–18.
De Dreu, C.K.W. and Gelfand, M.J. (eds.) (2008) *The Psychology of Conflict and Conflict Management in Organizations*. Lawrence Erlbaum, New York.
De Dreu, C.K.W. and Weingart, L.R. (2003) A Contingency Theory of Task Conflict and Performance in Groups and Organizational Teams. In West, M.A., Tjosvold, D. and Smith, K.G. (eds.), *International Handbook of Teamwork and Cooperative Working*. Wiley, Chichester, 151–66.
Denison, D.R. (1996) What is the Difference between Organizational Culture and Organizational Climate? A Native's Point of View on a Decade of Paradigm Wars. *Academy of Management Review*, 21, 619–54.
Deutsch, M. (1949) A Theory of Cooperation and Competition. *Human Relations*, 2, 129–52.
Deutsch, M. (1973) *The Resolution of Conflict: Constructive and Destructive Processes*. Yale University Press, New Haven, CT.
Deutsch, M., Coleman, P.T. and Marcus, E.C. (2006) *The Handbook of Conflict Resolution: Theory and Practice*, 2nd edn. Jossey-Bass, San Francisco, CA.
Dunn, R. and Dunn, K. (1993) *Teaching Secondary Students through their Individual Learning Styles*. Allyn & Bacon, Boston, MA.
Ekvall, G. (1967) *Industrial Suggestion Schemes: Studies Concerning their Psychological Background*. The Swedish Council for Personnel Administration, Stockholm.
Ekvall, G. (1971) *Creativity at the Place of Work: A Study of Suggestors and Suggestion Systems in the Swedish Mechanical Industry*. The Swedish Council for Personnel Administration, Stockholm.
Ekvall, G. (1983) *Climate, Structure and Innovativeness of Organizations: A Theoretical Framework and an Experiment – Report 1*. The Swedish Council for Management and Organizational Behavior, Stockholm.
Ekvall, G. (1987) The Climate Metaphor in Organization Theory. In Bass, B. and Drenth, P. (eds.), *Advances in Organizational Psychology*. Sage, Beverly Hills, CA, 177–90.
Ekvall, G. (1991) The Organizational Culture of Idea-Management: A Creative Climate for the Management of Ideas. In Henry, J. and Walker, D. (eds.), *Managing Innovation*. Sage, London, 73–79.
Ekvall, G. (1996) The Organizational Climate for Creativity and Innovation. *European Journal of Work and Organizational Psychology*, 5, 105–23.
Ekvall, G. (1997) Organizational Conditions and Levels of Creativity. *Creativity and Innovation Management*, 6, 195–205.
Ekvall, G., Arvonen, J. and Waldenström-Lindblad, I. (1983) *Creative Organizational Climate: Construction and Validation of a Measuring Instrument – Report 2*. The Swedish Council for Management and Organizational Behavior, Stockholm.
Firenze, R.J. (1998) *A Study of Performance Improvement Strategies of Manufacturing and Service Organizations*. The ILMC Center for Manufacturing and Service Excellence, Indianapolis, IN.
Fløistad, G. (2000) *The Art of Getting Along: A Book about Leadership, Company Culture and Ethics*. Gyldendal Academic Publishers, Oslo.
Fredrickson, B.L. (2001) The Role of Positive Emotions in Positive Psychology. *American Psychologist*, 56, 218–26.
Fritz, R. (1991) *Creating*. Fawcett Columbine, New York.
Gelfand, M.J., Leslie, L.M. and Keller, K.M. (2008) On the Etiology of Conflict Cultures. *Research in Organizational Behavior*, 28, 137–66.
Harter, J.K., Schmidt, F.L. and Keyes, C.L. (2002) Well-Being in the Workplace and its Relationship to Business Outcomes: A Review of the Gallup Studies. In Keyes, C.L. and Haidt, J. (eds.), *Flourishing: The Positive Person and the Good Life*. American Psychological Association, Washington, DC, 205–24.
