Team psychological safety as a moderator in the relationship between team leadership and team learning in management teams

Guro Tofte

Master Thesis: Work and Organizational Psychology

Department of Psychology

UNIVERSITY OF OSLO

2016

Abstract

This study investigates the role of team psychological safety in the relationship between team leadership and team learning in management teams. Using data from a study of 1332 managers from 135 Norwegian and 81 Danish teams sampled from public as well as the private sector, I found that team leadership had a positive effect on team learning, and that team psychological safety was a moderator in the relationship between team leadership and team learning. This suggests that team psychological safety increases the existing positive relationship between team leadership and team learning. Consequently management teams and team leaders could benefit from evaluating the content and procedures for team psychological safety to enhance team learning in management teams.

Acknowledgements

I would like to thank my supervisor, Henning Bang. You have been of great help throughout this process with your expertise and dedication in the field. I have especially valued your constructive feedback, direct and honest approach and your patience for my personal development and for the improvement of my work. Thanks to my family and friends who are always there with support and encouragement. You have given me much appreciated feedback and input during this process. I would also like to thank Dag-Erik Eilertsen for your impressive expertise and valuable help with statistical analysis and methodological questions.

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Introduction

As teams have grown more central to organizational functioning, there has been a natural interest in understanding the factors that influence team effectiveness (Ilgen, Hollenbeck, Johnson, & Jundt, 2005; Kozlowski & Bell, 2013; Kozlowski & Ilgen, 2006). In today's complex, ambiguous, and constantly changing world (Sessa & London, 2006) team learning is vital for team effectiveness, and many have argued that organizations must learn to succeed and be effective in a constantly changing world (Garvin, 2003). In this paper, team learning is defined as "the extent to which teams regularly reflect upon and modify their functioning" (Schippers, Den Hartog & Koopman, 2007, p. 189). More specifically, it is "an ongoing process of reflection and action, characterized by asking questions, seeking feedback, experimenting on results, and discussing errors or unexpected outcomes of actions" (Edmondson, 1999, p. 353). Sessa and London (2006) propose that individuals need continuous learning to do their jobs well and to increase their chances for advancement and professional growth under changing conditions. Further, groups need continuous learning to meet their goals and be ready to accept new goals as the situation changes. Lastly, organizations need continuous learning to form achievable missions and master uncertain and ambiguous environments.

Team learning in management teams warrants careful examination, since management teams have a collective responsibility for aligning the different parts of the organization into a coherent whole, and fostering overall effectiveness separated from individual leadership responsibility (Hackman & Wageman, 2007). Furthermore, management teams need to be aware of trends in their industry and the needs of their customers or client populations and make changes accordingly (Sessa & London, 2006). It has long been argued that leaders play a key role in enabling individual and organizational performance (Burke et al., 2006), and the role team leaders occupy in promoting, developing, and maintaining team effectiveness has been examined in depth (Hackman & Wageman, 2005; Kozlowski, Mak & Chao, 2016; Zaccaro, Rittman, & Marks, 2001). As research has demonstrated, for a team to be effective learning from failures and successes adapt to environmental changes and change when necessary is crucial, therefore it is of importance to investigate team leaders' role in facilitating team learning in management teams (Bang & Midelfart, 2012; Bunderson & Sutcliffe, 2003; Edmondson, 1999; Popper & Lipshitz, 2000; Schein, 1993).

Leaders´ role in promoting team learning and adaptation has been explored through various studies (Edmondson, 1999; Morgeson, DeRue & Karam, 2010) and leaders can influence behaviors relevant to team learning by facilitating time and attention to team

learning, and by designing learning arenas (Edmondson, 1999; Lipshitz, Popper & Friedman, 2002; Morgeson, DeRue & Karam, 2010; Popper & Lipshitz, 2000). Lind and Tyler (1992) also found that team members are likely to be particularly aware of the leaders' behavior, and team leadership seems to play a major role in shaping team members attitudes, behaviors and actions (Liu, Hu, Li, Wang & Lin, 2010; Popper & Lipshitz, 2000).

Team learning influences the coordination of activities directly and subsequently influences team performance (Argote, 1999; Edmondson, Dillon & Roloff, 2007; Zellmer-Bruhn & Gibson, 2006). Task performance concerns the degree to which a team meets its goals and how well its output fulfils the team's mission (Hackman, 1990). According to the functional leadership approach a leader would initiate corrective action when observing that the team is falling short on one or more of the three criteria of team effectiveness (Hackman & Walton, 1986). The leader should manage the team to ensure that all functions critical to performance are taken care of. This approach to leadership leaves room for a wide range of ways to get key functions accomplished.

Moreover, research on team learning has emphasized the importance of team psychological safety, because "when teams have a shared belief that the team is safe for interpersonal risk taking, and a supportive interpersonal climate, team members will participate/engage in critical learning behaviours" (Edmondson, 1999, page 354). In a study of 51 work teams in a manufacturing company, Edmondson (1999) found that learning in teams is driven by interpersonal perceptions and concerns, and a lack of team psychological safety may inhibit experimenting, admitting mistakes, or questioning current practices in teams.

Team psychological safety is a reflection of a shared, collective climate at the team level and is a relational phenomenon (Edmondson, 1999; Liu, et al., 2013), and climate and trust within the team will influence team learning (Argyris & Schön, 1996; Carmeli, Tishler & Edmondson, 2012; Edmondson, 1999; Garvin, Edmondson & Gino, 2008). Management teams that are characterized by trust seem to cooperate better than management teams that have less team psychological safety developed in the team (Bang & Midelfart, 2012). This relational phenomenon is based on the existence of a mutual respect and trust between members, respect for the individual's expertise, values and behavior, and at last trust that team members will treat each other with respect (Bang & Midelfart, 2012; Edmondson, 1999).

In the next section I will discuss the importance of team learning in management teams, with a particular focus on team leadership as an antecedent for team learning to occur. The possible moderating role of team psychological safety in the relationship between team

leadership and team learning will then be analyzed, with emphasis on how it is moderated by team psychological safety in management teams. In summary, a team leader can indeed facilitate team learning, but team psychological safety may be of great importance for creating and maintaining team learning. This indicates that even though the team leader can facilitate for team learning behaviour it might not be sufficient to secure team learning unless the team has a certain level of team psychological safety.

Several previous studies have emphasized the mediating role of team psychological safety in teams concerning team learning (e.g Edmondson, 1999; Liu et al., 2013; Vinarski-Peretz & Carmeli, 2011). I build on previous research in order to investigate whether team psychological safety is likely to impact the relationship between team leadership and team learning in management teams.

Theory and hypotheses

Team learning in management teams

Teams are defined as work groups that exist within the context of a larger organization and share responsibility for a team product or service (Hackman, 1990). Teams can work quickly and more effectively than individuals alone, because its team members work in parallel and share knowledge, experience, time and capabilities in order to achieve a common goal, which benefit the organization (West, 2008). Organizations have to be responsive when the environment is changing. They therefore need to be adaptable, and innovative in order to survive, and teams should be able to handle and ensure diversity and creativity in order to ensure team and organizational effectiveness. Management teams with a collective responsibility for aligning several parts of the organization into a coherent whole need to be especially innovative, adaptable and creative in the handling of problems and changes in the organization as well as in the external environment (Hackman & Wageman, 2005; Sessa & London, 2006; West, 2008).

