

UNIVERSITY OF GOTHENBURG  
DEPARTMENT OF PSYCHOLOGY

**Ambidextrous Leadership and Creative Team Climate  
for Innovativeness in Swedish Healthcare**

David Palm

Master's Thesis, 30 credits  
Master's Thesis in Psychology  
Course code: PX2503  
Autumn semester 2019

Supervisor: Leif Denti

# **Ambidextrous Leadership and Creative Team Climate for Innovativeness**

David Palm

The purpose of this study was to empirically test the relations between ambidextrous leadership, individual innovative work behavior, and creative team climate for innovativeness in a Swedish healthcare setting. The sample consisted of medical professionals ( $n = 130$ ) from seven different departments in a regional Swedish hospital. The results indicated that ambidextrous leadership had a positive relationship with creative team climate in a Swedish healthcare setting. However, the results also indicated that ambidextrous leadership had a significant negative effect on creative team climate, when interacting with innovative work behavior. The impact of ambidextrous leadership in a healthcare setting is further discussed.

Information, products, and services have progressively become faster to obtain as well as more easily accessible, due to an ever-expanding globalization. This phenomenon has given rise to an ever-increasing demand from a vast variety of customers, which, in turn, has resulted in more pressure from international competition (Basadur, 2004; Denti, 2013). Because of this demand, efficiency, productivity, and technical advancement have gradually increased worldwide. One of the main factors for this massively increased advancement is the developing innovation capability, which leads to both profit and long-term growth and hence a key goal of most organizations (e.g., Canuto, 2018; Das, Verburg, Verbraeck, & Bonebakker, 2018; Denti, 2013; Jansen, van den Bosch, & Volberda, 2005; Junni, Sarala, Taras, & Tarba, 2015; Parida, Sjödin, Lenka, & Wincent, 2015).

However, although this innovative growth spurt is taking place worldwide, there is a bottleneck consisting mainly of a lack of communication (e.g., unified data and documentation systems), networking (e.g., instant information sharing), a more effective use of capital (Olsson, Elg, & Lindblad, 2007; Zimlichman & Levin-Scherz, 2013), and a supportive environment for innovative investment (Canuto, 2018; Gupta, 2008). One area that has come to suffer most from this is the healthcare system, especially the healthcare system in Sweden (Andersson, Elg, Perseius, & Idvall, 2013; Gustafsson, 2019; Gustafsson & Lindholm, 2019; Sjöberg, 2019). Healthcare providers have, on the one hand, been quick to adopt innovative medical devices, procedures as well as treatments. On the other hand, due to patient confidentiality, costs, safety, potential risks, lack of employee opinions, administration, time consumption among other things, many departments fail to adopt innovation for more efficient team procedures and administration, which is a vital part of the process (e.g., Olsson et al., 2007; Omachonu & Einspruch, 2010; Sjöberg, 2019; Zimlichman & Levin-Scherz, 2013). One consequence of failing to take advantage of new cost-effective innovations, insufficient planning for the future, and a lack of employee opinions, is national cutbacks in the Swedish healthcare system (Gustafsson, 2019; Gustafsson & Lindholm, 2019; Olsson et al., 2007; Sjöberg, 2019). These cutbacks have led to staff shortage, increased work-related stress, inadequate leadership, service, and patient dissatisfaction (Sjöberg, 2019; Vårdanalys, 2016). According to Andersson et al. (2013) and Olsson et al. (2007), less than 40% of past innovative initiatives have turned out to be successful

and closer to 50% of healthcare expenditures have turned out to be unprofitable, leading to these results. Aforementioned researchers, as well as Sjöberg (2019), claim that this, at least partly, is the result of decisions made by external parties who lack insight of the work process. Innovation would prosper more, with, for example, planning based on employee opinions, a more effective use of capital, the use of integrated systems on a global basis and a supportive environment for knowledge sharing and innovative investments (Al Dari, Jabeen, & Papastathopoulos, 2018; Canuto, 2018; Gupta, 2008; Olsson et al., 2007; Omachonu & Einspruch, 2010; Zimlichman & Levin-Scherz, 2013). Consequently, above mentioned factors would in turn lead to a better understanding and team climate among workers.

For instance, employee innovation is shown to have a positive relationship with organizational effectiveness (Rahnama, Mousavian, Alaei, & Maghvan, 2011). King, Chermont, West, Dawson, and Hebl (2007) showed that maintaining an innovative climate relieves the negative consequences associated with demanding work and hence increases wellbeing as well as productivity. Alghamdi (2018) stated that leadership is one of the strongest predictors of both employee and organizational innovation, of all the factors which can be directly influenced by the work unit. Omachonu and Einspruch (2010), Weintraub and McKee (2019), as well as Xerri and Reid (2018), showed that leadership behavior is one of the most crucial and result-effective factors in the development and creation of an innovative climate in healthcare. Thus, leadership is a key factor for determining the levels of innovation in the workplace (e.g., Alghamdi, 2018; Rosing et al., 2011).

As stated above, innovation plays an essential role in organizations, not only in the development of technology, planning and patient services, but also for better wellbeing, time-effectiveness, and long-term stability. Even so, employee opinions, communication, a climate supporting innovation, and the use of integrated systems, are, especially in healthcare, the weakest links in the chain of innovations. Combined with the cutbacks, staff shortage and increased work-related stress in the Swedish healthcare system, it is of key importance to remove this bottleneck and create more favorable conditions. As already indicated, this can be done with a better leadership, where ambidextrous leadership has been shown to work well in healthcare settings (e.g., Kivimäki & Elovainio, 1999; Omachonu & Einspruch, 2010).