Hausman, C.R. (1984) *A Discourse on Novelty and Creation*. SUNY Press, Albany, NY.
Hunter, S.T., Bedell, K.E. and Mumford, M.D. (2007) Climate for Creativity: A Quantitative Review. *Creativity Research Journal*, 19, 69–90.
Isaksen, S.G. (2007a) The Situational Outlook Questionnaire: Assessing Context for Change. *Psychological Reports*, 100, 455–66.
Isaksen, S.G. (2007b) The Climate for Transformation: Lessons for Leaders. *Creativity and Innovation Management*, 16, 3–15.
Isaksen, S.G. and Ekvall, G. (with contributions from Akkermans, H., Wilson, G.V. and Gaulin, J.P.) (2007) *Assessing the Context for Change: A Technical Manual for the SOQ – Enhancing Performance of Organizations, Leaders and Teams for over 50 Years*, 2nd edn. The Creative Problem Solving Group, Inc., Orchard Park, NY.
Isaksen, S.G. and Gaulin, J.P. (2005) A Reexamination of Brainstorming Research: Implications for Research and Practice. *Gifted Child Quarterly*, 49, 315–29.
Isaksen, S.G. and Lauer, K.J. (2001) Convergent Validity of the Situational Outlook Questionnaire: Discriminating Levels of Perceived Support for

Creativity. *North American Journal of Psychology*, 3, 31–40.
Isaksen, S.G. and Lauer, K.J. (2002) The Climate for Creativity and Change in Teams. *Creativity and Innovation Management*, 11, 74–86.
Isaksen, S.G. and Tidd, J. (2006) *Meeting the Innovation Challenge: Leadership for Transformation and Growth*. Wiley, Chichester.
Isaksen, S.G., Lauer, K.J., Ekvall, G. and Britz, A. (2001) Perceptions of the Best and Worst Climates for Creativity: Preliminary Validation Evidence for the Situational Outlook Questionnaire. *Creativity Research Journal*, 13, 171–84.
Jaffee, D. (2008) Conflict at Work throughout the History of Organizations. In De Dreu, C.K.W. and Gelfand, M.J. (eds.), *The Psychology of Conflict and Conflict Management in Organizations*. Lawrence Erlbaum, New York, 55–80.
Janis, I.L. and Mann, L. (1977) *Decision Making: A Psychological Analysis of Conflict, Choice, and Commitment*. The Free Press, New York.
Janssen, O., Van de Vliert, E. and Veenstra, C. (1999) How Task and Person Conflict Shape the Role of Positive Interdependence in Management Groups. *Journal of Management*, 25, 117–41.
Jehn, K.A. (1995) A Multimethod Examination of the Benefits and Detriments of Intragroup Conflict. *Administrative Science Quarterly*, 40, 256–82.
Jehn, K.A. (1997) Qualitative Analysis of Conflict Types and Dimensions in Organizational Groups. *Administrative Science Quarterly*, 42, 530–57.
Jehn, K.A. and Mannix, E.A. (2001) The Dynamic Nature of Conflict: A Longitudinal Study of Intragroup Conflict and Group Performance. *Academy of Management Journal*, 44, 238–51.
Johns, G. (2006) The Essential Impact of Context on Organizational Behavior. *Academy of Management Review*, 31, 386–408.
Johnson, S., Cooper, C., Cartwright, S., Donald, I., Taylor, P. and Millet, C. (2005) The Experience of Work-Related Stress across Occupations. *Journal of Management Psychology*, 20, 178–87.
Kahn, M.A., Afzal, H. and Rehman, K. (2009) Impact of Task Conflict on Employees' Performance in Financial Institutions. *European Journal of Scientific Research*, 27, 479–87.
Kirton, M.J. (2003) *Adaption-Innovation in the Context of Diversity and Change*. Routledge, London.
