European Journal of Work and Organizational Psychology

Publication details, including instructions for authors and subscription information: http://www.tandfonline.com/loi/pewo20

Team innovation and team effectiveness: The importance of minority dissent and reflexivity

Carsten K. W. De Dreu

Available online: 10 Sep 2010

To cite this article: Carsten K. W. De Dreu (2002): Team innovation and team effectiveness: The importance of minority dissent and reflexivity, European Journal of Work and Organizational Psychology, 11:3, 285-298

To link to this article: http://dx.doi.org/10.1080/13594320244000175

EUROPEAN JOURNAL OF WORK AND ORGANIZATIONAL PSYCHOLOGY, 2002, *11* (3), 285–298

Team innovation and team effectiveness: The importance of minority dissent and reflexivity

Carsten K.W. De Dreu
University of Amsterdam, The Netherlands

Past research suggests that minority dissent in teams may foster team innovations. It is hypothesized, however, that minority dissent would predict team innovations only when teams have high levels of reflexivity—the tendency to overtly reflect upon the group's objectives, strategies, and processes and adapt them to current or anticipated circumstances. This hypothesis was tested in a field study involving a heterogeneous sample of 32 organizational teams performing complex, ill-defined tasks. Results showed more innovation and greater team effectiveness under high rather than low levels of minority dissent, but only when there was a high level of team reflexivity. Avenues for future research are discussed.

Teams have become a basic building block of contemporary organizations, and insights into the factors that contribute to team performance have widespread implications for theories about small group behaviour as well as for organizations seeking to improve team effectiveness. For teams to be effective and to survive in a constantly changing environment, innovative capacity is critical. The current research was designed to enhance our understanding of team innovation—the introduction or application within a team of ideas, processes, products, or services that are new to that team and designed to be useful (West & Farr, 1990).

Two possible predictors that have received little attention in the research literature are examined. The first is minority dissent, which occurs when a minority in a group publicly opposes the beliefs, attitudes, ideas, procedures, and policies assumed by the majority of the group (De Dreu & West, 2001; McCleod, Baron, Weighner, & Yoon, 1997). The second predictor of team

Requests for reprints should be addressed to C.K.W. De Dreu, University of Amsterdam, Work and Organizational Psychology, Roetersstraat 15, 1018 WB Amsterdam, The Netherlands. Email: cdedreu@fmg.uva.nl

This research was financially supported by a Royal Netherlands Academy of Sciences fellowship awarded to Carsten K.W. De Dreu. Hanneke Franssen, Nieske Winters, and Bart de Vries are acknowledged for their assistance in collecting the data.

http://www.tandf.co.uk/journals/pp/1359432X.html DOI:10.1080/13594320244000175

performance is reflexivity, defined as "the extent to which team members overtly reflect upon the group's objectives, strategies, and processes and adapt them to current of anticipated endogenous or environmental circumstances" (West, 1996, p. 559). In this article, it will be argued and shown that minority dissent predicts innovation especially in teams with high levels of reflexivity. Effects on overall team effectiveness are explored.

MINORITY DISSENT, DIVERGENT THINKING, AND INNOVATION IN TEAMS

Since the pioneering work by Asch (1956) and Moscovici, Lage, and Naffrechoux (1969), a tremendous amount of research has examined the influence of minority dissent on attitudes and beliefs held by members of the majority (for more recent reviews, see Cialdini & Trost, 1998; Wood, Poal, Leck, & Purvis, 1996). Far less attention has been given to the possible influence of minority dissent on team functioning and team performance in organizations. Nevertheless, some useful and interesting studies have appeared more recently, basically suggesting minority dissent in groups may be quite beneficial and productive. For example, Peterson, Owens, Tetlock, Fan, and Martorana (1998) found that successful top management teams encouraged dissent in private meetings. Likewise, Dooley and Fryxell (1999) observed that, provided loyalty and competence within teams, dissent was associated with higher quality of decision making in strategic decision-making teams in US hospitals. Laboratory experiments suggest minority dissent prevents defective decision making because dissent encourages other group members to resist conformity pressures (Nemeth & Chiles, 1988), and reduces the individual's tendency to become more extremist over time (Smith, Tindale, & Dugoni, 1996).