## **The Distinction Between Creativity and Innovation**

The words creativity and innovation are often used interchangeably, however, there is a distinct difference between the two words. In short, *creativity* is the act of generating ideas while *innovation* includes the generation as well as the implementation of ideas (Rosing, Frese, & Bausch, 2011; West, 2002). It is also important to notice the distinction between *innovation* and *innovativeness*, since the terms often have been synonyms in articles published before 2010 and been used accordingly. This gives rise to an ambiguity of what term is really being referred to and hence of great importance to clarify in this thesis as well as future articles (Kamaruddeen et al., 2010). The term innovativeness implies the capacity or potential for new ideas, but not the implementation of those ideas. Simply put, innovativeness causes innovation (Kamaruddeen, Yusof, & Said, 2010). Based on the above definitions, innovation in healthcare is defined as an implemented new idea, process, service, or product for an

improvement in accurate, time-, and cost-effective diagnosis, treatment, prevention, and research (Omachonu & Einspruch, 2010). However, there are several barriers holding back this innovation (Canuto, 2018; Das et al., 2018; Omachonu & Einspruch, 2010).

## **The Two Dimensions of Innovation: Exploration and Exploitation**

In terms of service productivity in healthcare, procedures should be updated as new knowledge emerges and the focus should be on both short and sustainable long-term development. Hence, to improve service, work environment and long-term sustainability, an increasing number of researchers suggest that healthcare settings need work systematically, while simultaneously generating and gradually applying ideas along the way (e.g., Candi, Ende, & Gemser, 2013; He & Wong, 2004; Jansen, 2005; March, 1991; O'Reilly & Tushman, 2013). This calls for a fine-tuned adjustment based on both the customers' and stakeholders' demand, the current conditions, as well as the organizations' capital and resources (Manso, 2017; Parker, 2014; Varkey et al., 2008). In order to get and maintain a balance in the above-mentioned factors and at the same time enhancing productivity, it is necessary to have a balance between *exploratory* and *exploitative innovation* (e.g., Alghamdi, 2018; He & Wong, 2004; Jansen, 2005; March, 1991; Raisch & Birkinshaw, 2008), which will be defined below.

*Exploratory innovation* is an experimentation-focused, high-risk high-return approach, where the aim is to generate new products or services and searching for alternative solutions and application of new knowledge (March, 1991; Mueller, Renzl, & Will, 2018; Rosing et al., 2011; Zacher & Rosing, 2015; Yi, Mao, & Wang, 2019). *Exploitative innovation* is adherence to rules, risk avoidance, and reducing variance in behavior. Exploitative innovation means increased efficiency by refinement of existing products and services (March, 1991; Mueller et al., 2018; Rosing et al., 2011; Zacher & Rosing, 2015; Yi et al., 2019). It is crucial to note that both exploratory and exploitative styles have their benefits and their costs. Using both approaches in synergy tends to lead to better service, lower costs, and higher productivity (Omachonu & Einspruch, 2010). Ambidextrously oriented organizations regularly adjust the levels of exploitative and exploratory innovation of work groups in a flexible fashion (March, 1991; O'Reilly & Tushman, 2013; Zacher & Rosing, 2015).

Regarding the Swedish healthcare system, while exploratory innovation may make way for radically new procedures, the success of the procedures will be unknown until having been tested for an extended period of time. In contrast, the outcome of exploitative innovation is known and rather predictable but is unlikely to lead to the major changes needed for a more long-term effective healthcare system (Rosing, Rosenbusch, & Frese, 2010). Consequently, in order to be successful in both the short- and long-term, a combination of exploratory and exploitative innovation, so called *ambidextrous innovation*, has proved to work best (Gibson & Birkinshaw, 2004; He & Wong, 2004; Rosing et al., 2010; Zacher & Rosing, 2015; Yi, Mao, & Wang, 2019). Ambidextrous innovation is practiced on both an individual and a group level. The innovation is defined as the active involvement of a single individual or team members working in the development of new or the improvement of existing products, processes, or methods (Denti & Hemlin, 2016; Sarooghi, Libaers, and Burkemper, 2015).

## Opening, Closing and Ambidextrous Leadership

Leadership is a key factor for determining the levels of ambidextrous innovation in the workplace (e.g., Alghamdi, 2018; Rosing et al., 2011). Robbins and Judge (2017) define an overall leadership as “the ability to influence a group toward the achievement of a vision or set of goals” (p. 644). Alghamdi (2018) stated that leadership was one of the strongest predictors of both employee and organizational innovation. The leadership practiced in ambidextrously oriented organizations is called *ambidextrous leadership* (Gibson & Birkinshaw, 2004; He & Wong, 2004; Rosing et al., 2010; Zacher & Rosing, 2015). Ambidextrous leadership consists of *opening leadership behavior* and *closing leadership behavior*. Opening leadership behaviors have been identified as reliable factors to improve innovativeness at work (Zacher et al., 2014), while pure closing leadership behaviors have been shown to decrease innovativeness as well as being destructive for organizations in the long run (Alghamdi, 2018; He & Wong, 2004; March, 1991). A leader with opening leadership behaviors allows for independent thinking, flexibility and error making. A leader executing closing leadership behaviors monitors employees’ work processes to ensure they follow the plans, sanctions for error making (Rosing et al., 2011.) More details are mentioned in Table 1.

Paradoxically, opening and closing leadership behaviors are on opposing ends of a spectrum and yet complementary when used together (Rosing et al., 2011). When both approaches are combined and adjusted to the specific situation, they have been shown to result in an improved outcome, where they create a more beneficial and stronger effect than what they would do separately (e.g., Gibson & Birkinshaw, 2004; He & Wong, 2004; March, 1991; Rosing et al., 2010; Rosing et al., 2011; Zacher & Rosing, 2015). For example, applying opening leadership tends to provide better conditions for solving unforeseen problems, challenges or arising disturbances in the process (Mumford, Scott, Goaddis, & Strange, 2002). If, however, the organization faces unexpected problems like an earlier deadline, leading with a closing leadership could lead to a greater advantage, due to its structure and result orientation (Zacher & Rosing, 2015).

