The Relationship between Team Leadership and Team Performance in Management Teams

The Mediating Effect of Constructive Controversy

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Master Thesis

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20.04.2016

Abstract

During the last decades, numerous studies in organizational psychology have focused on different forms of communication and their impact on performance. The literature concerning communication and its effects in management teams is however, limited.

The aim of the present study is to explore to what extent constructive controversy mediates the relationship between team leadership and team performance. Furthermore, the purpose has been to investigate if constructive controversy is positively related to team performance beyond its capacity to reduce relationship conflict.

The study is based on a survey conducted from 2012 to 2015, concerning effectiveness in 215 management teams in Norway and Denmark. The statistical analyses showed a positive association between team leadership and task performance ($r =. 66$) as well as between team leadership and individual satisfaction ($r =. 53$).

Constructive controversy was found to partially mediate the relationship between team leadership and task performance (a reduction from $r = .56$ to $r = .25$ and an indirect effect $r = .31$) as well as between team leadership and individual satisfaction (a reduction from $r = .62$ to $.29$ and an indirect effect $r = .33$).

When controlling for relationship conflict, constructive controversy was found to partially mediate the relationship between team leadership and task performance (a reduction from $r = .47$ to $r = .27$, and an indirect effect $r = .21$) as well as between team leadership and individual satisfaction (a reduction from $r = .45$ to $r = .27$, and an indirect effect $r = .18$).

Acknowledgements

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Introduction

Good team performance derives from several fundamental characteristics (Zaccaro, Rittman & Marks, 2002). This also applies to management teams, where both the team leader and each of the team members have specific roles, and where the performance of each role is important for the collective achievements (Hambrick, Cho & Chen, 1996). The members of management teams regularly meet to inform each other and to coordinate and follow up work, to discuss and to solve problems (Bang & Midelfart, 2012; Hackman & Wageman, 2007). Since a management team's ability to be effective and create high-quality results seems to be clearly related to interpersonal dynamics and processes (Marks, Mathieu & Zaccaro, 2001), the role of the team leader is particularly crucial, as he or she is formally responsible for all team activities and outcomes. It is the team leader's obligation to make sure that the insights necessary to find good solutions are continually provided and coordinated – often in a context of high time pressure and competition, due to constantly changing problems and demands (De Dreu & Van De Vliert, 1997; Pondy, 1967). Many of the tasks, which management teams have to deal with, are very complex, and there might be different views about what is the correct way to handle them and what is the right solution to them. Often, various possible solutions are incompatible with each other, and there may also exist uncertainty about whether the way in which they are discussed will produce the best solution or not (Campbell, 1988; Edmondson, Roberto & Watkins, 2003).

One of the leader's main challenges is to contribute to good team communication, and one way to meet this challenge may be to stimulate the type of communication called constructive controversy or dialogue. In fact, a number of empirical studies conclude that there is a positive association between constructive controversy and team performance (Bang & Midelfart, 2010; Johnson, Johnson & Tjosvold et al., 2000; Tjosvold, 2008).

The present study will explore to what extent constructive controversy mediates the relationship between team leadership and team performance when controlling for relationship conflict. Despite numerous studies concerning both leadership (Bass & Stogdill, 1990; Yukl, Gordon, & Taber, 2002) and team dynamics (McGrath, 1962), no empirical research has yet investigated the mediating effect of constructive controversy. The objective of this study is to find out if constructive controversy has a positive mediation effect beyond its reduction of the level of relationship conflict.

Conceptual Framework

Team leadership. *Team leadership* implies the responsibility for all activities within a team, as the leader is the one "primarily responsible for defining team goals and for developing and structuring the team to accomplish these missions" (Zaccaro et al., 2001, p.452).

The present study will explore team leadership in the perspective of a functional leadership approach. This type of approach principally addresses, as the expression says, the *functions* of the team leader in his or her relationship to the team (Fleishman, Mumford, Zaccaro, Lavin, Korotkin & Hein, 1992; Hackman, Walton & Goodman, 1986). Referring to McGrath (1962), Hackman and colleagues suggest that the central idea in a functional approach to leadership is that "[the leader's] main job is to do, or get done, whatever is not being adequately handled for group needs" (Hackman et al., 1986:75). If all functions supporting the team performance have been executed with satisfying results, the leader can be said to have done his or her job in a proper manner (Hackman &Walton, 1986). If the team accomplishes the functions necessary to perform according to, or even beyond, organizational expectance, the team leader has, in line with the functional criterion, achieved his or her task satisfactorily. In a decisive meta-study, Burke and colleagues suggest that the quality of team leadership is positively associated with the quality of team performance (Burke, Stagl, Klein, Goodwin, Salas, Halpin, 2006).

Team performance. *Team performance* is a concept closely linked to that of *team effectiveness*, which has been widely studied (e.g. Hackman, 1990; Hackman & Wageman, 2005; Yeatts & Hyten, 1998). Hackman (1990) has presented a three-dimensional model of team effectiveness, and the present study will refer to Bang and Midelfart's operationalization of Hackman's model (Bang and Midelfart's, 2010; 2012). It involves: *task performance*, *team viability*, which will not be taken into account in the present context, and *individual satisfaction*. In this study the two outcome variables of *task performance* and *individual satisfaction* will be included in the concept of *team performance*. Hackman and Katz (2010) claim that teams should be evaluated through a multidimensional framework, as an exclusive focus on task performance may have a negative effect on the team outcomes over time.

Task performance. *Task performance* has been defined as "the quality of the outcome produced by the management team, according to the team members' perception" (Bang & Midelfart, 2010, p.5). According to another definition, task performance involves

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that "the productive output of the team (that is, its product, service, or decision) meets or exceeds the standards of the team's clients – the people who receive, and/or use the output" (Hackman, 1990; 2012). These definitions include both the capability of the management team to get things done and the quality of its decisions. High-quality decisions are those which produce expected results, or even results that are better than expected (Bang & Midelfart, 2010). It is noticeable that according to the first definition of task performance, the quality of the team outcome and the team decisions is measured in line with the team members' own *perceptions*, which do not necessarily correspond to reality. The members' personal opinions about the successfulness of their team will easily be affected by added value.

Individual satisfaction. *Individual satisfaction*, which is included as the second outcome variable, complementary to task performance, refers to the degree to which the team members feel that participating in the management team positively contributes to their professional motivation and learning (Bang & Midelfart, 2010; Jehn et al., 1997; Hackman, 1990; 2012). Individual satisfaction occurs when the team members enjoy working together, when they appreciate their colleagues and their contributions to the team processes, and when they feel they develop their personal potential and get energy from the collaboration within their team. Individual satisfaction also derives from the team members' perception that their professional progress is related to, or even depends on, their participation in the management team (Bang & Midelfart, 2012). A team may, however, deliver satisfying results in line with the task performance criterion, but not necessarily with the criterion of personal well-being. This indicates that the team members' perception of professional success and progress is not a sufficient condition for their individual satisfaction (Hackman & Katz, 2010).

Hackman and Katz (2010) have therefore studied how team processes and team experiences might foster both good task performance and individual satisfaction (Wageman et al., 2008). In light of their elaboration, a management team will be characterized as effective and successful on two conditions: if it is able to achieve satisfying levels of task performance, and if the team members at the same time experience a high level of individual satisfaction. Individual satisfaction will, in the present study, function as a measure of proximal outcome, in addition to the distal outcome variable of task performance.