Minority dissent not only prevents premature movement to consensus, but also alters the way group members think about, and perceive the situation, including the tasks to be performed. Gruenfeld, Thomas-Hunt, and Kim (1998) studied the effects of minority dissent on integrative complexity—the individual's tendencies to exhibit (1) conceptual differentiation such as the recognition of multiple alternatives, and (2) conceptual integration such as the recognition of possible trade-offs among alternatives. Their research showed members of majority factions scored higher on integrative complexity when being confronted with minority dissent. Other studies have shown that minority dissent enhances creativity and divergent thought in majority members. For example, Van Dyne and Saavedra (1996) used a longitudinal design with natural groups who had to analyse two ambiguous cases that emphasized divergent thinking and idea generation. Some group members were given private instructions to adopt a deviant position, that is, to act as a minority dissenter. Results showed that designated minority agents received relatively positive

evaluations from their peers, and promoted and facilitated role differentiation and concomitant specialization. Interestingly, groups with a minority influence agent produced more creative ideas and had more divergent perspectives on the task than groups lacking a minority influence agent.

That minority dissent increases creative and divergent thinking has been shown many times in the laboratory using ad hoc groups with no history or future (De Dreu & Beersma, 2001; Nemeth & Staw, 1989). An exception to this practice is a study conducted by De Dreu and West (2001), who hypothesised that minority dissent would be related to team innovations. In two field studies with on-going, semi-autonomous teams from a variety of organizations they measured minority dissent through a newly developed set of questionnaire items, and assessed team innovation by interviewing team supervisors. Their results showed that organizational teams were more innovative under high rather than low levels of minority dissent, but only when teams engaged in participative decision making. This qualifying effect was attributed to the fact that through participation, creative ideas and solutions are critically examined and adopted or rejected on the basis of arguments and evidence. In other words, participation was key to turning (minority-dissent induced) originality into innovative methods, products, and services.

MODERATING INFLUENCE OF TEAM REFLEXIVITY

Past research has shown that minority dissent contributes to creative thinking and integrative complexity. Also, minority dissent appears related to team innovation, albeit only when other factors contribute to the critical examination of ideas and problem solutions. In addition to participation, which was examined by De Dreu and West (2001), one may expect a contributing influence of team reflexivity. When teams have high levels of reflexivity team members overtly reflect upon the group's objectives, strategies, and processes and adapt them to current of anticipated circumstances (West, 1996). Under high levels of team reflexivity dissenting opinions may be voiced and discussed, and minority dissent may be more likely to induce creativity and divergent thinking in majority members than under low levels of team reflexivity. Moreover, high levels of team reflexivity may stimulate a process of shifting good from bad ideas and problem solutions, making successful implementation more likely.

Carter and West (1998) studied the effects of team reflexivity on overall team effectiveness, mental health, and team innovations in 19 BBC-TV production teams. They developed a 16-item scale to measure reflexivity, and found that these 16 items represented a task-reflexivity factor (e.g., "the team often reviews its objectives", and "how well we communicate is often discussed") and a social reflexivity factor ("when things are stressful, the team is not very supportive," and "conflicts are constructively dealt with in this team"). (Because task

reflexivity appears the more central construct, heretofore reflexivity refers to task but not social reflexivity.) Results showed that task reflexivity was positively related to participation in decision making, clarity of team objectives, and affective well-being. For current purposes most relevant is, however, that task reflexivity also positively predicted team effectiveness (as indicated by audience appreciation ratings).

OVERVIEW OF THE PRESENT STUDY

The current study continued the work by De Dreu and West (2001) on the influence of minority dissent on team innovation. It is argued that minority dissent in teams leads to more creative ideas and suggestions, that are turned into innovations when there are high rather than low levels of reflexivity in the team. In other words, it is hypothesized that higher levels of minority dissent are associated with more team innovations especially when there are high rather than low levels of task reflexivity. This prediction was tested in a study that involved semi-autonomous product and management teams in a variety of organizations.