Table 1

*Examples for opening and closing leader behaviors.*

Opening leader behaviors	Closing leader behaviors
Allowing different ways of accomplishing a task	Monitoring and controlling work process and goal attainment
Encouraging experimentation with different ideas	Establishing of plans
Motivating to take risks for potentially better results	Sticking to plans and routines
Allows for independent thinking	Motivating not to take risks
Giving room for process flexibility	Controlling adherence to rules
Allowing errors	Focusing on uniform task accomplishment
Encourage to learn from errors	Punishing error making

*Note.* Based on the table from Rosing et al. (2011, p. 967).

Opening leader behaviors are shown to take place in the early stages of an innovation process, whereas closing leader behaviors are primarily more widely used in the later parts of the process (de Jong & den Hartog, 2007; Rosing et al., 2011). This gives rise to another essential point regarding effective innovative behavior and practices. Studies done by Li, Bhutto, Nasiri, Shaikh, and Samo (2018), Shanker, Bhanugopan, van der Heijden, and Farrell (2017), and Parker (2014) showed that employees working in an organization with a high level of ambidextrous leadership, required more complex job assignments (behavioral or cognitive), in order to maintain innovativeness. Meaning that if the job lacks sufficient stimulation, the level of innovative productivity will drop significantly. Moreover, when a leader provided the right support for the team, employees' self-perceptions regarding their personal creativity, initiative and creativity increased (Oldham & Cummings, 1996; Tierney & Farmer, 2002), which increased the creative and innovative performance (Denti, 2013). Additionally, when either expectation of innovative behavior, job complexity (Audenaert, Vanderstraeten, & Buyens, 2017; Denti, 2012) or the need for innovation was high in an ambidextrous organization, it led to an enhanced individual innovation and productivity (Hammond, Neff, Farr, Schwall, & Zhao, 2011; Ohly et al., 2006; Scott & Bruce, 1994).

To explain ambidextrous leadership in more detail, it can be described as the ability to show both opening leadership behaviors to encourage exploratory behaviors in followers, closing leadership behaviors to promote exploitative behaviors in followers and a flexibility to switch between both behaviors (e.g., Gibson & Birkinshaw 2004; Jansen et al., 2006; Junni et al., 2013; O'Reilly & Tushman, 2013; Raisch & Birkinshaw 2008; Rosing et al., 2011). Ambidextrous leadership and innovation require a high flexibility and constant adjustment from the leader's part, in fostering exploitative and exploratory innovation, in order to find the sweet spot to prosper. Due to this demand, several conditions must be met by both the leader and work group simultaneously, as the leader must see the big picture and adjust to its demands.

Conclusively, ambidextrous leadership was observed to have a positive relationship with individual and team innovativeness. Some of the conditions that affect the magnitude of this relationship are sufficiently stimulating work assignments, expectations from the leader to be innovative, and feelings of support from team members. These needs can be met through mainly through emotional and participative safety (Denti, 2013; Peltokorpi & Hasu, 2014), participative leadership (Krause, 2007), a feeling of togetherness (Denti, 2012), teamwork (West & Anderson, 1996) and teamwork satisfaction (Xerri & Reid, 2018). The common denominator for this is an open and supportive team climate in which the employees can express their unique voices and hence increase creative initiative and innovation (Chen & Hou, 2016; Holleman, Poot, Mintjes-de Groot, & Van Achterberg, 2009; Rank et al., 2004).

## **Supporting a Creative Team Climate for Innovativeness**

According to a meta-analysis by Holleman et al. (2009), supportive leadership is positively related to higher levels of an open and tolerant climate, higher work morale, individual initiative taking and productivity. With a better team climate, the effectiveness as well as the work satisfaction will increase. This finding can be strengthened with Mumford et al. (2002) research, showing that a common and

meaningful vision, openness, support as well as trusting team relationships increased creative efforts in work groups. The result also showed that factors like no/low support, no/low opportunity for autonomy, a close supervision, distrust, and a vision forced against their will, radically negatively impacts employees' level of creativity in a negative way. A further support for a positive impact on a creative team climate is shown in Koeslag-Kreunen, Van Den Bossche, Hoven, Van Der Klink, and Gijsselaers' (2018) meta-analysis, where they report that team leadership, which, by definition, is included in an ambidextrous leadership, have a high impact (18%) on team learning behavior. Everything added up, leadership seems to be the most crucial factor that can be directly affected, when it comes to control morale, productivity, innovation, and team climate.

Team climate appears to be one of the foremost factors for productivity and individual innovation. For example, West et al. (2003) showed that team processes (consisting of a supportive team climate, perceived worker inclusiveness, clarity of objectives, shared information, and communication) are positively associated with productivity and team innovation. In contrast, lack of a clear leadership or lack of perceived team support, tend to lead to lower levels of productivity and innovation as well as team processes (West et al., 2003). Pilař, Pokorná, and Balcarová (2014) show that a constructive and supportive team climate positively influences increased productivity, personal satisfaction, and innovativeness. In conclusion, leadership and team climate are two of the foremost factors which affect the effectiveness, job satisfaction, work morale productivity, creativity, and individual innovation productivity. However, since team climate is both a broad and general term, which does not include every desired dimension, a more accurate concept would be creative team climate for innovativeness at work.

Conclusively, the two key concepts in this study are *ambidextrous leadership* (opening and closing leadership) and *creative team climate for innovativeness at work* (or *creative team climate* for short, which is being measured in innovative work behavior and team climate inventory). The purpose of this study is to empirically test if and how they are related and affected by innovative work behavior, in a Swedish healthcare setting. Ambidextrous leadership has not, to my knowledge, been tested in a Swedish healthcare setting before. To summarize, three hypotheses can be formulated:

**Hypothesis 1a:** Opening leadership behavior has a positive relationship with creative team climate in a Swedish healthcare setting.