Constructive controversy *Constructive controversy* exists when "one person's ideas, information, conclusions, theories, and opinions are incompatible with those of another, and the two seek to reach an agreement" (Johnson & Johnson, 2002, p.292). The concept of constructive controversy is closely related to the concept of dialogue (Bang & Midelfart, 2010; Johnson, Johnson & Tjosvold, 2000; Tjosvold, 2008; Ellinor & Gerard, 1998; Schein, 1993). Both constructive controversy and dialogue in general represent an alternative to heated, rigid discussions, where team members try to promote their own viewpoints and win over other persons. Constructive controversy does not repress diversity and disagreement, but implies willingness to listen respectfully to and to understand others, giving priority to reciprocity and consensus founded on free and open dialogue (Johnson et al., 2000).

Relationship conflict. *Relationship conflict* involves "perceived interpersonal incompatibility, and typically includes tension, annoyance, and animosity among team members" (Jehn, 1995, p.258). Research on relationship conflict within teams has a long history, dating from the earliest studies of conflict (Guetzkow & Gyr, 1954) to a number of more recent publications (e.g. Janssen et al., 1999; Jehn, 1995; Wall & Nolan, 1986). In this research, the negative effects of relationship conflict on both task performance and individual satisfaction among team members are well documented. A consistent finding is that this type of conflict limits the team's ability to process information and to have rational and task-oriented discussions, because the team members spend their time and energy focusing on each other. Another finding is that relationship conflict will restrict the team members' cognitive functions by provoking stress and anxiety (Jehn & Mannix, 2001). Furthermore, relationship conflicts may generate misinterpretations of other team members' ideas and behavior, and misinterpretations may in turn cause antagonism, mutual hostility, and conflict escalation (Baron, 1991, Janssen et al., 1999).

Development of Hypotheses

The relationship between team leadership and team performance. A considerable amount of research has been devoted to the description, development, and effect of organizational leadership and of different leadership styles (Avolio, Reichard, Hannah, Walumbwa & Chan, 2009; House & Aditya, 1997). Some leadership theories explore the consequences of leadership behaviour by describing what leaders actually do and the results they obtain (Mintzberg, Raisinghani & Theoret, 1976), while other theories especially focus on the difference between the personality traits of effective and ineffective leaders (Cavazotte, Moreno, & Hickmann, 2012). Despite all research and theories, we still need to learn more about the relationship between team leadership and team performance, entailing, as specified above, task performance and individual satisfaction.

It is noteworthy, however, that there is not necessarily a positive association between task performance and individual satisfaction. As said above, good task performance may also be achieved at the *expense* of the team members' individual satisfaction (Hackman & Katz, 2010). On the other hand, a team leader with a one-dimensional focus on team cooperation may contribute to the team members' individual satisfaction, even when his or her leadership style is negatively associated with task performance, that is when the team's task performance is not as good as desired (Hackman & Katz, 2010).

Still, a management team is normally characterized as successful only if it is, at the same time, able to achieve high levels of task performance and high levels of individual satisfaction. Hackman, Bang and Midelfart, and many other researchers, argue that the quality of the team cooperation and its outcomes cannot be explained independently of the relational dynamics within the team. The same researchers have found that there is a positive relationship between the team members' individual satisfaction and the team's task performance. This is also an implication of the present study.

From every point of view, the function of the leader is central. The leader always influences, positively or negatively, the team communication and the team processes, and he or she inevitably contributes, favourably or unfavourably, to the achievement of the desired or expected team performance (Weldon & Weingart, 1993).

This leads to our first hypotheses:

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H1a: Team leadership is positively related to task performance.

H1b: Team leadership is positively related to individual satisfaction.

Constructive controversy as a mediator between team leadership and team performance. A number of studies indicate that there is not a direct relationship between leadership and team performance, because this relationship is simultaneously influenced by various factors (Hackman, 2012; Hackman and Wageman, 1995). One of these factors can be constructive controversy, which, in this study, is examined with regard to its mediating effect. Constructive controversy exists when "one person's ideas, information, conclusions, theories, and opinions are incompatible with those of another, and the two seek to reach an agreement" (Johnson, 2008, p.3). Furthermore, constructive controversy "is a procedure for ensuring that effective decision in which all alternatives are given serious consideration and critically analyzed before deciding which alternative to implement" (Johnson, 2008, p.3).

Constructive controversy within a management team generally aims to improve the team performance by stimulating tolerant, respectful, and unprejudiced discussion among the team members, and by appealing to their personal ideas and creativity. In this way, different views of each topic can constantly be taken into consideration and exploited on an equal basis. This usually reduces irritation and friction and increases the individual satisfaction of belonging to the team. Constructive controversy also ensures that contrasting opinions and analyses can contribute to improve the quality of the task performance.

The members of any management team will possess different information and have different interests. They therefore will consider many tasks and problems divergently (Edmonson, Roberto, Watkins, 2003). This heterogeneity may negatively contribute to destructive conflicts, but through constructive controversy, it may positively lead to better discussions and better solutions (Bang & Midelfart, 2010).

In this context, the role of the team leader is again essential, as an open communication climate to a large extent depends on his or her willingness and capability to encourage and motivate the team members to be curious and open-minded confronted with other ideas than their own (Bang, Fuglesang, Ovesen, & Eilertsen, 2010; Edmondson et al., 2003). Chen and Tjosvold (2013) indicate that good team leadership does not induce compliance, but productive discussions of the diverse views present in the team.

The same researchers suggest that team leaders stimulating constructive controversy at the same time facilitate a good relationship to their team members, and that a good relationship between leader and team members, entailing feelings of respect and support, not only tends to reduce the level of stress in the team, but also to increase the members' well-being and their task performance (Chen & Tjosvold, 2013).

However, the empirical knowledge about the influence of constructive controversy on team performance in management teams is still deficient. This is the motivation of the present study.

According to the theory developed by Johnson and Johnson over the past thirty-five years, constructive controversy both stimulates and is characterized by the fact that all opposing views in a team are met with the same respect and the same tolerance. These scholars argue that the aim of constructive controversy is to synthesize one's own and the other team members' reasoning, conceptions, and conclusions into a final position, supposed to be beneficial for the organization as a whole (Johnson, Johnson, & Tjosvold, 2000).

All kinds of controversy usually derive from and provoke uncertainty, but uncertainty may trigger two rather different types of reactions (Johnson, Johnson, & Tjosvold, 2000). On the one hand, controversy may sometimes lead to "a closed-minded, defensive rejection of other points of view" and easily end up in harmful conflicts and win-lose debates. This surely does not enhance team performance. On the other hand, controversy may motivate an active search for more information and new and more adequate cognitive perspectives "in hopes of resolving uncertainty" (Johnson et al., 2000, p.69). The intention of constructive controversy is to facilitate this second type of reaction.

Constructive controversy is a complex form of communication, however, and the management team may first experience it as a slowing down of the problem solving process. Research has, nevertheless, found that constructive controversy, despite the slowing down, seems to stimulate both individual task performance and satisfaction (Johnson, 2008).