In addition to team innovations a measure of overall team effectiveness was included. Team innovation and team effectiveness are distinct but interrelated aspects of team performance. As mentioned at the outset, team innovation is needed for teams to be effective, at least in the long run.

METHOD

Participants and procedure

The data collection procedure was similar to the one described by De Dreu and West (2001). A database of a private company involved in selection and assessment was used to randomly select current clients who were a member of, or could get us into contact with organizational groups that fitted the definition of teams as on-going, semi-autonomous groups whose members have joint responsibility for accomplishing a set of tasks (Guzzo & Shea, 1992). The randomly selected 37 clients were approached by a research assistant and asked to introduce the researchers to their team supervisor. All clients agreed and 34 of the 37 supervisors we approached subsequently responded positively. The three supervisors who did not wish to participate indicated their team had been surveyed recently and they did not wish to bother their team again (two teams), or indicated the team's work load was too high to permit participation (one team).

Of the 34 teams approached, two teams were not included in the final sample because less than 50% of the team members completed the questionnaire (including these teams did not change the main results). Thus, the final sample contained 215 individuals in 32 teams, with team size ranging between 4 and 14.

The average response per team was 84%, with a minimum of 75% and a maximum of 100%. Respondents averaged 32.4 (SD = 8.23) years of age, and 60% of the respondents were male. Team members had a community college degree (63%), or a university degree (37%).[1]

All teams were semi-autonomous and performed non-routine, complex tasks that required differential expertise and skills. All but two teams were mixed sex. Team members interacted at least once a month in collective planning meetings, and informally on a weekly basis. Team members were told that the purpose of the study was to gain understanding of the way organizational teams function and work together. Teams were promised and given feedback based on the survey, individual anonymity was ensured, and it was emphasized that feedback would be about aggregated data only. Team members were given the survey during a collective meeting and asked to fill it out in their own time, independently, and without consulting their peers, and to return the questionnaire using a pre-stamped return envelope within 2 weeks. Supervisors received their questionnaire 1–3 weeks later and were also given 2 weeks to complete it. As a reminder and to motivate team members to return the materials, a research assistant attended the next collective meeting (between 2 and 4 weeks after the first meeting).

Team measures

Control variables. Because teams came from a variety of organizations and had a variety of tasks, several control variables were assessed (De Dreu & West, 2001). Team members were asked how much task interdependence and how much co-operative goal interdependence they thought existed in their team. Task interdependence was measured with three items derived from Campion, Medsker, and Higgs (1993), a sample item being "I cannot accomplish my tasks without information or materials from other members in my team". Co-operative goal interdependence was measured with the same three items as used by De Dreu and West (2001), as sample item being "when one or more team members excel in their work, I benefit from that". All items were answered on 5-point scales (1 = strongly disagree, to 5 = strongly agree).

Minority dissent. The scale developed by De Dreu and West (2001) was used to assess the occurrence of minority dissent. The scale has three items to be answered on 5-point scales (1 = very rarely, to 5 = very frequently). When

[1]Participants worked in management and (cross-functional) project teams in different areas, including consulting (16 teams), financial planning and accounting (11 teams), and research and development (5 teams). Because analyses involving type of organization (consulting, accounting, R&D) and type of team (management, project team) yielded no effects involving either variable (all Fs < 1), these variables are not discussed further.

answering the items, respondents were instructed to think about the past 3 months. The items in the scale are (1) Individuals disagree with the rest of the team; (2) In this team, members go along with the majority opinion (reverse coded); and (3) One or two members disagree with the majority in the team. De Dreu and West (2001) provided initial evidence for the scale's discriminant validity by showing that the items do not overlap with items designed to measure overall conflict in teams. This issue will be discussed in more depth in the Conclusions and Discussion section.

Reflexivity. This construct was measured with a Dutch version of the task reflexivity items reported by Carter and West (1998). Specifically, reflexivity was measured by asking team members to what extent they agreed with (1) "the team often reviews its objectives", (2) "the methods used by the team to get the job done are often discussed", (3) "we regularly discuss whether the team is working effectively together", (4) "in this team, we modify our objectives in light of changing circumstances", (5) "team strategies are rarely changed (reverse coded)", and (6) "the way decisions are made in this team is rarely altered". All items could be rated on 5-point scales, with 1 = totally disagree, to 5 = totally agree.