Most learning that goes on in organizations is local, because individuals or groups are developing within their limited environment within the larger organizational system, where they perfect their skills and cope with the constraints and costs of their performance (Carrol & Edmondson, 2002). Learning at the group level requires members to acknowledge and evaluate past actions, express divergent views, speak up to correct errors or misinformation, and try new and unproven ideas in order to discover what actually works (Edmondson et al., 2007). Brown and Paulus (2002) found that brainstorming groups who improved the process by which ideas were communicated and exchanged had higher-quality creative and

performance outcomes. For team learning to occur through the process of individuals working together to achieve a shared outcome, a willingness to detect resemblances between past and current situations and their underlying causes and effects must be present (Hackman, 1990; Popper & Lipshitz, 2000).

West (2008) emphasize that verbal and practical support is very useful when team members initially suggest ideas. Practical support can consist of working on the development of ideas and that the group spends time and resources to incorporate the ideas of the team's practice (West, 2008). Team members can work together to plan how their needs for growth and development can be met and to provide verbal feedback on the skills and strengths. This interaction improves communication and understanding between team members, thus leading to a common understanding of the needs, goals, values and strengths. Teams must reflect on their internal and external environment and change how they operate correspondingly in order to be effective (West, 1996). There are high levels of learning when team members expect, accept and provide practical support to attempts to introduce new and better ways of doing things is regarded. Without exchange of information it will not be possible for a team to reach the changing tasks together (Levin & Rolfsen, 2004; West, 2008).

Team members must regularly discuss and evaluate the quality of team performance and methods of working, and make adjustments accordingly to become more effective (Bang & Midelfart, 2012; Edmondson et al., 2007; Sessa & London, 2006). Building blocks of team learning are communicative behaviors among team members, sharing information, asking for help, seeking feedback that allow processing data in such a way that adaption or transformation occur (Raes, Kyndt, Decuyper, Van den Bossche & Dochy, 2013). Communication is essential for both the establishment and development of teams, and is understood as the exchange of opinions, ideas, thoughts and feelings that happen between team members.

In a study of organizational teams engaged in activities ranging from strategic planning to hands-on manufacturing of product, Edmondson (2002) found that teams who reflect on processes were more effective because the team in that way learn about customer's requirements, improve members' collective understanding of a situation or find unexpected consequences of previous actions (Edmondson, 1999; Sessa & London, 2006). This process involves critical thinking, encountering and investigate problems within the team, and evaluate experienced errors (Carmeli, Tischler & Edmondson, 2012; Edmondson, 1999).

These learning activities are intrinsically social at the group level, where team members must take each other's past and awaited future actions and attention into account as

they negotiate a shared understanding of how to achieve collective goals (Edmondson, 1999; Popper & Lipshitz, 2000; Sanner & Bunderson, 2015; Sveberg, 2002).

The process of action and reflection, through which knowledge is acquired, shared and combined is a repetitive cycle of acting and experimenting, reflecting on the consequences of past action in order to revise and update cognitive representations and planning new experiments or courses of action (Sanner & Bunderson, 2015; West, 1996). Learning processes in interaction between members lays the foundation for both individual knowledge accumulation and development of the collective knowledge of the team. Through systematic reflection on the implications of the team's work, such experiences contribute to new ways to solve challenges (Levin & Rolfsen, 2004).

Carter and West (1998) examined the performance of 19 BBC-TV production teams over a period of 18 months, and found that higher reflexivity predict higher team performance. It is an important mechanism through which teams develop their performance capabilities and renew and sustain their performance over time (Kozlovski & Bell, 2013; Sessa & London, 2006). The team's ability and willingness to learn form the basis of their development potential. Hence, it becomes important to establish room for learning as an integral part of everyday life in the team. Through learning behaviour teams can therefore detect errors in their own functioning and changes in the environment and subsequently improve performance (Levin & Rolfsen, 2004).

The process of learning from their mistakes and successes is challenging. Team members need to process and reflect on what they are experiencing, to create insights that make them proficient in solving problems (Levin & Rolfsen, 2004). When investigating factors responsible for the variation in learning rates, Reagans, Argote and Brooks (2005) found that different kinds of experience impact performance. This indicates that members of teams with considerable experience working together have more knowledge of who knows what on the team than their less-experienced counterpart, and may encourage more reflection in teams. The process where team members reflect on their mission has been shown to promote motivation to process information systematically through open group discussions (Carmeli, Tisher & Edmonson, 2012; Carter & West, 1998).

Team members may reject or ignore ideas, or they can provide both verbal and practical support (West, 2008). Through open discussions the selection of a correct decision alternative is likely to occur, and through learning the team could improve its effectiveness (DeDreu, 2007). This is consistent with Arygris and Schön (1978) who point out that information use associated with learning leads to the detection and correction of errors.

Groups adapt to changing expectations and conditions, seek new knowledge, take lessons from others and experiment with new behaviour on their own (Sessa & London, 2006). This is consistent with the importance of continuously development and improvement of performance in management teams to meet challenges it faces which influence the team performance (Bang & Midelfart, 2012).

These learning activities might open for criticism, judgment, sanction and disapproval within the team, and might therefore be interpersonally risky (Bang & Midelfart, 2012; Edmondson, 1999). It is also possible for teams to compromise performance in the near term by overemphasizing learning, particularly when they have been performing well. Bunderson and Sutcliffe (2003) found support for this in their study of a sample of business unit management teams. To what extent learning is emphasized within a team is therefore an important team management question, with clear implications for team effectiveness.

Even though learning behaviour consumes time without assurance of results, suggesting that there are conditions in which it may reduce efficiency and detract from performance, it seems that the risk of wasting time may be small relative to the potential gain (Edmondson, 1999). While some groups are able to break routines and generate new solutions that may enhance the effectiveness in the team, other teams seems to get stuck in previous and familiar behaviour patterns, unable to develop or change their conduct in fundamentally different ways (Argote, 1999; Argyris & Schön, 1978 & Edmondson, 2002). The behaviour and characteristics of the team leadership may create the incentive for a team to engage in learning behaviour (Gibson & Vermeulen, 2003) and it can be expected to have great impact on how team members obtain, create and use knowledge within the team (Cohen & Bailey, 1997; Morhman, Cohen, and Morhman, 1995).

The influence of team leadership on team learning. Managers lead and motivate not only individuals but also the team as a whole (Cohen & Bailey, 1997; Hackman, 2002). Teams consist of two or more individuals who share common task objectives, perform interdependent tasks, and are mutually accountable for collective task outcomes (Kozlowski & Bell, 2003; Sveberg, 2002). Team´s environment change over time, in an exciting and challenging time with many options and ways to go both for the organization, individuals and groups, and it creates continuous opportunity for learning and development (Borgmann & Ørbech, 2013; Levin & Rolfsen, 2004).