Previous studies (Johnson, Johnson & Tjosvold, 2000; Tjosvold, 1985; Tjosvold & Poon, 1998) indicate that constructive controversy tends to result in higher decision quality, even with regard to ethical dilemmas. Such dilemmas may typically occur when considering, for instance, environmental or health and safety standards. Constructive controversy equally tends to foster better solutions to complex problems, to which diverse approaches are normally possible. Johnson (2008) affirms that one objective of constructive controversy is to

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move beyond individualistic attitudes and struggles, and Johnson and Johnson (2000) assert that another purpose is to avoid groupthink. Research has also shown that participation in constructive controversy commonly leads to more competent transference of acquired knowledge into new situations, involving new problems (Johnson & Johnson, 2000).

There has been little research concerning the association between team leadership, constructive controversy, and team performance. On the basis of the existing empirical findings, it is therefore relevant to investigate to what extent constructive controversy mediates the relationship between team leadership and team performance.
This leads to the following hypotheses:

H2a: Constructive controversy mediates the relationship between team leadership and task performance.

H2b: Constructive controversy mediates the relationship between team leadership and individual satisfaction.

Constructive controversy, relationship conflict, and team performance. Research has shown that constructive controversy is negatively associated with relationship conflict within a team, in the sense that when the level of constructive controversy increases, the level of relationship conflict will tend to decrease (Bang & Midelfart, 2010 Johnson, Johnson and Smith, 2007). In addition, relationship conflict is negatively associated with team performance (de Wit, Greer & Jehn, 2012). These two findings might lead to the assumption that good team performance is positively influenced by reduced relationship conflict rather than by increased levels of constructive controversy. This has to be investigated, however, and that is why the present study will control for relationship conflict. The objective is to find out to what extent constructive controversy, implying openness, curiosity, and respect, has in itself a positive effect on team performance.

Conflict can broadly be defined as perceived incompatibilities and divergences between individuals (Jehn, 1995). In a publication on the effect of conflict, Guetzkow and Gyr (1954) have argued that team conflicts have two components. On the one hand, there is an *affective* or *relationship* aspect of the conflict, that is an aspect concerning interpersonal relationships, and on the other hand, there is a *cognitive* aspect of the conflict, called *task*

conflict, that is an aspect concerning disagreement about specific team tasks and their possible solutions.

In relationship conflicts, the affective aspect is predominating. Consequently, such conflicts currently produce "tension, irritation, and annoyance" (Jehn, 1995, p.258) as well as suspicion, mistrust, and unfriendliness within the team (Brehmer, 1976; Guetzkow & Gyr, 1954; Faulk, 1982). Management teams whose members avoid one another and refuse open and free discussions, share little information and tend to take poor decisions. And team members who are not committed to their decisions are not eager to see them implemented (Guth & MacMillan, 1986). Finally, hostile, angry or bitter team members may also be unwilling to work together over time (Korsgaard, Schweiger & Sapenzia, 1995). Thus, relationship conflicts may have a detrimental impact on the team members' attitude towards the strategic decision making processes (Amason, 1996; Jehn & Mannix, 2001; Ringeis, 2000). As Baron states, "conflicts can quickly move from a constructive mode, capable of generating positive outcomes, to a destructive one, much more likely to yield negative results" (Baron 1984, p.272).

Several studies have demonstrated that relationship conflict is negatively related to both task performance and individual satisfaction (De Wit, Greer & Jehn, 2012; Johnson, 2008). So, negative emotions due to relationship conflicts within a team easily damage the interaction between the team members and may have a devastating influence on the team processes and on the team performance. The consequence of relationship conflicts may be that the team members are more focused on each other than on the specific team tasks and task-related problems (De Dreu & Weingart, 2003). This observation corresponds to the findings of De Wit, Jehn and Scheepers (2013). They found that the presence of relationship conflict during task conflict tended to increase the team member's rigidity and to make them hold on to their own preferences, even when it was obvious that these were far from optimal. The consequence was poor decision-making. The participants in the study of De Wit and colleagues (2013) had a tendency to ignore information from other team members because they perceived the task conflicts as a threat. At the same time, their motivation for processing information systematically decreased.

Many organizational researchers have examined how team members communicate with each other when they disagree, in order to find out whether there are specific types of communication that permit the team to take advantage of the diversity of perspectives and

opinions among its members. One way to react to disagreement is to confront each other and to go into debate about the actual topics without openness and willingness to change one's own view; another way is to practice the principles of constructive controversy.

Evidence has been established for the idea that constructive controversy can positively contribute to the quality of team performance (Deutsch, 1968; Edmondson et al., 2003; Johnson, 2008; Pelled, Eisenhardt, & Xin, 1999). But no previous study has examined the mediation effect of constructive controversy on the relationship between team leadership and team performance.

According to Wall and Nolan's study of groups, relationship conflict reduces the group members' individual satisfaction (Wall & Nolan, 1986), and Jehn's investigation has also shown a negative association between relationship conflict and individual satisfaction, as well as between relationship conflict and the team members' desire to remain in their team (Jehn, 1995). These results have been supported by a number of studies on management teams (e.g. Amason, 1996; Janssen, Van de Vliert & Veenstra, 1999, Jehn, Northcraft & Neale, 1999).

There equally seems to be a consensus in the research literature concerning the negative effect of relationship conflict on task performance (Agyris, 1990; De Dreu & Weingart, 2003; Jehn & Mannix, 2001). Jehn and Chatman (2000) have found that teams with a high level of relationship conflict tend to suffer from both reduced individual satisfaction and reduced task performance (De Dreu &Van Vianen, 2001). A meta-analysis by De Wit and colleagues (2012) supported De Dreu and Weingart's (2003) finding that relationship conflict has considerably more negative effects on team performance than task conflict.

This is one of the reasons why the present study controls for relationship conflict rather than for task conflict. Relationship conflicts, implying distress and dislike among team members, usually cause unproductive and interpersonal confrontations. Personal struggles between team members may make them so unmotivated that they resign from further team participation (Jehn, 1995). Withdrawal is evidently not beneficial for the team processes, and neither for the team outcomes.

The central question when it comes to understanding how to improve the quality of team performance, is not, however, whether there exist relationship conflicts or not, but rather how the discussions can be managed in order to capitalize on the different opinions and ideas represented in the management team (De Dreu & Weingart, 2003, Simons & Peterson, 2000).

As Van Knippenberg and colleagues have stated: "performance does not benefit from conflict and dissent per se, but from the process the conflict and dissent is assumed to promote: the deep-level and creative processing of diverse information and viewpoints" (Van Knippenberg, De Dreu & Homan, 2004, p.1011). Although the topic in the article quoted is not constructive controversy, the citation applies well to the principle of constructive controversy.

In teams practicing constructive controversy and experiencing no, or limited, relationship conflict, the members will likely not so easily interpret new and unexpected information or ideas in a biased manner (Shaw, Zhu, Duffy, Scott, Susanto, 2011) and not develop so many negative emotions.

The present study will explore the impact of constructive controversy as a mediating factor, *beyond* its potential to reduce relationship conflict. More exactly, one objective of this study is to examine to what extent the positive mediation effect of constructive controversy on the relationship between team leadership and team performance is due to other aspects than its reduction of relationship conflict. If constructive controversy may be beneficial to the team performance beyond its capacity to reduce relationship conflict, as indicated by Bang and Midelfart (2010; 2012), the main reason for this seems to be that constructive controversy stimulates openness towards, and exploitation of, opposing opinions and views. Apparently, the team can thereby find more creative and better solutions to complex task problems.