Discriminant validity. Principal component analysis was used to assess whether the items measured the four different constructs as intended. Results showed four factors with an Eigenvalue greater than one. Table 1 gives the relevant statistics. As can be seen, the observed factor structure matched nicely the intended structure, suggesting the scales used in this study had discriminant validity. Subsequent analyses further showed that the four different scales had good internal consistencies, as indicated by Cronbach's α (see Table 2 on p. 292).

Supervisor measures

As an additional control variable (see earlier) team size was assessed by asking supervisors how many members their team had. The number provided always matched or slightly exceeded the number of respondents per team (i.e., in those cases in which not all team members responded to the survey).

Team supervisors were in close contact with their teams: 85% of the respondents reported meeting informally or formally with their supervisor at least once a week, and were knowledgeable about team innovations. Team innovation was measured using four items adapted from Anderson and West (1998) to be answered on 5-point scales (1 = strongly disagree, to 5 = strongly agree): (1) "Team members often implement new ideas to improve the quality of our products and services"; (2) "This team gives little consideration to new and alternative methods and procedures for doing their work (reverse coded)";

TABLE 1
Factors analysis of the team measures
(N = 215 individuals)

	Factor loadings			
Factor	*1*	*2*	*3*	*4*
Task interdependence				
1	**.86**	.03	.03	–.10
2	**.81**	.01	.01	.08
3	**.69**	.09	.07	.11
4	**.69**	–.01	.04	.20
Reflexivity				
1	–.05	**.69**	–.03	.02
2	–.10	**.65**	.19	.09
3	.14	**.64**	–.07	–.07
4	.14	**.62**	–.03	–.19
5	.13	**.55**	–.10	–.15
6	–.25	**.52**	–.02	.29
Goal interdependence				
1	.05	.07	**.85**	–.10
2	.01	–.03	**.82**	.03
3	.05	–.06	**.81**	.03
Minority dissent				
1	.06	.03	–.01	**.81**
2	.13	–.13	.07	**.79**
3	.34	–.03	–.06	**.58**
Eigenvalue	3.26	2.52	1.83	1.45
Explained variance	20.4%	15.8%	11.5%	9.1%

(3) "Team members often produce new services, methods, or procedures"; and (4) "This is an innovative team".

Team effectiveness. This was assessed with a Dutch version of the scale developed by Hackman (1983) and previously used by De Dreu and Van Vianen (2001). Supervisors were asked to rate on 5-point scales (1 = totally disagree, to 5 = totally agree) their team on five statements tapping into aspects of team effectiveness. Sample items are (1) "This team is good in coming up with ways to complete their tasks", (2) "This team effectively deals with uncertainty and unexpected events", and (3) "At times, this team fails to approach its task adequately (reverse coded)".

TABLE 2
Means, standard deviations, reliability coefficients, and zero-order correlations

	M	*SD*	*1*	*2*	*3*	*4*	*5*	*6*	*7*
1. Team size	9.73	5.88	NA	.22	–.09	–.03	.01	–.05	.21
2. Task interdependence	3.50	0.41		.73	.13	.46***	–.34*	–.08	.04
3. Goal interdependence	4.58	0.28			.81	.15	–.11	.16	.08
4. Team reflexivity	3.54	0.62				.75	–.28	–.23	–.31*
5. Minority dissent	3.04	0.38					.76	.22	.08
6. Team innovation[S]	3.71	0.81						.80	.29*
7. Team effectiveness[S]	4.27	0.91							.79

***$p < .025$; **$p < .05$; *$p < .10$ ($N = 32$ teams).
[S]supervisor measure.
Cronbach's α are on the diagonal; NA = not applicable.

RESULTS

Treatment of the data

Individual missing values were substituted by the individual's team average for that particular item, provided the number of missing values per individual did not exceed 10% of their answers (which was the case for five individuals, each from a different team; the data from these individuals were not included in the analyses).