A wide range of research on team management has been carried out, including how leaders can help a team through a variety of coaching-related activities (Manz & Sims, 1987; Wageman, 2001), how team leaders manage events that occur in a team context (Morgeson,

2005; Morgeson & DeRue, 2006), team leaders role in managing team boundaries (Druskat & Wheeler, 2003), and how leadership theories as transformational leadership theory operate in a team context (Chen, Kirkman, Kanfer, Allen, & Rosen, 2007; Eisenbeiss, van Knippenberg, & Boerner, 2008).

The team leader is primarily responsible for defining team goals and for developing and structuring the team to accomplish its mission (Hackman, 1990; Levin & Rolfsen, 2004; Zaccaro, Rittman & Marks, 2001). Similar to several researchers investigating leadership, this paper is applying a functional approach. The functional leadership theory is the most prominent and well-known team leadership approach (Hackman & Walton, 1986; Zaccaro et al., 2001). According to this approach the main obligation of team leaders is to identify which functions are missing or are not handled adequately by the team. Team leadership can be described as a dynamic process of social problem solving accomplished through generic responses to social problems (Burke, Stagl, Klein, Goodwin, Salas & Halpin, 2006).

Functional leadership theory suggests that team leaders intervene to help teams solve problems (Morgeson, 2005). Here, the team leader would either carry out the intervention himself or arrange for it to be done by others suited for the task (Kozlowski, Mak & Chao, 2016). When team leadership is viewed from a group-level perspective, the focus is on leader´s influence on collective process, which determine team performance (Yukl, 2012). Team members have specific and unique roles, where the performance of each role contributes to collective success (Levin & Rolfsen, 2004; Zaccaro et al., 2001), and as managers are central in organizations and teams, they are creators of images that influence team members feelings and behaviours (Carlzon, 1989, ref. in Popper & Lipshitz, 2000; Zaleznik, 1992). To what extent a leader succeeds in defining the direction of the team and organizing the team to maximize their progress, impacts the team´s effectiveness (Zaccaro, Rittman & Marks, 2001).

Team leadership involves a process whereby intentional influence is exerted over other people to guide, structure, and facilitate activities and relationships in a group (Yukl, 2012), in that way team members successfully integrate their individual actions. It is important to note that teams may reflect but fail to implement changes in team activities due to for instance inability to break out of routines, ask for necessary resources or lack of motivation (Edmondson, 2002). The extent to which team members identify with team objectives and are motivated to achieve them is dependent on leadership behaviours and activities (Cohen & Bailey, 1997; Sivasubramaniam, Murray, Avolio, & Jung, 2002; West, 2008).

Leaders can help create conditions favourable to learning and innovation (Vera & Crossan, 2004; Yukl & Lepsinger, 2005). Attention from the team leader should be directed towards important team processes and the outcomes they help facilitate (Kozlowski, Mak & Chao, 2016). A team leader is in a position where he or she can facilitate team learning by designing learning arenas, be in charge of when the team learning takes place and coordinate who evaluate the team learning (Popper & Lipshitz, 2000; Yukl, 2012). When the evaluation takes place and who evaluates the work (Bang & Midelfart, 2012; Popper & Lipshitz, 2000) is described as prevalent and central in their influences on team learning behaviors within teams (Popper & Lipshitz, 2000).

Learning arenas (Bang & Midelfart, 2012; Popper & Lipshitz, 2000) and when the team learning takes place, are essential for team learning to happen. For example, Popper and Lipshitz (2000) cite the post debriefing procedure that the Israel Air force conduct after every mission: as soon as the pilots return from an operational or training mission, they gather in the debriefing room and discuss errors or mistakes with other pilots. This debriefing within the team is a learning mechanism used immediately after each mission, and it is described as one of the main reasons for the high quality performance of the air force (Popper & Lipshitz 2000).

As researchers have increasingly pointed to team learning and adaptation as critical performance capabilities particularly in knowledge-intensive and fast paced business environments (Argote, 1999; Bunderson & Sutcliffe, 2003; Edmondson, 2002), team leaders have a responsibility for the learning arenas to function accordingly. Team leaders can through different mechanism promote and signal the importance for team learning within the team by putting learning on the agenda, through leadership behaviour and attitude, promote values for learning, communicate commitment to team learning and enhance reward and recognizing systems within the team (Burke et al, 2006; Popper & Lipshitz, 2000; Sarin & McDermott, 2003).

There is a need for someone to sustain the team learning vision and implementation and leadership can be demonstrated by helping set these visions, values and culture for the team (Stinson, Pearson & Lucas, 2006). Team leaders should emphasize the time to clearly define the team's vision, objectives and goals, which will make it more likely that the team works effectively and creatively (Pritchard, Jones, Roth, Stuebing & Ekeberg, 1988). The team's vision specifies the principal values that underlie and operate the team's work and the shared vision within the team affects the efficiency of the group's work (West, 2008). The

vision reflects the team's underlying values; it will motivate loyalty to the team, engagement and high work effort (West, 2008).

Creating a learning culture is also a way of stimulating team learning, since a learning culture is associated with motivation to transfer learning (Egan, Yang & Bartlett, 2004). Team leadership is a process where an individual influences a group of individuals to achieve a common goal and can therefore help build and sustain a culture with strong values for learning, innovation, experimentation, flexibility, and continuous improvement (Edmondson, 2004; Stinson et al., 2006; Yukl, 2012). Pinto and Prescott (1987) found in their study of project teams that a well-defined common goal increases the chance of success at all stages of the innovation process; the genesis, planning, execution and completion. When investigating the importance of leadership in the context of learning culture, Lipshitz and Popper (2000) found in their study that leadership style clearly influenced the learning culture in different wards at a hospital.

Moreover, consistent with the importance of team leader as role model and as the person who may initiate or implement team learning, Larson, Foster-Fishman and Franz (1998) found in a study of 101 student teams that a participative leadership style led to more information sharing than did directive leadership. Team members observe directly leadership characteristics, attitudes and behaviours and this can encourage learning and further maximize the desired outcome of the team (Edmondson, 2002; Madhaven & Grover, 1998; Sarin & McDermott, 2003). This is consistent with Sarin and McDermott's (2003) finding that team leadership promotes team learning. Using data from a study of 229 members from 52 high-tech new product projects, they identified various team leader behaviours that facilitated team learning, including involving members in decision making, clarifying team goals and providing bridges to outside parties via the leader´s status in the organization. Thus, a team leader may be a role model for team learning behaviour, by affecting team member's attitudes toward team learning and the learning culture through own behaviour and attitude (Bang & Midelfart, 2012; Schein, 2010). This indicates that team manager's active and visible commitment to learning is pivotal (Popper & Lipshitz, 2000; Prokesch, 1997).

The team leader´s commitment and support are found to be essential for successful change programmes in general (Huber et al., 1993 ref. in Popper & Lipshitz, 2000; Rodgers and Hunter, 1991), and for the success of programmes that influence cultural change in particular (Kanter, 1991). The investment of time for team learning will influence team member's order of priorities; allocating manager time is a clear signal to team members as to what is important (Popper & Lipshitz, 2000). For example, in a study where high level

employees including senior officers, doctors, senior managers participated in some form of improvement teams or learning activities, a clear message about the centrality of learning within the organization was communicated (Popper & Lipshitz, 2000).