**Hypothesis 1b:** Closing leadership behavior has a negative relationship with creative team climate in a Swedish healthcare setting.

**Hypothesis 1c:** Ambidextrous leadership has a positive relationship with creative team climate in a Swedish healthcare setting.

## **Innovative Work Behavior**

Innovative work behavior can be defined as an “introduction and application of new ideas within a work role, group or organization, in order to benefit role performance, the group, or the organization” (Janssen, 2000, p. 288). Research during the last decades has shown innovative work behavior to be essential for both functioning as well as long-term profit of organizations (e.g., de Jong & den Hartog, 2010; Janssen, 2000; Montani et al., 2015). Innovative work behavior scales are shown

to be positively related to innovation measures, such as invention disclosures (Scott & Bruce, 1994) and innovative units produced (Rank et al., 2009).

There is ample research supporting a positive relationship between ambidextrous leadership, team climate inventory (this term will be explained later), innovative work behavior and individual innovation. For example, according to Hu and Zhao (2016) and Yi et al. (2019), knowledge sharing between both employers and leaders and employees, positively moderates exploratory and exploitative innovation in the work team and hence increase the individual innovation. This is in line with Odoardi, Battistelli, and Montani's (2010) findings, that employees who feel genuinely valued for their creative and innovative efforts, they will set more goals related to creativity and innovation, which was related to more innovative work behavior (Montani, Odoardi, & Battistelli, 2015; Shanker et al., 2017). A recent study by Shanker et al. (2017) showed that a climate for both creativity and innovation was positively associated with innovative work behavior and organizational performance. The same study showed a correlation between innovative work behavior and organizational performance.

### **Creative Team Climate for Innovativeness at Work**

Creative team climate for innovativeness at work (or creative team climate for short) should be derived from a climate in which both creativity and teamwork are encouraged and supported. This type of climate is shown to give a higher potential and capacity for innovative productivity and outputs. The factors included in creative team climate for innovativeness at work are described in the next paragraph and summarized in Table 2.

In an ideal creative team climate for innovativeness at work, employees are led with a clear and ambidextrous leadership, where ideas, experimentation, risk-taking and creative initiative are encouraged, in balance with performance and deadlines (e.g., Al-Dari et al., 2018; Alghamdi, 2018; Janssen, 2005; Latif, Qadeer, & Farooqi, 2017; Mumford et al., 2002; Naqshbandi, Tabche, & Choudhary, 2019; Rosing et al., 2010; Veenendaal & Bondarouk, 2015; Zacher & Rosing, 2015). In this climate, the team has a mutual vision (Kivimäki & Elovainio, 1999; Loo & Loewen, 2002), agreed upon goals (Odoardi, 2015; Peralta, Lopes, Gilson, Lourenço, & Pais, 2015; West & Anderson, 1996), rigid project planning (Candi et al., 2013; Montani et al., 2015), with flexibility for its execution (Candi et al., 2013). The team, as well as the leader should provide positive feedback (Bos-Nehles, Renkema, & Janssen, 2017; Holleman et al., 2009; Janssen, 2000; Montani et al., 2015; Mumford et al., 2002), positive and supportive team relationship (Denti, 2013; Janssen, 2005) as well as a positive team climate (Chen & Hou, 2016; Holleman et al., 2009; Rank et al., 2004; Scott & Bruce, 1994). Additionally, factors to maintain a creative team climate for innovativeness at work are a high level of self-perceived autonomy (Bos-Nehles et al., 2017; de Jong & den Hartog, 2010; Denti, & Helmin, 2013; Hammond et al., 2011; Krause, 2004; Mumford et al., 2002; Ramamoorthy & Flood, 2005), fair compensation (Veenendaal & Bondarouk, 2015), emotional and participative safety (Denti & Hemlin, 2016; Holleman et al., 2009; Peltokorpi & Hasu, 2014), a creative self-efficacy (Gong, Huang, & Farh, 2009; Kao, Pai, Lin, & Zhong, 2015; Tierney & Farmer, 2002) and wellbeing (Mumford et al., 2002; Shanker et al., 2017; Xerri & Reid, 2018). Additional factors are a high human capital (Chou, Huang, & Lin, 2018; West et al., 2013), clear



communication (Peralta et al., 2015) and information exchange and sharing (Al-Dari et al., 2018; Mumford et al., 2002). If the performance task is difficult, a heterogeneous team tends to display more enhanced innovativeness (Denti & Hemlin, 2012). A mutual vision with the team, participative safety, task orientation (e.g., common goals), and support for innovation, are the four dimensions of team climate inventory (Anderson & West, 1998; Hammond et al., 2011; Loo & Loewen, 2002). *Team climate inventory* is defined as the psychological atmosphere in a team as well as its current organizational environment, by measuring the members perceived climate for innovation (Anderson & West, 1998; West & Anderson, 1996). Taken as a whole, this implies additional support for team climate inventory being positively associated with high levels of both innovative work behavior and creative team climate for innovativeness at work.

Table 2

*Factors included in a creative team climate for innovativeness at work.*

Leadership level	Group level (the leader is included)	Individual level
Ambidextrous leadership, in which the leader encourages new ideas, experimentation, risk-taking and creative initiative in balance with performance and deadlines. The leader should also give positive feedback and communicate well.	A mutual vision, agreed upon goals, rigid project planning with flexibility for its execution, positive and supportive team relationship, positive team climate, effective use of human capital as well as information exchange and sharing.	A high level of self-perceived autonomy, fair compensation, emotional and participative safety, support, innovative expectation, stimulating work, wellbeing, and a creative self-efficacy.