We expected responses by individual team members to be interdependent within teams and to check this the Eta-squared statistic was computed. This statistic indicates whether individuals within the same team are more similar than individuals who are in different teams. Eta-squared statistics for task interdependence, co-operative goal interdependence, minority dissent, and reflexivity were .54, .67, .56, and .42 respectively, and exceed Georgopopolous' (1986) minimum criterion of .20. To further assess within-group agreement R_{wg} was computed. R_{wg} ranged between .71 and .93. Because all exceed the cut-off criterion of .70 (James, DeMaree, & Wolf, 1984), aggregation of the data to the group level appears justified.

Descriptive statistics

Table 2 shows that team innovations were significantly correlated with overall team effectiveness. This is consistent with the idea that innovations may stimulate smooth functioning in the long run (thus increasing overall effectiveness). Also team reflexivity and task interdependence were positively correlated, suggesting when team members need each other more for task completion they also reflect on task issues more often. This finding is consistent with results reported by Carter and West (1998).

Innovation as a function of minority dissent and team reflexivity

The prediction that minority dissent would be associated with more team innovation, especially under high levels of team reflexivity, was tested using hierarchical regression analysis. In the first step task interdependence, co-operative goal interdependence and team size were entered as control variables. The main effects for minority dissent and reflexivity were entered in step 2, and the interaction between minority dissent and participation was entered in the third step. Team innovation was the dependent variable. To be able to interpret the interaction effect we centered the predictor variables; interaction effects were interpreted using the procedures outlined by Aiken and West (1991). Because some predictors were correlated (see Table 2), variance inflation factors (VIFs) were checked. Stevens (1992) noted that VIF should not exceed 10.0. Because in this study all VIFs were below 3.5 it is concluded that multi-collinearity was not a problem.

Results are summarized in Table 3. As can be seen, the control variables had no significant relationship with team innovation, $F(3, 25) = 1.10$, $p < .37$. The main effects for minority dissent and team reflexivity had no significant effects either, $F(2, 25) < 1$. Consistent with the prediction, however, the interaction term added in the third step explained a significant amount of variance in team innovations, $F(1, 25) = 7.30$, $p < .012$. Inspection of the regression lines indicated that minority dissent was associated with more innovations when there were high levels of team reflexivity, $B = 2.46$, $p < .05$, but not when there were low levels of team reflexivity, $B = –0.43$, $p < .64$.

Team effectiveness

To explore the influence of (the interaction between) minority dissent and team reflexivity on overall team effectiveness hierarchical regressions were run with task interdependence, co-operative goal interdependence, and team size entered as control variables in the first step, the main effects for minority dissent and reflexivity entered in step 2, and the interaction between minority dissent and participation entered in the step 3. The dependent variable was overall team effectiveness. Because some predictors were correlated (see Table 2) VIFs were checked but all were below 2.10.

Results are summarized in Table 3. Effects similar to those for innovation were obtained for overall team effectiveness. As can be seen in Table 3, the control variables had no significant relationship with team effectiveness, $F(3, 25) < 1$, n.s. The main effects for minority dissent and team reflexivity had no significant effects either, $F(2, 25) = 1.71$, $p < .20$, although a marginally significant regression coefficient emerged for reflexivity. Table 3 shows that higher levels of team reflexivity tended to be associated with *lower* ratings for

TABLE 3
Results of the hierarchical regression analysis

	Team innovation			*Team effectiveness*		
	R^2	ΔR^2	*B*	R^2	ΔR^2	*B*
Step 1 (control variables)	.09	—		.08		
Team size			–0.01			0.01
Task interdependence			0.17			0.41
Goal interdependence			0.71			–0.54
Step 2 (main effects)	.14	.05		.18	.10	
Minority dissent (MD)			0.25			–0.02
Reflexivity			–0.36			–0.71
Step 3 (interaction effect)	.34	.20***		.28	.10*	
MD × Reflexivity			2.12**			1.69*

*$p < .10$; **$p < .05$; ***$p < .025$ ($N = 32$ teams).

team effectiveness. This effect was not predicted and because it is marginally significant only it is not considered further. The interaction term added in the third step explained a significant amount of variance in team effectiveness, $F(1, 25) = 3.39$, $p < .10$. Inspection of the regression lines indicated that minority dissent was associated with higher team effectiveness when there were high levels of team reflexivity, $B = 1.58$, $p < .05$, but not when there were low levels of team reflexivity, $B = –0.87$, $p < .24$.