Kleinbaum, D., Kupper, L. and Muller, K. (1988) *Applied Regression Analysis and other Multivariable Methods*. PWS-Kent, Boston, MA.
Koestler, A. (1964) *The Act of Creation*. Macmillan, New York.
Kuenzi, M. and Schminke, M. (2009) Assembling the Fragments into a Lens: A Review, Critique, and Proposed Research Agenda for the Organizational Work Climate Literature. *Journal of Management*, 35, 634–717.
Lewin, K. (1936) *Principles of Topological Psychology*. McGraw-Hill, New York.
Lutgen-Sandvik, P., Tracey, S.J. and Alberts, J.K. (2007) Burned by Bullying in the American Workplace: Prevalence, Perception, Degree and Impact. *Journal of Management Studies*, 44, 837–62.
Montoya-Weiss, M.M., Massey, A.P. and Song, M. (2001) Getting it Together: Temporal Coordination and Conflict Management in Global Virtual Teams. *Academy of Management Journal*, 44, 1251–62.
Mumford, M.D., Scott, G.M., Gaddis, B. and Strange, J.M. (2002) Leading Creative People: Orchestrating Expertise and Relationships. *Leadership Quarterly*, 15, 705–50.
Murray, H.A. (1938) *Explorations in Personality*. Oxford University Press, New York.
Myers, I. and McCaulley, M. (1985) *Manual: A Guide to the Development and Use of the Myers–Briggs Type Indicator*. Consulting Psychologists Press, Palo Alto, CA.
Offner, A.K., Kramer, T.J. and Winter, J.P. (1996) The Effects of Facilitation, Recording, and Pauses on Group Brainstorming. *Small Group Research*, 27, 283–98.
Osborn, A.F. (1953) *Applied Imagination: Principles and Procedures of Creative Thinking*. Scribners, New York.
Oxley, N.L., Dzindolet, M.T. and Paulus, P.B. (1996) The Effects of Facilitators on the Performance of Brainstorming Groups. *Journal of Social Behavior and Personality*, 11, 633–46.
Paulus, P.B. and Nakui, T. (2005) Facilitation of Group Brainstorming. In Shuman, S. (ed.), *The IAF Handbook of Group Facilitation*. Jossey-Bass, San Francisco, CA, 103–44.
Pearson, C.M. and Porath, C.L. (2005) On the Nature, Consequences and Remedies of Workplace Incivility: No Time for 'Nice?' Think Again. *Academy of Management Executive*, 19, 7–18.
Podsakoff, P.M., MacKenzie, S.B., Lee, J.-Y. and Podsakoff, N.P. (2003) Common Method Biases in Behavioral Research: A Critical Review of the Literature and Recommended Remedies. *Journal of Applied Psychology*, 88, 879–903.
Puccio, G.J., Treffinger, D.J. and Talbot, R.J. (1995) Exploratory Examination of Relationships between Creativity Styles and Creative Products. *Creativity Research Journal*, 8, 157–72.
Rasulzada, F. and Dackert, I. (2009) Organizational Creativity and Innovation in Relation to Psychological Well-Being and Organizational Factors. *Creativity Research Journal*, 21, 191–8.
Rothenberg, A. (1979) *The Emerging Goddess: The Creative Process in Art, Science and other Fields*. University of Chicago Press, Chicago, IL.
Rothenberg, A. and Hausman, C.R. (1976) *The Creativity Question*. Duke University Press, Durham, NC.
Ryhammer, L. (1996) *Kreativ Funktion, Percept-Genetisk Rekonstruktion och Organisatoriska Forutsattningar for Kreativ Verksamhet*. Doctoral dissertation, Lund University Press, Lund, Sweden.
Schein, E.H. (2004) *Organizational Culture and Leadership*. Jossey-Bass, San Francisco, CA.