Team leaders can influence people's willingness to put the subject of team learning on the agenda (Popper & Lipshitz, 2000). Team leadership is expected to impact team learning behaviors within the team by encouraging exchanges of information and knowledge through leader behavior and attitude towards team learning. Edmondson (2003) suggest that team leaders play a critical role in helping their members frame and reframe knowledge and experience. Knowledge sharing ensures that essential information moves quickly and efficiently to those who need it (Garvin et al., 2008). Moreover, Burke et al. (2006) found in a meta-analysis of 50 empirical studies that leadership had a significant importance in teams, particularly in terms of teams performance and learning, and that leadership becomes even more important when there exist interdependence among members.

This is especially relevant in management teams because the teams' results and performance are dependent on the team member's collaboration (Bang & Midelfart, 2012). DeDreu (2007) found that the more team members perceived cooperative outcome interdependence, the better they shared information and subsequently the more they learned and the more effective they were. This was especially prominent when task reflexivity was high. When task reflexivity was low, no significant relationship was found between cooperative outcome interdependence and team processes and performance. Reflexivity is the extent to which team members collectively discuss the team's objectives, strategies, and processes and the environment in which they operate (Sessa & London, 2006). Team members should be encouraged to discuss errors and mistakes can be used as an opportunity for learning (West, 2008).

A team leader can also enhance team learning by recognizing and rewarding team learning behavior (Popper & Lipshitz, 2000). Types of rewards and recognition are the most common and dominant channels of influence in organizations, through which criteria for desired behaviors can be established (Popper & Lipshitz, 2000). It refers to personal attention, usually verbally, emphasizing interest approval, and appreciation for a job well done (Luthans & Stajkovic, 2009; West, 2008). Rewards systems to influence individual behaviour and motivating employees at work are often implemented within organizations as a key management tool that can contribute to a firm's effectiveness (Bang & Midelfart, 2012; Cohen & Bailey, 1997). For example, in a study of project teams, Unger-Aviram, Zwikael

and Restubog (2013) found that leader motivational activities relating to recognition have significant and direct effect on team effectiveness.

Recognition is the nonfinancial performance–enhancing motivator most frequently used in organizations (Bustamam, Teng & Abdullah, 2014; Stajkoviv & Luthans, 1998). Thus, to maintain high levels of motivation toward team goal attainment, individual and collective team efforts must be recognized and rewarded by team leader (DeShon, Kozlowski, Schmidt, Milner & Weichmann, 2004). Managers are required to direct team member´s time, effort, and social skills toward particular activities and reward and recognition may help influence wished behaviour (Svedberg, 2002). The informative value of recognition lies in the social content of what is said and to the extent that it expresses genuine personal appreciation of the effort extended by the individual that results in successful performance (Stajkovic & Luthans, 2001). The use of positive reinforcement also increases the probability that the same behaviour will be repeated within the team (Homans, 1974; Svedberg, 2002). Past experience with learning will affect participation in later team learning (Sessa & London, 2006).

The team leader 's most important task is always to ensure that the team and the team members have a clear understanding of the team's direction and objectives, and the individual or team members' goals (West, 2008). The above indicates that team leaders can help members improve understanding and agreement about causes of problem and good solutions by facilitating essential and effective team learning components (Hackman & Wageman, 2005; Sarin & McDermott, 2003; Yukl, 2012) and I therefore propose that:

Hypotheses 1: Team leadership is positively associated with team learning.

Team psychological safety

Empirical studies have long noted the importance of trust in groups and in organizations and there seem to be an agreement among scholars from various disciplines that trust is highly beneficial to the functioning and effectiveness of organizations (Dirks & Ferrin 2001; Edmondson, 1999; Kramer, 1999). Trust is defined as the expectation that others´ future actions will be favourable to ones interests, such that one is willing to be vulnerable to those actions (Mayer, Davis, & Schoorman, 1995; Robinson, 1996). Mayer et al., (1995) suggested that a higher level of trust in a work partner increases the likelihood that one will take a risk with a partner, as for example cooperate and share information with each other, and thereby increases the amount of risk that is assumed.

Note that this concept differs slightly from the concept of team psychological safety investigated in this paper where team psychological safety involves but goes beyond interpersonal trust as "it describes a team climate characterized by interpersonal trust and mutual respect in which people are comfortable being themselves" (Edmondson, 1999, p. 354). Team psychological safety emerges if team members experience that it is safe to be themselves, say what one thinks, express disagreement with each other, ask questions and prove vulnerable to each other (Edmondson, 1999).

In conversation, people are subjected to, and become familiar with, how different team members interpret their experiences (Sessa & London, 2006). Several studies show how climate affects communication between fellow members of a team, with consistent results. A supportive climate encourages team members to focus on the message, which opens for members to express different ideas and agreements in an open discussion. The opposite is a negative communication climate that is characterized by defensive behavior, where communication and speaking up is emerging as closed and alienating and is characterized by blaming others and lack of support and encouragement (Edmondson, 2007; Levin & Rolfsen, 2004).

The positive effect of team psychological safety on team outcomes is illustrated in many organizational contexts (Argyris & Schön, 1996; Edmondson, 1999; Liu et al., 2013; Mayer et al., 1995). Simons and Peterson (2000) investigated the effect of team psychological safety (called intragroup trust) in top management teams and found that top management teams with high intragroup trust was better suited to separate task conflict from relationship conflict when they discussed, than groups with low degrees of intragroup trust. Dirks (1999) found that a high level of group trust increased the chance that team members worked as an overall coordinated team toward common goals, while a low level of trust group increased the chance that the members work more as individuals against their respective targets.

In a study of hospital patient care teams Edmondson (1996) explored the rate and type of medication errors in a hospital setting. The result suggested that people at work tacitly assess the interpersonal climate in which they work and that these assessments profoundly affect behavior such as the discussion and analysis of mistakes and problems. Dirks and Ferrin (2001) suggest that risk taking behaviour is expected to lead to positive outcomes such as for example individual performance. This can be observed in social units, where cooperation and information sharing are expected to lead to better unit performance (Larson & LaFasto, 1989).

The importance of interpersonal climate in teams especially shows when the quality of decision-making and team effectiveness really matters, and when the team carefully examines conflicting views and discusses them in a constructive way (West, 2008). In essence, team psychological safety refers to team member's perceptions of the consequences of taking interpersonal risk and being vulnerable within the team (Edmondson, 1999). The more team members participate in the team's decision-making processes by influencing, by interacting with those who are involved in the processes of change, and by disseminating information, the greater is the probability that members gets involved in the results of the decisions and contribute ideas for new and improved ways of working (Amabile, 1997; West, 2008).