CONCLUSIONS AND DISCUSSION

Some have argued any organization that values the process of continuous learning fosters dissent as a necessary and desirable part of organizational life (Argyris, 1991; Schilit & Locke, 1982). The current study both corroborates and qualifies this general notion about the value of dissent. Dissent was shown to be related to team innovations and, to a somewhat lesser extent, overall team effectiveness. However, the relationship between minority dissent and team innovation, and team effectiveness, was significant only when teams had high levels of team reflexivity. This effect was as hypothesized, and grounded in the idea that minority dissent increases divergent thinking and creativity, but that conscious reflection on strategies and objectives is needed in order to process dissenting viewpoints, to shift the good from the bad ideas and problem solutions, and to help implement new ideas, products, and services.

Current results for team innovation parallel those obtained by De Dreu and West (2001). They found that minority dissent predicted team innovation especially in teams with high levels of participative decision making. Although

participative decision making and team reflexivity are different constructs, they share that team members actively discuss and think through procedures, strategies, objectives, and so on. In teams low in participative decision making, or low in team reflexivity, team members do voice their discontent or ideas for improvement, and they do not discuss each other's ideas and problem solutions. In such teams, dissenting views are unlikely to be voiced and, if voiced, unlikely to be heard and processed. In teams high in participative decision making, or high in team reflexivity, minority dissent is more likely to be voiced and heard.

Research is needed to further specify the processes underlying current findings. While ample research has shown that minority dissent leads to more creative ideas in majority members (for reviews, see De Dreu & Beersma, 2001; Nemeth & Staw, 1989), this evidence all comes from the social psychology laboratory and it would be nice to have such effects being demonstrated in on-going teams in organizations. Also, it was argued that team reflexivity may moderate the relationship between minority dissent and team innovations because reflexivity makes minority dissent more likely and more likely to be processed. Interestingly, reflexivity and minority dissent were negatively, albeit not significant, related. In the research by De Dreu and West (2001), likewise, minority dissent and participative decision making were negatively related. This suggests that increasing the opportunities for communication and discussion not necessarily increases the voicing of dissenting views, but rather increases the attention given to, and processing of dissenting perspectives and minority positions. Research is needed to test this hypothesis.

The present study is one of the first to examine the role of team reflexivity. Unlike Carter and West (1998) who found a positive relationship between team reflexivity and team effectiveness, current results suggested a negative relationship between reflexivity and team effectiveness. Several explanations for this apparent inconsistency exist. First, Carter and West looked at audience appreciation, whereas the current results pertain to supervisor ratings of team effectiveness. Perhaps that different components of team performance are differentially affected by team reflexivity. Second, it may be that team reflexivity in itself has no effect on team effectiveness, but rather provides room for other variables to influence team performance. For instance, high levels of team reflexivity may lead the team to engage in confirmatory information search, concurrence seeking, and the bolstering of the in-group identity. If this happens, groupthink is likely to occur and the quality of team decision making is likely to suffer (Janis, 1972). Alternatively, high levels of team reflexivity may lead the team to engage in constructive controversy about dissenting positions and points of view. If this happens, high quality decisions and innovative practices are likely to be observed (Tjosvold, 1998). In other words, team reflexivity may well be a critical moderator of many predictors of team functioning and performance reported in the team literature, and team reflexivity is certainly worth future research.

The current study was about minority dissent and, as such, relates to recent studies on the relationship between conflict and group performance (e.g., Amason, 1996; Jehn, 1995). In this research, a distinction is made between task conflict and non-task conflict. Task conflict is about issues related to the task at hand, whereas non-task conflict is about interpersonal issues and the socio-emotional aspects of group functioning. De Dreu and West (2001) showed that the scale developed to measure minority dissent has no overlap with the scale usually used to measure task conflict in organizational teams. O'Reilly, Williams, and Barsade (1998) showed that task conflict was not related to team innovations, whereas results of De Dreu and West, and the current study showed minority dissent to be related to team innovations. Together, these findings suggest that task conflict and minority dissent are related but distinct aspects of group life, and future research may address the similarities and differences in more detail.