In this perspective, the role of the team leader must again be accentuated, since it is his or her responsibility to motivate the team members to engage in all team processes. It is part of the leader' job to encourage the members through constructive feedback, appealing to their capabilities and potential (Fleishman et al., 1992), and stimulating them to participate in constructive controversy. Good team leaders establish a two-way open communication and generate mutual respect and confidence, and they emphasize the importance not only of task performance, but also of individual satisfaction within the team (Amason & Sapienza, 1997).

A communication inspired by the principles of constructive controversy seems particularly able to prevent disagreements from being misinterpreted as personal attacks (Johnson, 2008). This is decisive, since team members tend to work less effectively and create results that are not of high quality, when they experience tension and annoyance (Wilson, Butler, Cray, Hickson & Mallory, 1986). The use of constructive controversy seems in itself to reduce personal friction and conflicts, even though this is not its main function.

Animosity evidently obstructs the goal of all management teams, which is to build a common ground for collective high-quality decisions (Johnson, 2008). Relationship conflict may also easily cause anxiety among the team members, and anxiety hinders cognitive functioning and may weaken the team performance further (Roseman, Wiest, & Swartz, 1994; Staw, Sandelands, & Dutton, 1981).

In conclusion, research has shown that free, open, and cooperative discussions have a positive effect on team performance (Tjosvold, 1980). Research has equally shown that the leader's encouragement of constructive controversy may enhance the quality of the team decisions and contribute to improved team performance.

Constructive controversy, separating task and person during the team discussions, and generating more, and more various, insight into complex scenarios and problems, is then supposed to increase both task performance and individual satisfaction, even when controlling for relationship conflict.

To illustrate how team leadership affects team performance, a mediation model is proposed, where team leadership is related to team outcomes via constructive controversy.
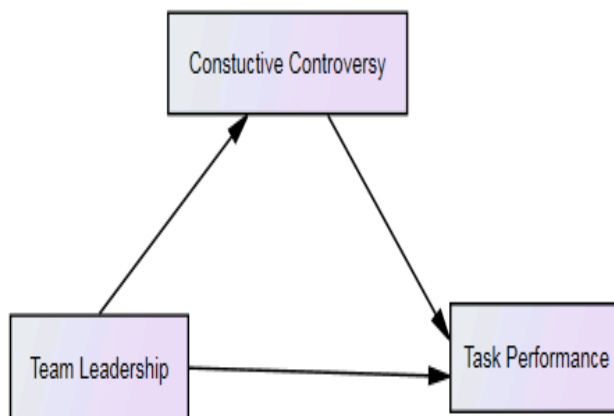

Figure 1.

Theoretical model showing the mediating role of constructive controversy on the relationship between team leadership and task performance.
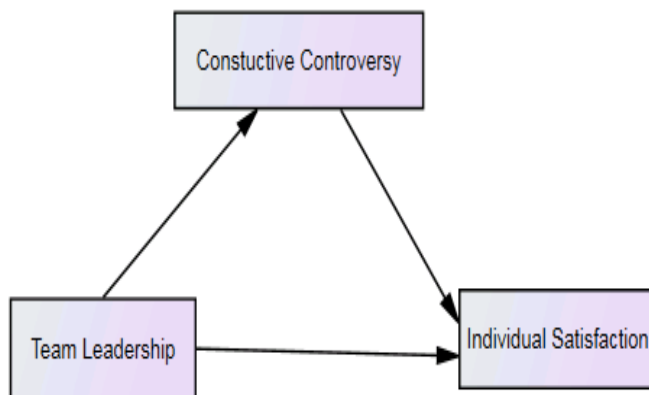
Figure 2.

Theoretical model showing the mediating role of constructive controversy on the relationship between team leadership and individual satisfaction.

The last hypotheses in the present study are:

H3a: When controlling for relationship conflict, constructive controversy mediates the relationship between team leadership and task performance.

H3b: When controlling for relationship conflict, constructive controversy mediates the relationship between team leadership and individual satisfaction.

Method

Design and procedure

The present study is based on self-report data from a sample of 215 management teams, comprising 135 Norwegian and 80 Danish teams, in the public as well as in private sectors. A management team was defined as a group of leaders reporting to a superior, having regular meetings, and considering themselves as members of a management team within their organization (Bang & Midelfart, 2010; McIntyre, 1998).

The respondents rated their respective management teams along several dimensions concerning team effectiveness. About 40 % of the management teams responded to the survey as an introduction to a following development course. The other 60 % were asked to participate in a research project. All management teams received an e-mail where they were invited to answer the different questions in the questionnaire with a deadline of one week. The participants in the survey received a written report after completion, containing the scores of their management team and feedback concerning the questionnaire results. The mean response rate across the management teams was 96.9 %.

Sample

The sample of 215 management teams included organizations from a broad range of sectors and technical disciplines: economy and finance, consultancy, health care, entertainment, industry, public administration, transport, culture, and education. The management teams consisted all together of 1271 leaders on different levels. In the current sample, 50 teams were top management teams, 70 middle-level management teams, and 94 lower management teams.

The size of the management teams differed from large teams composed by 23 leaders to rather small teams with only 2 leaders. The average management team size was 7 members. The majority of management teams comprised 4 – 6 persons. The gender distribution was approximately equal across the management teams, with a total percentage of 54 males and 46 females. In the present sample, 20 % were top management teams, 41 % middle-level management teams and 39 % lower-level management teams (level 3 or lower).

The management teams had agreed to take part in the project on the condition of receiving a report on how they performed and functioned as a management team according to the aspects that were measured in the study.

Measures

The web-based questionnaire *effect* captures 27 factors considered important for becoming an effective management team. The questionnaire comprised 124 questions all together. The *effect* questionnaire was developed by Henning Bang and Thomas Nesset Midelfart, and is based on the research described in their book *Effektive ledergrupper* (Bang & Midelfart, 2012) and in Bang's doctoral dissertation (Bang, 2009).

The questionnaire items were answered through a 7-point *Likert–scale,* where 1 corresponded to "strongly disagree" and 7 to "strongly agree". Each measure consisted of 5 – 8 questions.

Operationalization of the Variables

Team leadership. There is no established scale for measuring *Team leadership* according to a functional leadership paradigm. We therefore devised a scale based on the team leadership concept defined by Zaccaro and colleagues (2001). The scale was operationalized according to the respondents' responses to the following five statements:

1. Our management team has good leadership.
2. The leader of my management team helps to facilitate the team's interactions.
3. Our leader helps to create a safe climate in the management team where we can openly discuss what we see as important.
4. Our leader does what it takes to ensure effective functioning of the management team.
5. The leader of the management team ends and concludes discussions constructively.

Constructive Controversy. The scale was established on the basis of the theory of Johnson, Johnson, and Tjosvold (2000), and it was operationalized according to the respondents' responses to the following seven statements:

1. Members of the management team freely express their views and opinions to each other.
2. We listen carefully to each other's views and opinions in our management team.
3. We frequently explore each other's ideas and views.
4. The way we discuss matters in the management team shows that we truly believe that we can learn from each other.
5. We rarely try to build upon each other's ideas in the management team (reversed).
6. Sometimes during discussions I feel belittled by certain members of the management team (reversed).
7. We easily understand each other's perspectives during discussions in the management team.