Schneider, B. (2000) The Psychological Life of Organizations. In Ashkanasy, N.M., Wilderom, C.P. and Peterson, M.F. (eds.), *Handbook of Organizational Culture and Climate*. Sage, Thousand Oaks, CA, xvii–xxii.
Shalley, C.E. and Gilson, L.L. (2004) What Leaders Need to Know: A Review of Social and Contextual Factors that Can Foster or Hinder Creativity. *The Leadership Quarterly*, 15, 33–53.

Ślusarczyk, A. (2005) *Środowisko pracy I cechy indywidualne pracownika jako wyznaczniki twórczości w organizacji*. Unpublished doctoral dissertation. Uniwersytet Jagielloński, Kraków.
Stanfield, R.B. (2000) *The Art of Focused Conversation*. New Society Publishers, Gabriola Island, BC.
Sternberg, R.J., Grigorenko, E.L. and Singer, J.L. (eds.) (2004) *Creativity: From Potential to Realization*. American Psychological Association, Washington, DC.
Sutton, R. (2007) Building the Civilized Workplace. *McKinsey Quarterly*, 2, 47–55.
Sutton, R.I. and Hargadon, A. (1996) Brainstorming in Context: Effectiveness in a Product Design Firm. *Administrative Science Quarterly*, 41, 685–718.
Talbot, R., Cooper, C. and Barrow, S. (1992) Creativity and Stress. *Creativity and Innovation Management*, 1, 183–93.
Taylor, I.A. and Getzels, J.W. (eds.) (1975) *Perspectives in Creativity*. Aldine, Chicago, IL.
Tidd, S.T., McIntyre, H.H. and Friedman, R.A. (2004) The Importance of Role Ambiguity and Trust in Conflict Perception: Unpacking the Task to Relationship Conflict Linkage. *International Journal of Conflict Management*, 15, 364–80.
Tjosvold, D. (2008) The Conflict-Positive Organization: It Depends on Us. *Journal of Organizational Behavior*, 29, 19–28.
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.
Tjosvold, D., Johnson, D.W., Johnson, R.T. and Sun, H. (2006) Competitive Motives and Strategies: Understanding Constructive Competition. *Group Dynamics: Theory, Research, and Practice*, 10, 87–99.
Treffinger, D.J., Selby, E.C. and Isaksen, S.G. (2008) Understanding Individual Problem-Solving Style: A Key to Learning and Applying Creative Problem Solving. *Learning and Individual Differences*, 18, 390–401.
Turnipseed, D. (1994) The Relationship between the Social Environment of Organizations and the Climate for Innovation and Creativity. *Creativity and Innovation Management*, 3, 184–95.
Tyler, T. and Blader, S. (2000) *Cooperation in Groups: Procedural Justice, Social Identity, and Behavioral Engagement*. Psychology Press, Philadelphia, PA.
Vincent, L.H., Bharadwaj, S.G. and Challagalla, G.N. (2004) Does Innovation Mediate Firm Performance? A Meta-Analysis of Determinants and Consequences of Organizational Innovation. Working Paper. Georgia Institute of Technology, Atlanta, GA.
West, M.A. (2002) Sparkling Fountains or Stagnant Ponds: An Integrative Model of Creativity and Innovation Implementation in Work Groups. *Applied Psychology*, 51, 355–87.
Xu, F. and Rickards, T. (2007) Creative Management: A Predicted Development from Research into Creativity and Management. *Creativity and Innovation Management*, 16, 216–28.

Scott Isaksen (sgiaway@cpsb.com) serves as the President of the Creative Problem Solving Group and Senior Research Fellow of its Creativity Research Unit. He is also a Professor of Organizational Leadership and Management at the Norwegian School of Management in Bergen.

Göran Ekvall (goran.ekvall@telia.com) is a Professor Emeritus of Industrial and Organizational Psychology at the University of Lund. Dr Ekvall is well known for his ground breaking research aimed at understanding the climate for creativity and innovation, as well as the many factors that influence climate creation in organizations.