Before closing, some limitations need to be addressed. Although the design of the study prevented the occurrence of common-method variance by using different sources for predictor variables (team members) and outcome measures (supervisors), the design of the study was entirely cross-sectional, which prohibits conclusions about causality. Granted, many experimental studies showed that minority dissent produces divergent thinking, and it is difficult to see how more innovations produce higher levels of minority dissent as well as higher levels of team reflexivity. Nevertheless, we need to be careful about causality and develop longitudinal designs to address this issue. Finally, current findings were based on self-reports with regard to the occurrence of minority dissent and team reflexivity. Although these self-reports converged considerably at the team level, thus suggesting at least considerable inter-subjectivity, having more objective measures of minority dissent would be desirable. For instance, the minutes of team meetings may contain codable instances of dissent, which may be meaningfully related to the quality of decision making, team innovations, and so on.

This research showed that minority dissent in teams is related to team innovations and team effectiveness but only when teams had high rather than low levels of reflexivity. Apparently, under high levels of reflexivity dissenting points of view are considered and processed more thoroughly, leading team members not only to be more creative and divergent in their thinking, but also more critical in which ideas and solutions to drop or select for future use. When creativity and innovation is valued, teams should be happy with deviates and foster rather than inhibit the consideration of minority dissent.

REFERENCES

Aiken, L.S., & West, S.G. (1991). *Multiple regression*. London: Sage.

Amason, A.C. (1996). Distinguishing the effects of functional and dysfunctional conflict on strategic decision making: Resolving a paradox for top management groups. *Academy of Management Journal*, *39*, 123–148.

Anderson, N., & West, M.A. (1998). Measuring climate for work group innovation: Development and validation of the team climate inventory. *Journal of Organizational Behavior*, *19*, 235–258.

Argyris, C. (1991). *Reasoning, learning, and action: Individual and organizational.* San Francisco: Jossey-Bass.

Asch, S.E. (1956). Studies of independence and conformity: A minority of one against a unanimous majority. *Psychological Monographs: General and Applied*, *70*, 1–70.

Campion, M.A., Medsker, G.J., & Higgs, A.C. (1993). Relations between work group characteristics and effectiveness: Implications for designing effective work groups. *Personnel Psychology*, *46*, 823–850.

Carter, S., & West, M.A. (1998). Reflexivity, effectiveness, and mental health in BBC-TV production teams. *Small Group Research*, *29*, 583–601.

Cialdini, R.B., & Trost, M.R. (1998). Social influence: Social norms, conformity and compliance. In D.T. Gilbert, S.T. Fiske, & G. Lindzey (Eds.), *The handbook of social psychology* (4th ed., Vol. 2, pp. 151–192). Boston: McGraw-Hill.

De Dreu, C.K.W., & Beersma, B. (2001). Minority dissent in organizations: Its origins, and consequences for learning and group performance. In C.K.W. De Dreu & N.K. De Vries (Eds.), *Group consensus and minority influence: Implications for innovation* (pp. 258–283). Oxford, UK: Blackwell.

De Dreu, C.K.W., & Van Vianen, A.E.M. (2001). Responses to relationship conflict and team effectiveness. *Journal of Organizational Behavior*, *22*, 309–328.

De Dreu, C.K.W., & West, M.A. (2001). Minority dissent and team innovation: The importance of participation in decision making. *Journal of Applied Psychology*, *86*, 1191–1201.

Dooley, R.S., & Fryxell, G.E. (1999). Attaining decision quality and commitment from dissent: The moderating effects of loyalty and competence in strategic decision-making teams. *Academy of Management Journal*, *42*, 389–402.

Georgopopoulos, B.S. (1986). *Organizational structure, problem-solving, and effectiveness*. San Francisco, CA: Jossey-Bass.