*Note.* The factors are categorized in three different levels (leadership, team and individual) of a work-related team.

As described earlier, opening leadership behaviors share many of the same characteristics as those enhancing a creative team climate for innovativeness at work (e.g., Zacher et al., 2014) and has been identified as a reliable factor to improve job satisfaction (Greguras & Diefendorff, 2010; Pilař et al., 2014). Leaders practicing this approach want their staff to find new ways of approaching tasks and give them a lot of autonomy and personal initiative. These leaders also have a higher expectation for explorational innovation, which tends to be more motivating and supportive for innovativeness. All factors considered, opening leadership behavior tends to increase creative self-efficacy, namely the belief in one's ability to be creative (Haase, Hoff, Hanel, & Innes-Ker, 2018; Tierney & Farmer, 2002). Creative self-efficacy has been shown to mediate the relationship between opening leadership behaviors and employee innovative work behavior (Gong et al., 2009; Haase et al., 2018), increased knowledge sharing (Hu & Zhao, 2016), a creative climate (Kao et al., 2015) and individual innovation performance (Hammond et al., 2011; Kao et al., 2015). In conclusion, opening leadership behavior strengthens the creative work climate, which improves results such as innovative productivity.

Leading with strict losing leadership behaviors were shown to reduce creative self-efficacy (Haase et al., 2018; Parker, 2014), team innovativeness and to be self-

destructive for the company in the long run (Alghamdi, 2018; He & Wong, 2004; Kao et al., 2015; March, 1991). Therefore, it is to be expected that pure closing leadership behavior decreases a creative team climate for innovativeness at work.

However, being able to lead using both approaches with a flexibility to adapt to the specific situation, yields the highest positive result for a further increased innovative work behavior and creative team climate (e.g., Gibson & Birkinshaw, 2004; He & Wong, 2004; March, 1991; Rosing et al., 2011; Zacher & Rosing, 2015). Built on these findings, I hypothesize that:

**Hypothesis 2a:** There is an interaction between the independent variables opening leadership behavior and innovative work behavior, in their relationship with the dependent variable creative team climate. Opening leadership behavior acts as a moderator that strengthens the positive relationship between innovative work behavior and creative team climate.

**Hypothesis 2b:** There is an interaction between the independent variables closing leadership behavior and innovative work behavior, in their relationship with the dependent variable creative team climate. Closing leadership behavior acts as a moderator that reduces the positive relationship between innovative work behavior and creative team climate.

**Hypothesis 2c:** There is an interaction between the independent variables ambidextrous leadership and innovative work behavior, in their relationship with the dependent variable creative team climate. Ambidextrous leadership acts as a moderator that strengthens the positive relationship between innovative work behavior and creative team climate.

## Method

### Participants and procedure

This study was a part of a larger project at the Department of Psychology at the University of Gothenburg. The data were collected through a questionnaire survey. The questionnaire used in this study was the Swedish versions of existing validated measurement scales.

Prior to distributing the survey, the managers in charge of the work groups were informed of the purpose of the study as well as the conditions in order to be a participant. The questionnaire was then distributed to seven different departments of a Swedish regional hospital, with different specializations. The questionnaire was handed out in both an electronic as well as a printed form, which later was manually combined into one data set. At all workplaces, except one, the study was presented by the researchers in person, in order to motivate the staff to participate. Respondents were encouraged to answer within one week, after which time the managers of the workplace reminded their staff to participate.

The survey was sent to all staff members at the selected workplaces. Out of the seven workplaces, a total of 140 staff members answered the questionnaire, whereof 130 employers gave sufficient replies to use the data for all of the analyses for the first set of hypotheses. Only 117 of the answers were sufficiently complete to use for all of the data analyses in this study. The sample consisted of 84.4% women, 15% men, and

0.6% did not want to disclose their gender. The participants were between 19 and 67 years old. The respondents had attended a post-secondary education between zero and 18 years ( $M = 3.2$ ;  $SD = 2.5$  years) and had been working in the current department between zero and 42 years ( $M = 8.6$ ;  $SD = 9.6$  years). Most of the respondents were nurses and assistant nurses.

## Measures

Under this section, the instruments as well as their internal consistency (Cronbach's alpha) for the analyzed data are described. For a more detailed description, see Table 3 under the heading *Result*.

The measures contained in the questionnaire were created with both reliable and validated scales. The most time-effective versions of each scale were used to limit the questionnaire to take no more than a maximum of 15 minutes, which follows the ethical recommendations by the Swedish Research Council (Vetenskapsrådet, 2011). The questionnaire contained 97 questions.

**Ambidextrous leadership.** Ambidextrous leadership was measured using opening (sample items: “*My boss allows different ways of accomplishing a task*” and “*My boss motivates to take risks*”) and closing leadership behavior (sample item: “*My boss monitors and controls goal attainment*” and “*My boss sanctions errors*”) scales, developed in the meta-analysis by Rosing et al. (2011). Both dimensions were respectively measured with a 7-point scale, where 1 = never and 7 = almost always. In order to measure the internal consistency (how closely related the items are inter-correlated), Cronbach's alpha was checked for all items (Field, 2018). According to Field (2018), Cronbach's alpha scores above .7 are good for these instruments. Opening leadership behavior had a Cronbach's alpha score of .87 and the Cronbach's alpha score for the closing scale was .81. The Cronbach's alpha of ambidextrous leadership was .87.