There is also empirical evidence that team learning behaviour requires psychological safety among team members (Edmondson, 1999; Edmondson, Dillon & Roloff, 2007). For example, Edmondson (1999) presented a model of team learning and tested it in a multimethod field study. She found that team psychological safety is associated with team performance and learning behaviour in work teams. Teams learned by mistakes, which further improved performance. This study indicates that team psychological safety is an important enabling condition for team learning behaviour to occur such as experimenting and sharing perspectives and reflecting on past actions (Bang & Midelfart, 2012; Cannon & Edmondson, 2001; Popper & Lipshitz, 2000; West, 1996).

It is well documented that relationships based on mutual balance and confidence, creates the best conditions for learning (Levin & Rolfsen, 2004). Team psychological safety is important, as it is more likely that the working group members will dare propose new procedures in an environment that they consider safe and positive (Edmondson, 1999; West, 2008). Through systematic reflection on the implications of the team's work, such experiences contribute to new ways to solve challenges. Teams must create a practice where taking time to assess what has been achieved becomes a part of everyday life within the team (Levin & Rolfsen, 2004).

The importance of team psychological safety is particularly evident when considering interpersonal concerns. This is especially salient when members engage in evaluative discussions about activities in the team and evaluation of individual or collective performance (Edmondson, 1999). Team members place themselves at risk by admitting errors or asking for help, as the individual may appear incompetent and thus suffer a blow to his or her image (Bogenrieder & Nooteboom, 2004; Brown, 1990 ref. in Edmondson, 1999). In a psychological unsafe environment, members who do not want to be seen as incompetent may not bring up errors that could help the group discover problems before they occur (Sessa &

London, 2006). This opens for a dilemma for learning in teams; members of groups tend not to share unique knowledge and team members may refuse to engage in learning behaviour because of fear of being rejected or embarrassed (Carmeli, 2007; Stasser & Titus, 1978 ref in Edmondson, 1999).

Research has shown that the sense of threat evoked when discussing problems limits the willingness among individuals to engage in problem solving activities (McCurtain, Flood, Ramamoorthy, West, & Dawson, 2010). This indicates that negative evaluation or criticism that is needed to trigger learning, is inherently psychologically threatening (Argyris & Schön 1978), and it might therefore be difficult for teams to have high-quality reflective discussion about their shortcomings without considerable team psychological safety. Previous research has found that there are clear indicators that innovation is great in research teams when the atmosphere within the team is perceived as warm and positive while intellectually demanding (West, 2008).

Scott and Bruce (1994) found that the perceived climate for innovation in a research and development unit was particularly linked to individual innovative behaviour among scientist, engineers and technicians. Because members are more likely to have higher confidence in the face of obstacles and uncertainties (Edmondson, 1999; Sanner & Bunderson, 2015), a perceived higher level of team psychological safety will promote team learning (Edmondson, 1999; Wilkens & London, 2006). Individual members feel more confident that other members will not hold the error against them or that bringing up the error will not negatively impact them (Sessa & London, 2006). More precisely, team psychological safety is presumed to enhance the expectancy of engaging in experimental learning behaviours by removing barriers of fear, uncertainty, and self-defensiveness that are likely to impede those behaviors (Dirks & Ferrin, 2001; Edmondson, 1999; Sanner & Bunderson, 2015).

As the above indicates, team psychological safety enhances team members' willingness to be vulnerable in the team, and limits the fear of being rejected or embarrassed within the team in a team learning context (Carmeli, 2007; Edmondson, 2004; Rouissin, 2008). The willingness to engage in this reflective process seems to be fostered by a supportive context, more specifically a supportive interpersonal climate (Edmondson, 2007). Interpersonal climate often constraints team members from asking questions, speaking up about concerns and challenge fellow team members (Edmondson, 2004), which in turn could have contributed to correcting behaviour and change in management teams when necessary.

To sum up, the work in organizations is accomplished collaboratively and involving sharing information and ideas, integrating perspectives, and coordinating tasks, and teams provide a structural mechanism through which this collaboration often occurs (Edmondson, Kramer & Cook, 2004; West, 2008). An important tool to learn from experience is that the team and its members become aware of what they actually do, and then reflect on it (Levin & Rolfsen, 2004).

Prior studies noted the positive effects of psychological safety, defined as the collective belief within a work unit that members can question existing practices and admit mistakes without suffering ridicule or punishment (Edmondson 1999). This effect happens because team psychological safety generates a comfortable space within the team (Edmondson, 1999; Schein, 1985), and this space allows team members to feel free to share information, knowledge, propose conflicting viewpoints, and identify mistakes which are key factors in team learning (Bradley, Postlethwaite, Klotz, Hamdani & Brown, 2012; Lau & Murnighan, 2005).

Moderating effect. As noted earlier, team psychological safety refers to team member's perceptions of the consequences of taking interpersonal risk (Edmondson, 1999), and is a team climate that is able to reduce team members learning anxiety that may arise. Accordingly, team psychological safety involving interpersonal climate and individual's beliefs about another's ability and integrity may lead to a willingness to expose them to potential risk. Because it represents willingness among team members to be vulnerable and face the risk within the team, I propose that team psychological safety produce engagement and participation among team members in learning arenas facilitated by team leaders (Popper & Lipshitz, 2000). This is in accordance with empirical evidence that an increase in psychological safety leads to better team processes and performance (Edmondson, 2002; Mathieu, Tannenbaum & Salas, 1992).

The dominant perspective among researchers seem to be that the effect of team psychological safety materializes in relatively straightforward manner, as team psychological safety result in distinct effects such as more positive attitudes, higher levels of cooperation and superior levels of performance and learning behaviour. (e.g Edmondson, 1999; Larson & LaFasto,1989). Although the above perspectives have dominated the literature, it does not represent an exhaustive list of the positive impacts of team psychological safety. This paper suggests a different model of how team psychological safety might operate in a management team setting: by moderating the effects of other determinants, in this paper team leadership, and further the relationship between team leadership and team learning.

Team psychological safety is presented not as a causal factor but as a moderator that strengthens the relationship between team leadership and team learning. Consequently, team psychological safety, instead of directly leading to team learning behavior, may influence the extent to which team leadership encourage team members engage in team learning which in turn is likely to lead to learning behaviors.

Thus, team learning resulting from team leadership alone may not be sufficient for promoting high levels of team learning behaviours. To learn, team members cannot fear being belittled or downgraded when they disagree with peers or authority figures, ask naive questions, own up to mistakes, or present a minority viewpoint. Instead, they must be comfortable expressing their thoughts about the work at hand (Garvin, Edmondson & Gino, 2008). Team members, who do not feel confident in the team, will certainly be able to participate in discussions and decisions, but it is likely to believe that the motives might be to prove to themselves and others that they are good enough, rather than to make a constructive contribution to the best possible team result (Levin & Rolfsen, 2004). Team psychological safety should therefore be considered as a factor that can boost the effect of team leadership on team learning.