Relationship Conflict. The scale used for measuring *Relationship Conflict* was a modified version of Jehn's (1995) intragroup conflict scale, and it was operationalized according to the respondents' responses to the following four statements:

1. There is not much friction among members of the management team (reversed).
2. There are members of the management team who do not work well together
3. There are personal conflicts between some members of the management team.
4. There are some negative tensions among members of the management team

Task performance. There is no established scale for measuring *Task performance* in management teams. The scale that was used was based on Jehn, Northcraft and Neale's (1999) scale "Perception of group performance", as well as on parts of Amason's (1996) "Decision Quality" scale. It was operationalized according to the respondents' responses to the following eight statements:

1. Our management team is very successful in its efforts.
2. Our management team does not perform well as a team (reversed).
3. You are given useful input when you bring up an issue in the management team.
4. We receive positive feedback on our performance as a management team.

5. It is difficult to see what added value the management team contributes to our organization (reversed).
6. We consistently make high quality decisions in our management team.
7. The vast majority of decisions made by the management team turn out to be beneficial for the organization.
8. Those affected by the decisions of the management team are generally very satisfied with the decisions we make.

Individual satisfaction. The scale measuring *individual satisfaction* was based on theories and research on management teams performed by Hackman (2002) and Wageman and colleagues (2008). This scale was operationalized according to the respondents' responses to the following five statements:

1. I develop my professional competencies by participating in this management team.
2. Working in this management team contributes to my learning.
3. I really enjoy working together with my management team colleagues.
4. Being part of this management team has had little impact on my development as a leader (reversed).
5. I get a lot of energy from our management team meetings.

Main Analysis

Aggregation. The purpose of the present study was to investigate the mediating effect of constructive controversy on the relationship between team leadership and team performance, when controlling for relationship conflict. Each of these variables, as well as the relationship between them, can be viewed in light of the team members' interaction (Hackman, 2012).

To make it possible to investigate the effects of the different variables on a team level, the data were aggregated according to guidelines and recommendations for aggregating lower-level data to higher-level data (Biermann, Cole and Voelpel, 2001).

To conduct relevant analyses of the aggregated data, two conditions had to be fulfilled: There must be a substantial variability in the aggregated scores, and the members of

the management team must show considerable consensus in their evaluation of the team characteristics.

We therefore calculated the inter-rater agreement (Rwg) between the management team's members for each of the selected variables (James, Demaree & Wolf, 1984) (see Table 1 for the aggregated data). The statistical measure of inter-rater agreement ranges from 0 to 1.0. It seems that values of minimum .70 have been established as the recommended Rwg standard to show satisfying inter-rater agreement within the team (Lance, Butts & Michels, 2006). This recommendation has been criticized as being inappropriate because the assumption that no response bias is present is unlikely in many situations (Brown & Hauenstain, 2005; Smith-Crowe, Burke, Cohen & Doveh, 2014). Researchers have later suggested that .50 is an appropriate value for inter-rater agreement (Guzzo, Yost, Campbell & Shea, 1993). As can be seen in Table 1, Rwg values for all varaibles are between .61 and .74.

Control variable. Many studies have shown that relationship conflict has a detrimental effect on team performance (e.g. De Wit, Greer & Jehn, 2012; Jehn, 1995), and that constructive controversy decreases the level of relationship conflict (Johnson, Johnson and Smith, 2007). Still, no research has yet investigated the mediating effect of constructive controversy on the relationship between team leadership and team performance, and this is why we wanted to explore this effect in the present study, and chose relationship conflict as a control variable. What we aimed to explore, was more precisely whether constructive controversy maintained its mediating effect on the relationship between team leadership and team performance, when controlling for relationship conflict, or even when there existed some level of relationship conflict.

Statistical analysis

The assumptions of normality and linearity were investigated for all measures, and multivariate normality was explored by Mahalanobis distances. Mahalanobis distance is founded on a chi-square distribution and offers indications of which cases may be multivariate outliers. Tabachnick and Fidell (2013) have proposed a critical value of Mahalanobis distance to be 13.82, when analysis has two or more independent variables. The value of Mahalanobis distance will change with the number of predictors.

In the present study, the maximum Mahalanobis distance was 13.53, which indicates that there were no multivariate outliers.

All analyses in our study were conducted in SPSS version 22.0 and examination of mediated effects were performed using PROCESS 2.15 - a program written in the spss macro-language (Preacher & Hayes, 2008). We used linear regression analysis to test the hypotheses about the relationship between team leadership, constructive controversy and team performance.

Results

Descriptive Statistics

     Descriptive statistics with means, standard deviations, Rwg, Icc (2), and Alpha values among all study variables are specified in Table 1.

Table 1.

Means, standard deviations, scale reliabilities (Chronbach's alpha), Rwg, ICC (2) and effect size

Variable	Mean	SD	Alpha	Rwg	ICC(2)	Eta²
Task performance	5.17	1.04	.82	.74	.67	0.37
Individual satisfaction	5.37	1.26	.86	.61	.58	0.31
Team leadership	5.34	1.27	.92	.63	.64	0.36
Constructive controversy	5.01	5.01	.88	.68	.70	0.39

     As shown in table 1, Rwg values ranged from .61 to .74, which are all considered sufficient inter-observer agreement (Kline, 2000).

     ICC is an estimate comparing the variability within a group with the variability across groups. All values of this study had sufficient levels, since they exceeded .70 (Peterson, 1994). ICC is an estimate of the reliability of the aggregated scores.

     The Eta showed that approximately .30 – .40 of the total variation might be attributed to differences between the teams. This means, for instance, that 40% of the variation in constructive controversy can be explained by differences between the management teams. It is recommended to have eta coefficients above .20 to argue for substantial variability in scores (Georgopoulos, 1986).

     The alpha coefficient is an estimate for the reliability of the sum (scale) scores on individual level. Reliability refers to estimated "true score variance", i.e. the amount of variance in an observed indicator that is explained by variance in a latent construct. A Cronbach's alpha value of .80 indicates that 80% of the variability in the scores represent the construct of interest, and that 20 % are considered as random measurement error. All the scales had sufficient alpha values, meeting commonly used criteria for acceptable reliability (Nunly, 1978; Kline, 2000).

Table 2.

Mean, standard deviations and correlations between task performance team psychological safety and dialogue in 215 management teams

Variable	N	M	SD	TP	TL	CC
Task performance (TP)	215	5.23	0.62	1	0.76**	0.80**
Team leadership (TL)	215	5.39	0.82	0.76**	1	0.72**
Constructive controversy (CC)	215	5.14	0.75	0.80**	0.80**	1
Relationship conflict (RC)	215	5.29	1.14	0.61**	0.61**	0.74**

*Note **p<0.01*

Table 3.