**Team climate and team climate inventory.** Team climate is defined as the psychological atmosphere in a team as well as its present organizational environment (Hemlin et al., 2008). In order to measure team climate, the official 14-item survey called *Team Climate Inventory* was used, it is a highly reliable instrument, well document and commonly used (e.g., Dackert, Brenner, & Johansson, 2002; Kivimäki & Elovainio, 1999; Loo & Loewen 2002; Mathisen, Einarsen, Jørstad, & Brønnick, 2004; Strating & Nieboer, 2009). The team climate inventory was created as a multidimensional measure of team climate, consisting of four dimensions shown to be moderating variables of team effectiveness: vision, participative safety, task orientation and support for innovation (Anderson & West, 1998; Kivimäki & Elovainio, 1999; Strating & Nieboer, 2009). Vision is focusing on clear and realistic objectives and the level of commitment in the team. Participative safety includes employees' perceived safety in interaction and work climate as well as information sharing and influence. Task orientation highlights employees' level of commitment to a high standard of performance, whereas support for innovation stands for encouragement, expectation, approval, and practical support for innovative behavior (Kivimäki & Elovainio, 1999; Mathisen et al., 2004).

Studies by Ouwers et al. (2008) and Strating and Nieboer (2009) have shown the team climate inventory to be a valid and reliable instrument to measure the level of team climate in healthcare teams. According to the authors, team climate is an essential

characteristic in healthcare teams and hence one of the most important for high-quality patient care. The team climate inventory's battery of items has become significantly shorter since it first was introduced, going from 116 items, then to 61 items (Anderson & West, 1998) and later to 38 items (TCI-38). The TCI-38 survey is validated as the most frequently used for studies in healthcare settings (Agrell & Gustavson, 1994; Anderson & West, 1994, 1998; Dackert et al., 2002; Ouwens et al., 2008; Ragazzoni, Baiardi, Zotti, Anderson, & West, 2002). Nevertheless, the latest version, containing 14 items (TCI-14), is the most commonly used survey in healthcare environments during the last decade and has shown to be as valid and reliable as the TCI-38 (Boada-Grau, De Diego-Vallejo, De Llanos-Serra, & Vigil-Colet, 2011; Dackert et al., 2002; Kivimäki & Elovainio, 1999; Loo & Loewen 2002; Mathisen et al., 2004; Ragazzoni et al., 2002; Strating & Nieboer, 2009). In addition, TCI-14 is significantly more time- and cost-effective than former versions of the scale (Loo & Loewen 2002; Strating & Nieboer, 2009). Furthermore, TCI-14 has also been confirmed to be a main instrument for quality improvement teams in healthcare (Strating & Nieboer, 2009) and this is likely the first time for it being used in Swedish healthcare.

To measure creative team climate, the Swedish version of the official 14-item version of the team climate inventory survey (Cronbach's  $\alpha = .89$ ), adapted from Kivimäki and Elovainio (1999), was used. All four dimensions were examined with four questions each for the vision and participative safety dimensions and three questions each for task orientation and support for innovation dimensions. For instance, the questions "*How far are you in agreement with these objectives?*" and "*People in this team are always searching for fresh, new ways of looking at problems.*" were asked.

**Innovative work behavior.** The instrument used to measure innovative work behavior was a 10-item version (Cronbach's  $\alpha = .92$ ), adapted from de Jong and den Hartog (2010). This instrument has been demonstrated to be a reliable instrument to measure innovative work behavior over time (de Jong & den Hartog, 2010). In accordance with the researchers' recommendations, the scale was used as one-dimensional, instead of four-dimensional as interpreted by earlier research (de Jong & den Hartog, 2010). The survey consisted of questions such as: "*How often does this employee find new approaches to execute tasks?*", "*How often does this employee wonder how things can be improved?*" and "*In your job, how often do you make suggestions to improve current products or services?*"

**Background and control variables.** In order to analyze the effect of the variables mentioned above, two of the control variables were used for this study's analysis: "*total amount of years of post-secondary education*" and "*total amount of years worked in the current department*".

## Results

Table 3 presents the descriptive statistics and Cronbach's alpha (the internal consistency) for the analyzed data. Table 4 shows correlations between all included factors, using Pearson's correlation coefficient. By squaring the correlation coefficients (also known as the coefficient of determination,  $R^2$ ), a measure is created for explaining how much the variability in one variable is shared by the other (Field, 2018). Ambidextrous leadership had the highest positive correlation with team climate inventory ( $r = .57$ ;  $R^2 = .32$ ;  $p < .001$ ), explaining 32% of the variability. Ambidextrous

leadership showed a relatively small correlation to innovative work behavior ( $r = .17$ ;  $R^2 = .02$ ;  $p < .05$ ). There was a significant correlation between opening leadership behavior and team climate inventory ( $r = .51$ ;  $R^2 = .26$ ;  $p < .01$ ) as well as innovative work behavior ( $r = .21$ ;  $R^2 = .04$ ;  $p < .05$ ). Closing leadership behavior did also have a significant correlation to team climate inventory ( $r = .46$ ;  $R^2 = .21$ ;  $p < .01$ ), but not to innovative work behavior ( $p = .37$ ).

Table 3

*Descriptive statistics (number of items, mean, scale span, standard deviation, and Cronbach's alpha) for the measured variables.*

Variables	M	SD	Items	Scale span		Cronbach's alpha ( $\alpha$ )
				Lowest.	Highest	
Opening leadership behavior	3.12	.74	7	1	5	.87
Closing leadership behavior	3.14	.70	7	1	5	.81
Ambidextrous leadership	3.13	.62	14	1	5	.87
Team climate inventory	3.42	.54	14	1	5	.89
Innovative work behavior	3.32	.71	10	1	5	.92

*Note.* "Ambidextrous leadership" is a product from the combination of "Opening leadership behavior" and "closing leadership behavior".