I propose that team psychological safety strengthens the influence of team leadership on team learning. When team members perceive a high level of team psychological safety, they are more likely to participate in team learning and exposing themselves in the team setting (Carmeli, 2007; Edmondson, 1999, West, 2008). Furthermore, team psychological safety amplifies the positive influence of team leadership on team learning, because it alleviates excessive concern about others reactions to the individual team member's actions, which could potentially lead to the often occurring feelings of embarrassment or threat (Edmondson, 1999). Therefore, I propose that:

Hypotheses 2: Team psychological safety moderates the relationship between team leadership and team learning. Specifically, the relationship between team leadership and team learning is stronger when team psychological safety is high than when team psychological safety is low.

Method

Sample

The sample comprised 1332 managers from 135 Norwegian and 81 Danish teams sampled from public as well as the private sector.

The sample of management teams included organizations from a broad range of sectors: health care, consultancy, economy and finance, facility and support, industry, entertainment, public administration, commercial service, transport, culture, energy and education. The respondents were recruited through consultation and development work. The size of the management teams varied from large teams with 23 leaders to small teams of 2 leaders, with an average management size of 7 members. The majority of the management teams comprised 4 to 6 persons.

Procedure

The participants rated their respective management teams on several dimensions of effectiveness, using a questionnaire called *effect* developed by Henning Bang and Thomas Nesset Midelfart (2015). Approximately 40% of the management teams answered the survey as an introduction to a following development course. The other 60% was asked to participate and be part of a research project. All management teams received an email with a web link with invitation to answer the questionnaire.

Measures

The web-based questionnaire *effect* consists of 27 scales that attempt to capture management team effectiveness and functioning through conditions of team effectiveness (input factors), processes related to team effectiveness (process factors) and indicators of management teams' results (output factors). The scales in *effect* are a result of a comprehensive review of international team research since 1970 (Bang & Midelfart, 2012) and from the authors' own research on Scandinavian management teams. The scales in the survey consist of 2-7 questions rated on a 7- point Likert scale. In total, the respondents answered 124 questions. This study examines only three scales from *effect*: the measures of team leadership, team learning and team psychological safety.

Reliability of measures was estimated at individual levels by Cronbach's alpha. Reliability is an estimate of "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 .89 (TPS) indicates that 89% of the variability in the scores represents the construct of interest, and 11% is considered as random measurement error. All three scales had satisfying alpha values (ranging from .81 to .93), meeting commonly used criteria for acceptable reliability (Nunally, 1978; Kline 2000).

Team leadership was operationalized as the degree to which the team leader does whatever necessary to enhance team performance. Team leadership was measured as a

continuous variable with five items on a seven point Likert scale, with the value of 7, indicating "totally agree," as the highest level of team leadership, 1 as "totally disagree", and 4 as "neither agree nor disagree". Estimated reliability of team leadership was .93 (Cronbach's alpha). The mean score of team leadership was used as the managements team amount of perceived team leadership (M= 5.39, SD= 0.83). The team leadership scale consisted of five questions:

1. *Our management team has a 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*

Team learning was operationalized as the degree to which the management team regularly discuss and evaluate successes and failures, and make alterations accordingly to become more effective. Team learning was measured as a continuous variable with four items on the same seven point Likert scale. A value of 7 indicates the highest level of team learning. Team learning had a Cronbach's alpha on .81. The mean score of team learning was used as the managements team amount of perceived team learning (M= 4.34, SD= 0.88). The team learning scale consisted of four questions:

1. *We rarely disuses how we function as a management team (reversed)*
2. *We evaluate how satisfied we are with the results we achieve in the management team*
3. *We discuss whether we are addressing the appropriate matters in the management team*
4. *We alter the way in which we work if we learn more effective ways the management team can function*

Team psychological safety was operationalized as the degree to which team members feel that the team is safe for interpersonal risk taking. Team psychological safety was measured as a continuous variable with seven items on a seven point Likert scale, with the value 7 indicating the highest level of team psychological safety. Team psychological safety had a Cronbach's alpha of .89. The mean score of team psychological safety was used as the

management team amount of perceived team psychological safety (*M*= 5.83, *SD*= 0.71). The team psychological safety scale consisted of seven questions:

1. *If we make a mistake in this management team, it is often held against you (reversed).*
2. *It is easy to bring up problems and controversial issue in this management team*
3. *It is safe to take a risk in this management team*
4. *It is difficult to ask other management team members for help (reversed)*
5. *It can easily go against you if you openly express your opinions in the management team (reversed)*
6. *It is easy to query any issues in the management team*
7. *There is little room for expressing your uncertainty in the management team (reversed)*

Confounding variables

Two possible confounding variables were controlled for: management team size and level of the management team. These were selected as control variables because they have earlier appeared to be related to team performance.

Social loafing has a greater likelihood of arising in larger teams, which could harm team performance (Forsyth, 2010; Steiner, 1972). The size of a management team can have significant influence on a team´s communication, team processes, productivity and performance (Edmondson, 1999; Ingham, Levinger, Graves & Peckham, 1974; Sarin & McDermott, 2003). In the present sample, there was substantial variability in management team size - ranging from 2 to 23 team members.

As the second variable, level of management team was used as a control variable. Level of management team is of importance because differences in responsibility and position through level of management teams may have an effect on team outcomes. Researchers have suggested that higher level management team may differ from lower level management teams in decision making processes (Simsek, Veiga, Lubatkin & Dino, 2005; Wiersema & Bantel, 1992). There could be a difference in motivation where top management teams may be more motivated to make effective and good decisions because of their vital role in the organization (Wiersema & Bantel, 1992). Level of management was measured as a quasi-continuous variable on a three point scale with items involving 1 as top management teams, value 2 as level 2 of management and value 3 as level 3 or lower of management team.

Main analysis

This study focused on the phenomena of team leadership, team psychological safety and team learning on a team level, therefore all variables in this study was conceptualized and analysed at the team level. Thus, team learning as a product of team leadership functions and feeling of team psychological safety is conceptually meaningful to investigate on an aggregated level. In order to investigate these effects on group level, data was aggregated following guidelines and recommendations for aggregating lower level data to higher level data from the work of Biemann, Cole and Voelpel (2012). Two conditions must be satisfied for meaningful analyses of aggregated data: there must be substantial variability between the teams in aggregated scores, and management team members must show substantial agreement in perceptions of team characteristics.

To examine agreement among team members, inter-rater agreement or reliability based measures such as rwg and ICC (intra-class correlations) were calculated and compared to threshold values. As shown in table 1, approximately 33% of the total variability in observed scale scores could be explained by variability between teams (eta^2), and the mean inter-rater agreement estimated by Rwg, was above .50 for all scales. The statistical measure of inter –rater agreement generally ranges from 0 to 1.0, where .70 is the recommended value (Lance, Butts & Michels, 2006). This recommendation value if .70 has been criticized, this because it is seen as inappropriate in many situations. (Smith-Crowe, Burke, Cohen & Doveh, 2014). Research has suggested that .50 is an appropriate value for inter-rater agreement (Guzzo, Yost, Campbell & Shea, 1993).

Statistical analyses

Descriptive statistical analyses and multiple regression analyses were performed with SPSS 22. A possible indirect effect of team leadership through psychological safety was investigated by fitting a structural equation model in AMOS 4.

Results

Descriptive statistics, estimated reliability, inter observer agreement, and zero-order correlations are presented in table 1.