Mean, standard deviations and correlations between task performance team psychological safety and dialogue in 215 management teams

Variable	N	M	SD	IS	TL	CC
Individual satisfaction (IS)	215	5.42	0.76	1	0.76**	0.80**
Team leadership (TL)	215	5.39	0.82	0.76**	1	0.71**
Constructive controversy (CC)	215	5.14	0.75	0.80**	0.71**	1
Relationship conflict (RC)	215	5.29	1.14	0.61**	0.61**	0.74**

*Note **p<0.01*

Hypotheses 1a and 1b predicted a positive relationship between team leadership and task performance and individual satisfaction. These hypotheses were fully supported, as demonstrated in Table 2 and 3 above (H1 $r = .76$) and (H1b $r = .76$).
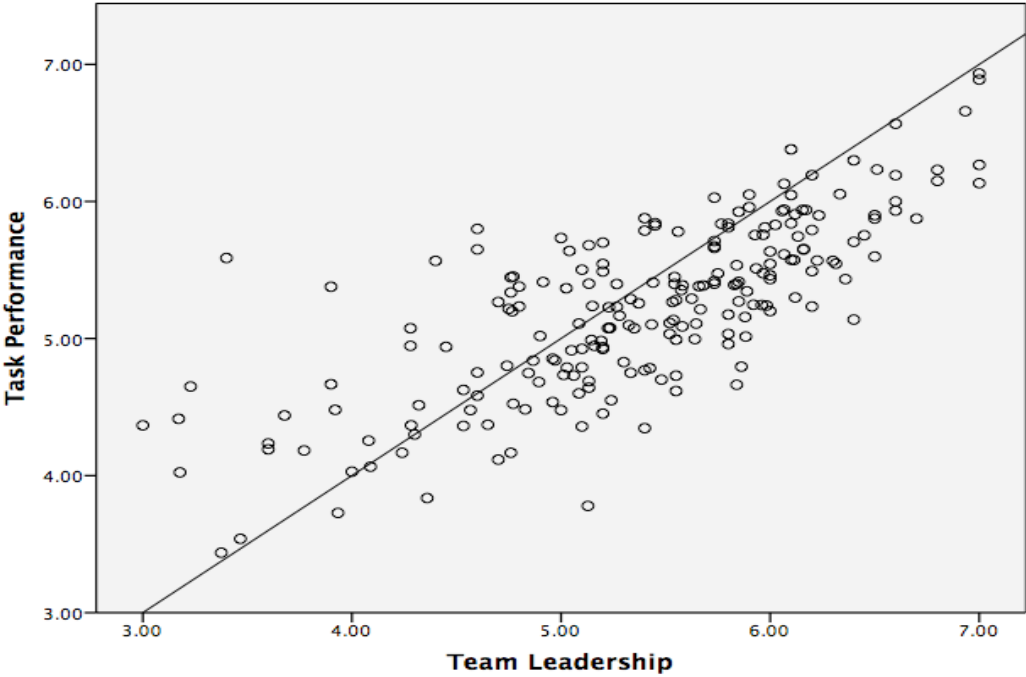
Figure 3.

Scatterplot showing the association between team leadership and task performance.
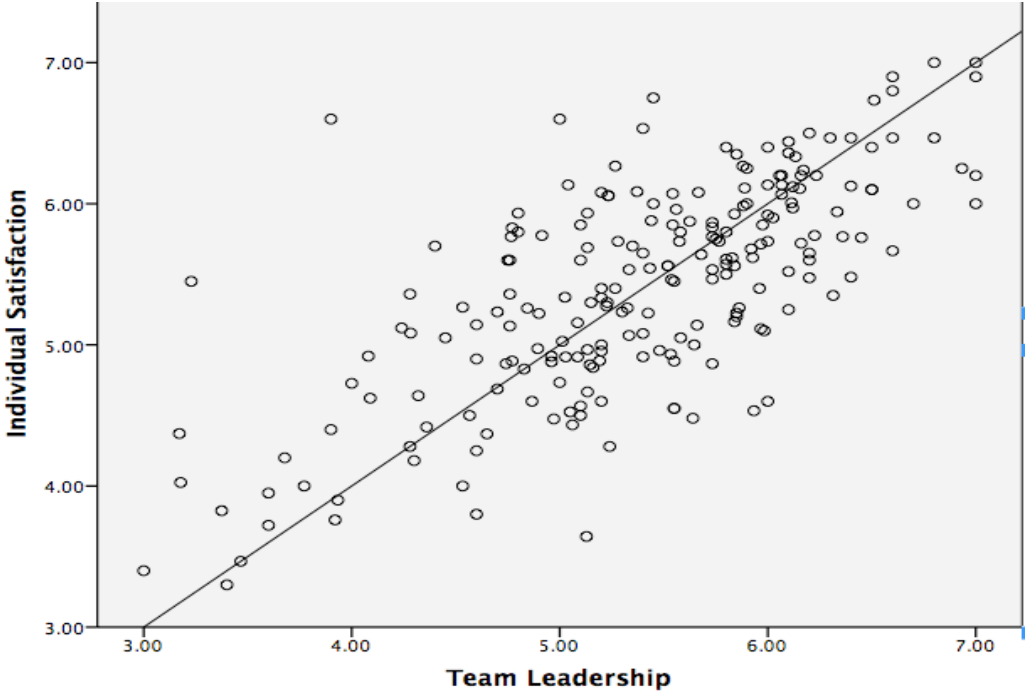
Figure 4.

Scatterplot showing the association between team leadership and individual satisfaction.

Figures 3 and 4 illustrate the relationship between team leadership and team performance (hypotheses 1a and 1b), we carried out an analysis where we plotted each of the management teams' scores for team leadership and task performance and individual satisfaction along two axes. We found a strong positive association between team leadership and team performance variables. We noticed that no management team characterized by low levels of team leadership showed high levels of task performance and a strong sense of individual satisfaction. Similarly, no management team with high levels of team leadership combined with poor task performance and a weak sense of individual satisfaction.

Examination of mediated effects through regression analysis

There are many methods available for testing hypotheses concerning mediating variable effects. The common method is the causal 4-steps approach proposed by Baron and Kenny (1986). Their approach was used to examine hypotheses 2a and 2b, where we investigated the mediation effect of constructive controversy (M) on the relationship between team leadership and task performance as well as between team leadership and individual satisfaction (Y). To argue for a mediated effect, certain preconditions has to be met according to Baron and Kenny's four steps model for mediation (1986).

First, there has to be a relationship between the independent variable (X) and the outcome variable (Y) (see hypotheses 1a and b).

Secondly, there has to be a relationship between the independent variable (X) and the mediation variable (M) (see hypotheses 2a and 2b).

Thirdly, there has to be a relationship between the mediator and the dependent variable (Y), when controlling for the independent variable (X).

The fourth step in Baron and Kenny's approach is that the relationship between X and Y (coefficient "c´") shall be reduced (partial mediation) or completely disappear (fully mediation), when controlling for the mediator.

All these prerequisites for conducting a mediation analysis were satisfied in the present study, and the values are shown below in Tables 4, 5, 6 and 7.

Baron and Kenny's four steps model of mediation (1986) has been criticized for including some unnecessary steps (Fields, 2013; Preacher & Hayes, 2008; Jose, 2013). Hayes and Preacher suggest that mediation effects can be tested in a more efficient way, and they have developed a SPSS-macro called PROCESS (Preacher & Hayes, 2008). The "Sobel test"

has commonly been used a significance test of the indirect effect is statistically significant (Fields, 2013). However, the "Sobel test" has been criticized for being conservative. In other words it requires normal distribution and only work well in large samples (Preacher & Hayes, 2008). An increasingly popular method for testing the indirect effect is bootstrapping. Bootstrapping is a non-parametric method that relies on a random repeated sampling - typically repeated 1000 times (Preacher & Hayes, 2008). An additional analysis with this program was conducted and estimated effects and confidence intervals based on 1000 bootstraps samples in Tables 4−7.