Table 4

*Correlations between the study's variables.*

	1	2	3	5	6	7
1. YE	–					
2. YW	-.184*	–				
3. TCI	.077	-.165	–			
4. IWB	.144	-.067	.284**	–		
5. AL	-.010	-.236**	.567**	.172*	–	
6. AO	.136	-.276**	.508**	.212*	.868**	–
7. AC	-.162	-.129	.464**	.080	.854**	.484**

*Note.*  $n$  ranges from 118 to 130. YE = total amount of years of post-secondary education. YW = total amount of years worked in the current department; TCI = team climate inventory; IWB = innovative work behavior; AO = opening leadership behavior; AC = closing leadership behavior; AL = ambidextrous leadership.

\* $p < .05$ ; \*\* $p < .01$ .

To test the study's hypotheses, the data from the surveys was analyzed in SPSS using a hierarchical multiple regression, consisting of three models. Team climate was the dependent variable. The first model included the background variables "total amount of years of post-secondary education" and "total amount of years worked in the current department". The second model included "innovative work behavior" as well as one of the three variables for leadership behavior (opening, closing, and ambidextrous) respectively. In preparation for the third model, an interaction term was created by respectively multiplying each of the three leadership variables with innovative work behavior (Field, 2018).

In order to fully answer the study's second set of hypotheses, the interaction effects had to be examined in greater detail, which was done by computing the variance inflation factor (VIF; Robinson & Schumacker, 2009). To decrease the collinearity and VIF value, the variables were centered beforehand (Freund, Littell, & Creighton, 2003). The centering process was performed by first computing a mean of each variable and then subtracting it from each individual score (Freund et al., 2003; Keith, 2019). In this way, the VIF values decreased without affecting the rest of the results (Keith, 2019).

As a general rule, as long as the VIF value does not exceed 10, there is little chance of collinearity in the data (Field 2018). However, according to Hair, Black, Babin, and Anderson, (2013), VIF values exceeding four have in some cases shown to be problematic, which is why a VIF value of four is recommended to be the highest acceptable limit. All of the VIF values being presented in this study are well below even the lowest limit, which indicates no multicollinearity (Field 2018; Hair et al., 2013).

Table 5

*Results of hierarchical multiple regression analysis with opening leadership behavior and innovative work behavior. Dependent variable: team climate inventory.*

Model		B	Std. Error	$\beta$	t-value	Sig.	VIF
1	Constant	.022	.049		.450	.653	
	YE	.011	.018	.056	.592	.555	1.056
	YW	-.008	.005	-.140	-1.484	.141	1.056
2	Constant	.014	.041		.352	.725	
	YE	-.001	.015	-.006	-.080	.937	1.077
	YW	.000	.005	-.006	-.069	.945	1.131
	IWB	.146	.059	.196	2.459	.015*	1.074
	AO	.346	.058	.488	5.916	.000**	1.145
3	Constant	.033	.041		.795	.428	
	YE	.006	.015	.031	.388	.699	1.125
	YW	.003	.005	.062	.722	.472	1.288
	IWB	.116	.060	.155	1.929	.056	1.131
	AO	.374	.059	.527	6.361	.000**	1.198
	AO*IWB	-.161	.072	-.188	-2.257	.026*	1.210

*Note.*  $n = 117$ ; B = unstandardized coefficients;  $\beta$  = standardized beta coefficients; YE = total amount of years of post-secondary education. YW = total amount of years worked in the current department; IWB = Innovative work behavior; AO = opening leadership behavior; AO\*IWB = interaction term between opening leadership behavior and innovative work behavior. All variables were centered before the testing.

\* $p < .05$ ; \*\* $p < .01$ .

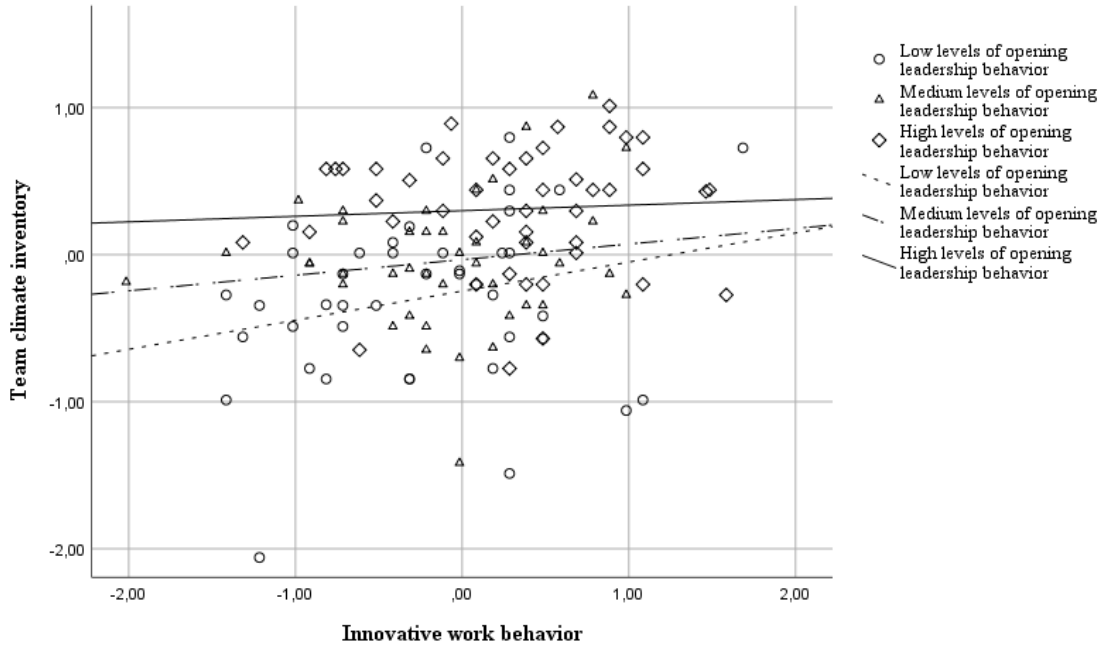
Hypothesis 1a: Opening leadership behavior has a positive relationship with creative team climate in a Swedish healthcare setting.