Hypothesis 1 predicted that team leadership would be significantly related to team learning. As can be seen in Table 1, there was a statistically significant correlation between team leadership and team learning ($r=.52, p \leq .001$). When controlling for team size and management team level, the partial correlation between team leadership and team learning was .50, $p \leq .001$). Hence, hypothesis 1 was supported.

Table 1

Descriptive statistics, estimated reliability, inter observer agreement, and zero-order correlations.

							Inter-scale correlations	
Scale	Mean	SD	Alpha$_1$	Rwg$_2$	ICC(2)	Eta^2	TL	TLS
Team Learning (TL)	4,31	1,43	0,81	0,51	0,60	0,33		
Team Leadership (TLS)	5,34	1,28	0,93	0,64	0,64	0,36	0,52	
Psychological Safety (PS)	5,70	1,14	0,89	0,69	0,60	0,33	0,40	0,66

1 Alpha = Cronbach's alpha - estimated reliability for sum of single items.

2 Rwgs were computed within each group. Mean Rwgs across all groups are reported.

The moderating effect of team psychological safety on the effect of team leadership

Hypothesis 2 was examined by fitting a linear regression model to data:

TL = a + b$_1$*TLS + b$_2$*PS + b$_3$*(TLS*PS) + e

To reduce multicollinearity and to obtain a meaningful interpretation of the estimated effect of team leadership, the independent variables were centered by subtracting the mean level from all scores. The effect of team leadership in the above model will then be estimated for mean levels of team psychological safety.

As can be seen in Table 2, the estimated effect of team leadership for the mean level of team learning was .48, and the estimated increase in this effect when increasing team psychological safety by 1, was .17. Both estimated effects were statistically significant at .05.

Table 2

Results from regression analysis with team learning dependent on team leadership, team psychological safety, and the team leadership by team psychological safety interaction

	B	SE	Beta	t	p
Const.	4,35	0,052		83,84	0,000
Team Leadership (TLS)	0,48	0,083	0,45	5,76	0,000
Psychological Safety (PS)	0,12	0,098	0,10	1,22	0,223
Const.	4,28	0,058		73,14	0,000
Team Leadership (TLS)	0,48	0,082	0,46	5,90	0,000
Psychological Safety (PS)	0,16	0,098	0,13	1,62	0,108
TL by PS interaction	0,17	0,072	0,14	2,39	0,018

The team leadership by team psychological safety interaction is illustrated in Figure 1 where predicted team learning scores are plotted for levels of team psychological safety

ranging from -2 through 2, and illustrates how the linear effect of team leadership increases as a function of increasing levels of team psychological safety.
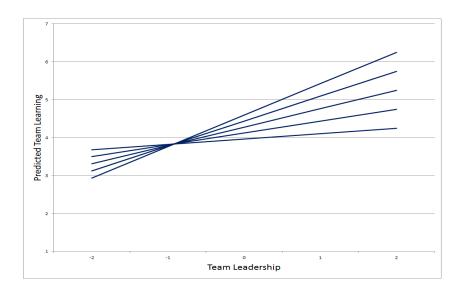

Figure 1.
Team learning predicted from team leadership for values of team psychological safety ranging from -2 through 2 deviations from mean.

Possible confounding variables

Team size was not significantly correlated with neither team leadership (r=-.10) nor team learning (r=-.11). The same applies to level of management. The correlation between level of management and team leadership was .10, and the correlation between level of management and team learning was .04. The correlation between team size and team psychological safety was substantial and statistically significant (r=-.36,p<.001), indicating reduced psychological safety with increasing team size. The correlation between level of management and team psychological safety was weaker, but statistically significant (r=.26,p<.001), indicating increased psychological safety the higher up in the hierarchy the management team is positioned. However, when both confounding variables were included in the regression model, none of the estimated effects changed.

Discussion

In this study the main aim was to investigate whether team leadership influences team learning, and to what extent team psychological safety moderates the relationship between

team leadership and team learning. A positive and significant relationship between team leadership and team learning was found. Team leadership influences team learning, or more precisely: team leadership influences team learning by encouraging promoting and facilitating for team learning in management teams. The effect of team leadership has been explained by how team leader can encourage and enhance for team learning in different ways; through leader behavior and attitude, rewarding and recognize team learning behavior and last investment of time for team learning will influence team members order of priorities. The team leader is a possible powerful inhibitor and promoter of a team's ability to function in its environment and to learn when needed. A team leader can interpret or encourage the interpretation of the environment and help the team in deciding what is needed (Sessa & London, 2006).

The team leader is in a position where he or she can facilitate team learning by designing for learning arenas; when and where the team learning takes place and who evaluates the team learning. The team leader should be a manager of risk, actively seeking solutions to issues that have potential to become problems of the future. This also includes demonstrating that everyone is learning and working together and that they can lead by example (West, 2008). The most important characteristics for facilitating team learning are the presence of goals since individuals and groups are engaged in goal-directed, intention bound work. As a team leader the responsibility lies in securing that members have a clear understanding of the team's direction and goals, and further coordinate in order to accomplish the team´s goal (Sessa & London, 2006; Dirks, 1999). These are all aspects that are described as prevalent and central for team learning behaviors to occur.

Team psychological safety was found to moderate the relationship between team leadership and team learning in management teams. This implies that the effect of team leadership on team learning increases when team psychological safety is present. As team psychological safety is viewed as a group climate factor, that removes barriers to learning, risk taking, and openness during interactions within the group, the effect of team leadership on team learning becomes higher when team psychological safety is present; the higher the team psychological safety is, the stronger the relationship between team leadership and team learning is. The influence of team psychological safety in management teams makes it likely to believe that management teams could benefit from emphasizing and throughout understand the basic human motivation to build and maintain lasting, positive and meaningful relationships with others, which can help to understand how the team works, and especially the emotional acting in working groups.

The moderating effect of team psychological safety might be due to team leaders having substantially greater power than other members. This may be explained as the position a team leader has may raise concern among team members because of power differences and can thus affect team members learning behaviour (Sarin & McDermott, 2003). This is consistent with the assumption that individuals with less power in organizations may be concerned about appearing incompetent in front of those with power (Sessa & London, 2006). Edmondson (2003) investigated what leaders of action teams do to promote proactive coordination behaviors, including speaking up, and found that the most effective leaders helped teams learn by communicating a motivating rationale for change and by minimizing concerns about power and status differences to promote speaking up in the service of learning.

In a group situation where there is a dominant leader, one may be inclined to follow the leader rather than defend their own views because of the authority associated with the formal position of a team leader (Levin & Rolfsen, 2004; West, 2008). This indicates that the team leader would benefit from reducing power differences in management teams, and teams designed with team psychological safety in mind can probably imitate the influence of power dynamics in management teams. The power differences between team leader and other members could therefore seem to be decreased by team psychological safety, which make the members feeling more safe and experience an existing mutual respect within the team which thus leading to increased team learning behavior among the individuals within the team.