Table 4
Mediated effect of TL on TP through CC (n=215).

		Effect	SE	p	95% CI Low	High
Step 1	TL -> TP	.56	.04	<.001	.49	.64
Step 2	TL -> CC	.63	.04	<.001	.54	.72
Step 3	CC -> TP	.50	.05	<.001	.41	.58
Step 4	TL' -> TP	.25	.04	<.001	.17	.33
Mediated effect		.31	.05		.23	.41

Team leadership= TP
Constructive controversy= CC
Task performance= TP

Table 5
Mediated effect of TL on IS through CC (n=215).

		Effect	SE	p	95% CI Low	High
Step 1	TL -> IS	.62	.05	<.001	.53	.71
Step 2	TL -> CC	.63	.04	<.001	.54	.72
Step 3	CC -> IS	.53	.06	<.001	.42	.65
Step 4	TL' -> IS	.29	.05	<.001	.18	.39
Mediated effect		.34	.05		.24	.44

Team leadership= TP
Constructive controversy= CC
Individual satisfaction= IS

Baron and Kenny's four criteria for a mediated effect were all met. Tables 4 and 5 illustrate that constructive controversy partially mediated the relationship between team leadership and task performance (reduction in step 4: .56 → .25) as well as between team leadership and individual satisfaction (reduction in step 4: .62 → .29). This result supported hypotheses 2a and 2b. If there had been a full mediation effect, the inclusion of the mediation variable would have dropped the relationship between the independent variable (team leadership) and dependent variable (team performance) to zero (Barron & Kenny, 1986).
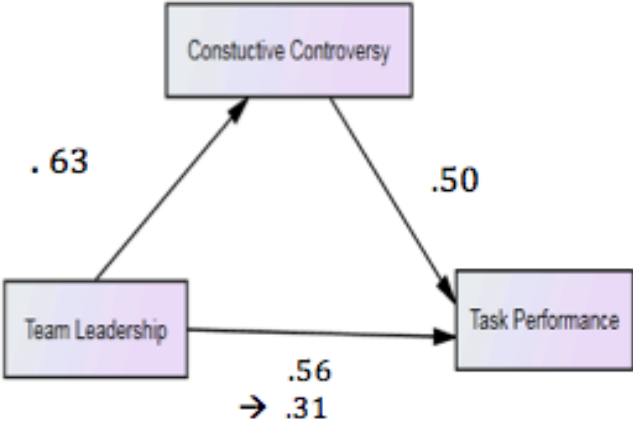
Figure 5.

Constructive controversy mediating the relationship between team leadership and individual satisfaction.
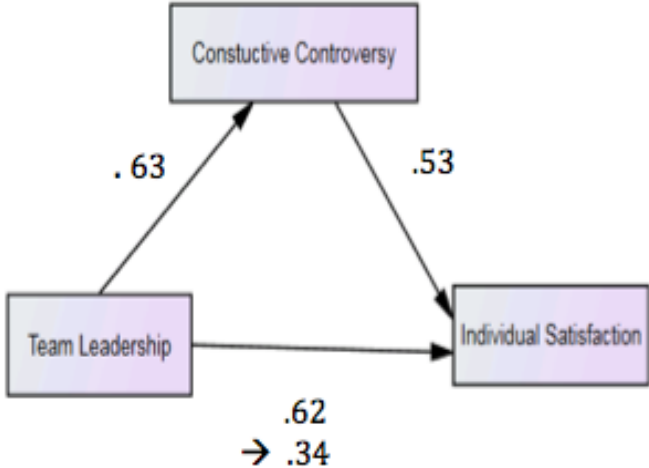

Figure 6.

Constructive controversy mediating the relationship between team leadership and individual satisfaction.

To test hypotheses 3a and 3b, we investigated the mediation effect of constructive controversy on the relationship between team leadership and task performance (a reduction from .47 to .27) and individual satisfaction (a reduction .45 to .27), when

controlling for relationship conflict. These hypotheses were also partially supported. The mediated effects of constructive controversy were reduced, but still statistically significant (see Tables 6 and 7).

Table 6
Mediated effect of TL on TP through CC (n=215) when controlling for RC.

		Effect	SE	p	95% CI Low	95% CI High
Step 1	TL -> TP	.47	.05	<.001	.39	.56
Step 2	TL -> CC	.36	.05	<.001	.27	.46
Step 3	CC -> TP	.56	.05	<.001	.46	.67
Step 4	TL' -> TP	.27	.04	<.001	.19	.35
Mediated effect		.21	.03		.15	.28

Team leadership= TL
Constructive controversy= CC
Task performance= TP
Relationship conflict= RC

Table 7
Mediated effect of TL on IS through CC (n=215) when controlling for RC.

		Effect	SE	p	95% CI Low	95% CI High
Step 1	TL -> IS	.45	.05	<.001	.34	.56
Step 2	TL -> CC	.36	.05	<.001	.27	.46
Step 3	CC -> IS	.49	.07	<.001	.35	.63
Step 4	TL' -> IS	.27	.06	<.001	.16	.38
Mediated effect		.18	.05		.11	.28

Team leadership= TL
Constructive controversy= CC
Individual satisfaction= IS

Discussion

The objective of the present study has been to examine to what extent constructive controversy mediates the relationship between team leadership and team performance. Previous research has shown that there is a positive relationship between constructive controversy and team performance (Bang & Midelfart, 2010; 2012). However, no study has yet investigated the mediating effect of constructive controversy.

Our results indicate that there is a strong and positive association between team leadership, constructive controversy, and both task performance and individual satisfaction. In other words, communication through constructive controversy seems to be positively associated with:

1. How satisfied the members of a management team are with their task performance.
2. The members' individual satisfaction of participating in their management team.

Hypotheses 2a and 2b, proposing that constructive controversy mediates the relationship between team leadership and team performance, were supported, since we found a partial mediation effect.

Hypotheses 3a and 3b, proposing that constructive controversy mediates the relationship between team leadership and team performance, when controlling for relationship conflict, were also supported, as we again found a partial mediation effect.

Finally, our results indicate then that constructive controversy is negatively associated with relationship conflict. Our analyses also showed that even when controlling for relationship conflict, the relationship between team leadership and team performance was partially mediated by constructive controversy. This means that there seem to be other aspects of constructive controversy than its conflict reducing elements that contribute to its positive effect on the team performance. It might, for instance, be that being curious, open-minded, and respectful towards each other's views and opinions in itself increases the possibility of creating both individually satisfied management team members and high-quality task performance.

Many leaders will probably in theory subscribe to the principles of constructive controversy. The challenge, however, is to carry out the principles in practice. In fact, it is not easy to be motivated for learning from persons having completely different views from one's

own. And it is definitely difficult to feel respect for colleagues expressing ideas perceived as unintelligent, incomprehensible, or opposed to one's own, and even to one's values (Bang & Midelfart, 2010; Edmondson & Smith, 2006). However, it is precisely in this kind of confrontations that one can demonstrate a genuine dialogical attitude, characterized by openness and both willingness and desire to gain new insights, and rooted in the conviction that collectively grounded ideas generate not only more profound discussions, but also better solutions to complex problems. A condition for true respect for others' reasoning is that one recognizes one's own limitations, and this may be hard, not least for team leaders.