Gruenfeld, D.H., Thomas-Hunt, M.C., & Kim, P.H. (1998). Cognitive flexibility, communication strategy, and integrative complexity in groups: Public versus private reactions to majority and minority status. *Journal of Experimental Social Psychology*, *34*, 202–226.

Guzzo, R.A., & Shea, G.P. (1992). Group performance and intergroup relations in organizations. In M.D. Dunnette & L.M. Hough (Eds.), *Handbook of industrial and organizational psychology* (2nd ed., Vol. 3, pp. 269–313). Palo Alto, CA: Consulting Psychologists Press.

Hackman, R. (1983). The design of effective work groups. In J.W. Lorsch (Ed.), *Handbook of organizational behavior* (pp. 315–342). Englewood Cliffs, NJ: Prentice-Hall.

James, L.R., DeMaree, R.G., & Wolf, G. (1984). Estimating within-group interrater reliability with and without response bias. *Journal of Applied Psychology*, *69*, 85–98.

Janis, I.L. (1972). *Victims of groupthink: A psychological study of foreign-policy decisions and fiascos*. Boston, MA: Houghton Mifflin.

Jehn, K. (1995). A multimethod examination of the benefits and detriments of intragroup conflict. *Administrative Science Quarterly*, *40*, 256–282.

McLeod, P., Baron, R.S, Weighner, M., & Yoon, K. (1997). The eyes have it: Minority influence in face-to-face and computer-mediated group discussions. *Journal of Applied Psychology*, *82*, 706–718.

Moscovici, S., Lage, E., & Naffrechoux, M. (1969). Influence of a consistent minority on the responses of a majority in a color perception task. *Sociometry*, *32*, 365–380.

Nemeth, C., & Chiles, C. (1988). Modelling courage: The role of dissent in fostering independence. *European Journal of Social Psychology*, *18*, 275–280.

Nemeth, C.J., & Staw, B.M. (1989). The tradeoffs of social control and innovation in groups and organizations. In L. Berkowitz (Ed.), *Advances in experimental social psychology* (Vol. 22, pp. 175–210).

O'Reilly, C.A. III, Williams, K.Y., & Barsade, S. (1998). Group demography and innovation: Does diversity help? *Research on Managing Groups and Teams*, *1*, 183–207.

Peterson, R.S., Owens, P.D., Tetlock, P.E., Fan, E.T., & Martorana, P. (1998). Group dynamics in top management teams: Groupthink, vigilance, and alternative models of organizational failure and success. *Organizational Behavior and Human Decision Processes*, *73*, 272–305.

Schilit, W.K., & Locke, E.A. (1982). A study of upward influence in organizations. *Administrative Science Quarterly*, *27*, 304–316.

Smith, C.M., Tindale, S.R., & Dugoni, B.L. (1996). Minority and majority influence in freely interacting groups: Qualitative versus quantitative differences. *British Journal of Social Psychology*, *35*, 137–150.

Stevens, J. (1992). *Applied multivariate statistics for the social sciences*. New York: Lawrence Erlbaum Associates Inc.

Tjosvold, D. (1998). Cooperative and competitive goal approach to conflict: Accomplishments and challenges. *Applied Psychology: An International Review*, *47*, 285–342.

Van Dyne, L., & Saaverda, R. (1996). A naturalistic minority influence experiment: Effects on divergent thinking, conflict, and originality in work-groups. *British Journal of Social Psychology*, *35*, 151–168.

West, M.A. (1996). Reflexivity and work group effectiveness: A conceptual integration. In M.A. West (Ed.), *Handbook of work group psychology* (pp. 555–579). Chichester, UK: Wiley.

West, M.A., & Anderson, N.R. (1996). Innovation in top management teams. *Journal of Applied Psychology*, *81*, 680–693.

Wood, W., Poal, G.J., Leck, K., & Purvis, D. (1996). Self-definition, defensive processing, and influence: The normative impact of majority and minority groups. *Journal of Personality and Social Psychology*, *71*, 1181–1193.

Manuscript received November 2001
Manuscript accepted May 2002