This indicates that for team leaders it is essential when evaluating leadership, to note that it´s not only the rational, task oriented part of the individual who participates in teamwork. Team members can experience that there are others in the team they have difficulties cooperating with or are afraid of, and this will affect the ability to contribute within the team. It is likely to believe that teamwork do not optimally function without a positive and psychologically safe social climate. The degree of trust, support, respect team members share, will act substantially in the efforts of the team. In teams that works well the interaction between members will create a synergy through the dynamics of learning and inspiration that happens between people who cooperate closely.

The control variables, management team size and level of management team, were not found to have a significant impact on the outcome variable. The insignificant relationship between the two confounding variables indicates that neither level of management team or team size have an effect on the team learning.

Theoretical implications

This study contributes to the already existing body of work on various types of teams. Context and type of teams are taken more seriously and can be examined in greater detail by developing more nuanced models of team learning and team performance (e.g., see Edmondson et al., 2007). The arguments and findings in this study refer to management teams, rather than all types of teams, because of the nature of the work these types of teams do. Team psychological safety and its role is relevant, and I argue that the theme of team psychological safety has a central place in the study of management teams, both because of the complexity of the work and the level of collective and individual responsibility held by team members. Management teams have a collective responsibility for aligning the different parts of the organization into a coherent whole, and fostering overall effectiveness separated from individual leadership responsibility (Hackman & Wageman, 2007; Levin & Rolfsen, 2004). The data show evidence that when team psychological safety is present the quality of the relationship between team leadership and team learning improves and team learning increases.

Furthermore, the study contributes to research by showing that management teams characterized by team psychology safety can increase their team learning, which will improve their performance. Management teams need to be aware of trends in their industry and the needs of their customers or client populations and make changes accordingly (Sessa & London, 2006), and team learning is of especially relevance in these types of team. The study cites why some management teams may interact in more effective team learning. I argue that team psychological safety is an important mechanism for enabling management teams to increase team learning in the future. Team psychological safety allows team members to engage in learning behaviour characterized by discussion, raising concern and speaks up (Edmondson, 1999). This counteracts a problem that often occurs when learning in groups; group members tend to not share unique knowledge they hold and team members may refuse engage in learning behaviours because of fear of being rejected or embarrassed (Brown & Paulus, 2002; Edmondson, 1996; Sessa & London, 2006).

This study suggests that team members in management teams evaluate the interpersonal climate and affect their´ actions, which is consistent with previous research result on team learning (Edmondson, 1999). The perception of a positive and safe interpersonal climate is a key enabler to increase in team learning, through which willingness to be vulnerable is facilitated. This study enriches the research and knowledge by showing

team psychological safety as a critical mechanism underpinning team learning when team leader facilitate for team learning to happen in management teams.

The study contributes to a better understanding of the team leadership´s role in shaping team learning behaviour in their teams. Previous research had a tendency to emphasize more on traditional framework as for example transformational leadership and specific leadership characteristics and styles when investigating leadership and outcomes. The functional leadership approach is emphasized in more recent work and investigation of team effectiveness (e.g Kozlowski, Mak & Chao, 2016).

The role of leadership in this paper is investigated from the functional leadership theory approach, and emphasizes the need for team leaders to define the direction of the team and organizing the team to maximize their progress, which contributes to team effectiveness (Zaccaro, Rittman & Marks, 2001). Team leadership facilitates and enhances team learning, through motivation, learning arenas and role modeling (Kozlowski et al., 2016; Popper & Liphitz, 2000). Thus, team leadership practices are important for team learning. Moreover, these practices will have increased effect in management teams where the climate is characterized by psychological safety.

Practical implications

The current study emphasizes that team learning is of great importance for the success of management teams, and confirms that team leadership can play a significant role in enhancing team learning in management teams. The findings in my study may therefore have useful implications to management practitioners. First, the findings suggest that team leadership can be a useful way to facilitate learning behaviors in management teams. Thus, managers and organizations should be supportive of this form of team leadership and encourage this in management teams. Second, this research demonstrates that team psychological safety strengthens the relationship between team leadership and team learning. Specifically, I found that team leadership was more positively related to team learning when team members perceived high team psychological safety, than when they perceived low team psychological safety.

Learning behavior and new ways of doing things most often means risks and uncertainties for the involved team members, that may create anxiety among team members (Argyris & Shön, 1996; Edmondson, 1999). The existing authority the team leader is endowed with could enhance anxiety regarding asking questions and be critical when the leader is presented. In accordance with this the team leader in management teams should

emphasize and ensure to enlarge team psychological safety to increase their effect on team performance like team learning.

Practices that could decrease power differences between a team leader and team members may help to enhance the level of team psychological safety in general within the team. It is likely to believe that members of management team´s perception of power may affect the quality of team reflection and this has further implications for their ability to change (Ames, 1992; Bunderson & Suitcliffe, 2003; Edmondson 2002).

Limitations and future research

First, caution is necessary when generalizing the findings of this research to other contexts. This study involved Scandinavian organizations from Denmark and Norway, and cultural differences may affect the research result. Future studies on management teams could benefit from designing a cross-cultural study to replicate the study using teams in other Western cultures, compared to Eastern society, where power distance and collectivism are ranked higher than in most Western cultures (Hofstede, 1983). Secondly, the study only included management teams and therefore the result from this study cannot be generalized to other populations of teams.

Third, future research should explore under what conditions team leadership is more likely to be effective by comparing teams with high versus low team psychological safety further. There is however a limitation in that most employees in the data set perceived their team as having a fairly high level of team psychological safety, which reduces the variance that can be explained through predictors. Further, comparing team types in a work setting, to see if team psychological safety has the same effect on the relationship across different teams is also a promising research area. What is beneficial for learning in some teams may be different in others, and teams may also differ in interaction and communication (Sessa & London, 2006).

Future research could also benefit from controlling for other covariates such as gender and level of experience, since these covariates may have an effect on the experience of the variables measured in the self-report questionnaire. It is likely to believe that teams that have been together for many years may adapt changing conditions differently than a newly formed team.   It is also important to note that the use of self-reports has some difficulties with regard to causality. Some of the relationships could be reciprocal and causal over time, and future research should be done in more controlled settings. Lastly, caution is required regarding the likelihood of having high common-method variance, as a result from the fact that the

variables in the survey were obtained from the same source and measured at the same time. This may create artificial correlations among variables.

Conclusion

In conclusion, it is necessary in management teams to be aware of and emphasize the importance of team psychological safety when looking at the relationship between team leadership and team learning in management teams. The supported moderation effect in this paper indicates that team leadership is important for facilitating team learning in management teams. The team leadership effect on team learning is enhanced when team psychological safety is present in the team. Therefore, high team psychological safety increases the team leadership effect on team learning in management teams. These findings suggest that the moderating effect should be discussed in order to better understand how team leadership could further team learning in management teams by emphasizing team psychological safety. Learning in teams is seen as a key mechanism through which learning organizations becomes strategically and operationally adaptive and responsive. When teams change what they do or how they do it, an organization maintains or enhances its effectiveness in a changing world. Management teams benefit from having good team leadership in the influence of and organizing team learning, and this effect increases when team psychological safety is added to the already existing relationship.

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