Why are our Findings Important, and How Can Management Teams Use Them?

A recurrent view in the research literature is that dialogue is capable of contributing to new common knowledge among the team members. And gaining new ideas and insights seems difficult if the team members are not curious to discuss and explore their colleagues' viewpoints and perspectives. This is also relevant with regard to constructive controversy, which implies willingness to be "disturbed" by opinions and reasoning different from one's own. The aim of constructive controversy is that this "disturbance" will lead to a new and better understanding, as well as to high-quality consensual decisions.

The goal of constructive controversy, then, is not to avoid controversy, but to make controversy constructive. This implies that controversy, entailing disagreement and even confrontation, is mutually accepted by the team members and collectively exploited in favour of a consensus. Consensus, or final mutual agreement, between the members of a management team is only possible when they all are invited to freely express their opinions, and when they all feel their views are met with the same respect and seriousness, although they might be contradicted, or eventually rejected.

The aim is that opposing ideas shall not lead to interpersonal conflicts, but to improved insights. In constructive controversy, disagreement does not mean disapproval. That is one of the reasons why constructive controversy has been found to increase motivation, commitment, and team performance, as well as to contribute to good relationship between the team leader and the team members (Tjosvold & Halco, 1992).

Previous research has found that teams spending the time necessary to explore the various viewpoints represented among the team members obtain better results than teams where such exploration has no priority (Bang & Midelfart, 2010; Homan, Hollenbeck,

Humphrey, Van Knippenberg, Ilgen & Van Kleef, 2008). If generalized, this finding supports an important result of our own study: that constructive controversy contributes to good task performance in management teams.

Along with Bang and Midelfart's research (2010; 2012), we may, however, argue that the positive impact of constructive controversy is not only due to the ideas and perspectives collectively established and the decisions collectively taken, but equally, and more generally, to the dialogical *attitude* it stimulates.

Furthermore, previous research has provided valuable guidance on how to promote constructive controversy (Tjosvold, 1991). In fact, team members can be trained in the skills necessary to practice this specific type of communication (Tjosvold & Weicker, 1993). In other words, constructive controversy demands skills that can be learned. The work of Isaacs (2008), offering guidance concerning how to foster dialogue in general, might be useful for this purpose.

Isaacs and others furthermore underline the key function of the team leader within the team. The team leader represents a role model, whether he or she wants it or not, and his or her behaviour and communication have a great impact on team cooperation (Jaussi & Dionne, 2003). The significance of leadership has also been highlighted in the present study, which supports previous research having demonstrated that the leader, beneficially or disadvantageously, influences both team interaction and team results (Kozlowski, Mak & Chao, 2016). The leader's feedback may be an important element in this respect. The way and tone in which feedback is provided may have either a beneficial or a detrimental effect on the team members, their communication and collaboration, and on their team performance (Sessa, 1996)

Generally, a good leader will try to stimulate a form of communication intended to improve both individual satisfaction and task performance through open discussions and final consensus. Nevertheless, it is often difficult to obtain consensus within management teams. This is, for example, the case when there are relationship conflicts, usually based on emotions and easily leading the involved team members to interpret any opposition or objection as a sign of animosity or hostility. Relationship conflict negatively affects the individual satisfaction of participating in the team, as well as the team outcomes and their quality (De Dreu & Van Vianen, 2001).

Constructive controversy seems to reduce the likelihood of misinterpretation due to unfriendly and destructive emotions during team discussions (Tjosvold, 2008). Constructive controversy tends, on the contrary, to increase the team members' tolerance towards their colleagues and their acceptance of the colleagues' ideas, even when opposed to their own. Researchers have shown that good communication in general tends to stimulate mutual confidence and belief in each other's competence as well as in the common team goals (Guerra, Martínez, Munduate & Medina, 2005; Simons & Peterson, 2000). Jehn and Shah (1997) have found that good communication will tend to increase the team members' satisfaction and commitment to their team as well as their performance.

This equally applies to constructive controversy, which also seems to contribute to individually satisfied and well-performing team members.

Methodological Considerations

There are a number of methodological limitations in the present study.

First, the use of self-reports and cross-sectional approach does not permit to conclude that the investigated associations are causal. For instance, it is impossible to claim that it is good team leadership that causes constructive controversy. Neither can we assert that constructive controversy causes good leadership, which again causes good team performance. Our findings rather show that team leadership is positively associated with constructive controversy, and that good team leadership is positively associated with good team performance. It is also possible that it is a dialogical attitude already existing in the team that positively influences the team leadership and motivates the leader to use constructive controversy. Similarly, when management teams achieve good task performance, it is not necessarily a consequence of the use of constructive controversy. It may also be that it is the good task performance that stimulates both the members' well being in the team and their use of constructive controversy.

Another limitation is that the study focuses on the team members' *perception* of the different variables. Their perception does not necessarily correspond to the real functions of the variables taken into account. In fact, team leadership, constructive controversy, relationship conflict, and task performance have both a subjective and an objective dimension, while individual satisfaction is by nature subjective.

In general, individuals will have an inclination to evaluate themselves positively as well as a tendency to create favourable criteria in accordance with their own strengths (Taylor & Brown, 1988). Thus, what the measures used in this study might capture is what the team members perceived as socially desired attitudes and behaviour in relation to the different variables. Consequently, the respondents' report does not necessarily correspond to their real experience (Gilovich, Griffin & Kahneman, 2002; Kahneman & Tversky, 2000).

A third limitation of the study is that its results may have been influenced by what Podsakoff, KacKenizie, Lee and Podsakoff (2003) call the "common-method" and "common source" bias, which can produce spurious relationships between the variables. All the responses in the survey came from the same sources at the same time. Consequently, the level of satisfaction in the management team may have functioned as a *g-factor* colouring the answers to the questionnaire either in a positive or in a negative direction, depending to how satisfied they feel they are (Bang & Midelfart, 2010). A satisfied team member will probably tend to respond affirmatively to all statements characterizing the management team in a

favourable manner, while an unsatisfied team member will have a tendency to respond negatively to the same statements (Bang & Midelfart, 2010; Podsakoff et al., 2003). Therefore, it cannot be excluded that the correlation between some of the variables may be of low internal validity.

Finally, our findings might also have been different if we had measured the mediating effect of other variables than constructive controversy, and if we had controlled for other variables than relationship conflict, for instance nationality, gender, sector, or leadership level within the organization. One may question to what extent our results can be transferred to other management teams, to different types of team, or to other countries and cultures.

Conclusion

The present study indicates that constructive controversy partially mediates the relationship between team leadership and team performance, and that this is the case even when controlling for relationship conflict. Constructive controversy is positively associated with both good team leadership and good team performance. This finding suggests that there are other aspects of constructive controversy than its conflict-reducing effect that contribute to the positive association between team leadership and team performance. Among these aspects, we have highlighted mutual respect, curiosity, and willingness to listen to each other in order to explore and learn from each other's ideas and views. The team members' feeling that they can freely express their opinions is also fundamental.

It seems as if constructive controversy in itself, due to these components, increases the management team's chance to achieve team performance of high quality.

However, constructive controversy and its effects have not yet been sufficiently explored. More research, taking alternative variables into account, is therefore needed. Hopefully, our study could inspire others to further exploration of the nature and impact of this dialogical type of communication.

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