According to Table 5, opening leadership behavior and innovative work behavior had a positive and significant relationship, at a 95% confidence level, in Model 2. The standardized beta for the model indicated the relative contribution of each predictor, by standardizing the variables' standard deviations, making them directly comparable (Field, 2018). According to Field (2018), a bigger absolute value indicates a more important factor for the study, as long as it is under one. In conclusion, since the

interaction term is significant, the standardized beta value is shown to be verified, and the VIF value well below the lowest recommended limit, Hypothesis 1a was supported.

Figure 1

*A scatter plot showing the different levels of the moderating effect of opening leadership behavior on the relationship between team climate and innovative work behavior.*



Hypothesis 2a: There is an interaction between the independent variables opening leadership behavior and innovative work behavior, in their relationship with the dependent variable creative team climate. Opening leadership behavior acts as a moderator that strengthens the positive relationship between innovative work behavior and creative team climate.

As shown in Model 3 of Table 5, the interaction term was significant at a 95% confidence level ( $\beta = -.188$ ;  $p < .05$ ).

Figure 1 shows a scatter plot where all included variables have been centered. The moderating variable is opening leadership behavior, which initially was divided into two subgroups. However, the result of this analysis showed an incomprehensible result, in response to this I divided opening leadership behavior into three groups instead: low ( $n = 41$ ), medium ( $n = 43$ ), and high ( $n = 46$ ). The division was done through a median split, where 16.5% of the measures on each side closest to the median ( $Mdn = .022$ ) created the medium subgroup.

The explained variance for low levels of opening leadership behavior was  $R^2 = .059$ , for medium levels of opening leadership behavior, the explained variance was  $R^2 = .023$  and the explained variance for the high levels of opening leadership behavior was  $R^2 = .004$ . This means that the correlation between innovative work behavior and team climate inventory was  $r = .243$  for low levels of opening leadership behavior,  $r = .151$  for medium levels of opening leadership behavior, and  $r = .063$  for high levels of opening leadership behavior.

According to the result, there was an interaction between opening leadership behavior and innovative work behavior, in their relationship with creative team climate. Although, contrary to the claim in Hypothesis 2a, low levels of opening leadership behavior did strengthen the relationship between innovative work behavior and creative team climate ( $b = .20$ ) more than medium levels ( $b = .11$ ) and high levels ( $b = .04$ ) did. Thus, Hypothesis 2a was rejected.

Table 6

*Results of the hierarchical multiple regression analysis with closing leadership behavior and innovative work behavior. Dependent variable: team climate inventory.*

Model		B	Std. Error	$\beta$	t-value	Sig.	VIF
1	Constant	.023	.049		.477	.634	
	YE	.011	.018	.056	.595	.553	1.056
	YW	-.008	.005	-.140	-1.483	.141	1.056
2	Constant	.001	.043		.021	.983	
	YE	.020	.016	.103	1.224	.224	1.120
	YW	-.003	.005	-.059	-.714	.477	1.086
	IWB	.199	.060	.266	3.292	.001**	1.029
	AC	.324	.062	.426	5.203	.000**	1.060
3	Constant	.004	.043		.090	.928	
	YE	.017	.016	.089	1.044	.299	1.144
	YW	-.003	.005	-.047	-.566	.573	1.103
	IWB	.189	.061	.252	3.099	.002**	1.051
	AC	.341	.064	.449	5.338	.000**	1.123
	AC*IWB	-.102	.088	-.099	-1.163	.247	1.143

*Note.*  $n = 117$ ; B = unstandardized coefficients;  $\beta$  = standardized beta coefficients; YE = total amount of years of post-secondary education. YW = total amount of years worked in the current department; IWB = innovative work behavior; AC = closing leadership behavior; AC\*IWB = interaction term between closing leadership behavior and innovative work behavior. All variables were centered before the testing.  
\* $p < .05$ ; \*\* $p < .01$ .

Hypothesis 1b: Closing leadership behavior has a negative relationship with creative team climate in a Swedish healthcare setting.

As shown in Table 6, closing leadership behavior appeared to have a positive effect on team climate inventory ( $p < .05$ ) in Model 2. Hence, Hypothesis 1b was not supported. Since the interaction between closing leadership behavior and innovative work behavior was not significant, Hypothesis 2b was also not supported.



Table 7

*Results of hierarchical multiple regression analysis with ambidextrous leadership and innovative work behavior. Dependent variable: team climate inventory.*

Model		B	Std. Error	$\beta$	t-value	Sig.	VIF
1	Constant	.022	.049		.450	.653	
	YE	.011	.018	.056	.592	.555	1.056
	YW	-.008	.005	-.140	-1.484	.141	1.056
2	Constant	.005	.040		.129	.898	
	YE	.012	.015	.062	.801	.425	1.083
	YW	.000	.004	-.001	-.017	.987	1.122
	IWB	.156	.057	.210	2.744	.007**	1.054
	AL	.447	.066	.528	6.777	.000**	1.096
3	Constant	.019	.039		.483	.630	
	YE	.014	.015	.072	.945	.347	1.087
	YW	.003	.005	.054	.663	.508	1.224
	IWB	.127	.057	.170	2.214	.029*	1.107
	AL	.488	.067	.576	7.284	.000**	1.173
	AL*IWB	-.197	.084	-.186	-2.357	.020*	1.169

*Note.*  $n = 117$ ; B = unstandardized coefficients;  $\beta$  = standardized beta coefficients; YE = total amount of years of post-secondary education. YW = total amount of years worked in the current department; IWB = Innovative work behavior; AL = Ambidextrous leadership; AL\*IWB = interaction term between ambidextrous leadership behavior and innovative work behavior. All variables were centered before the testing.

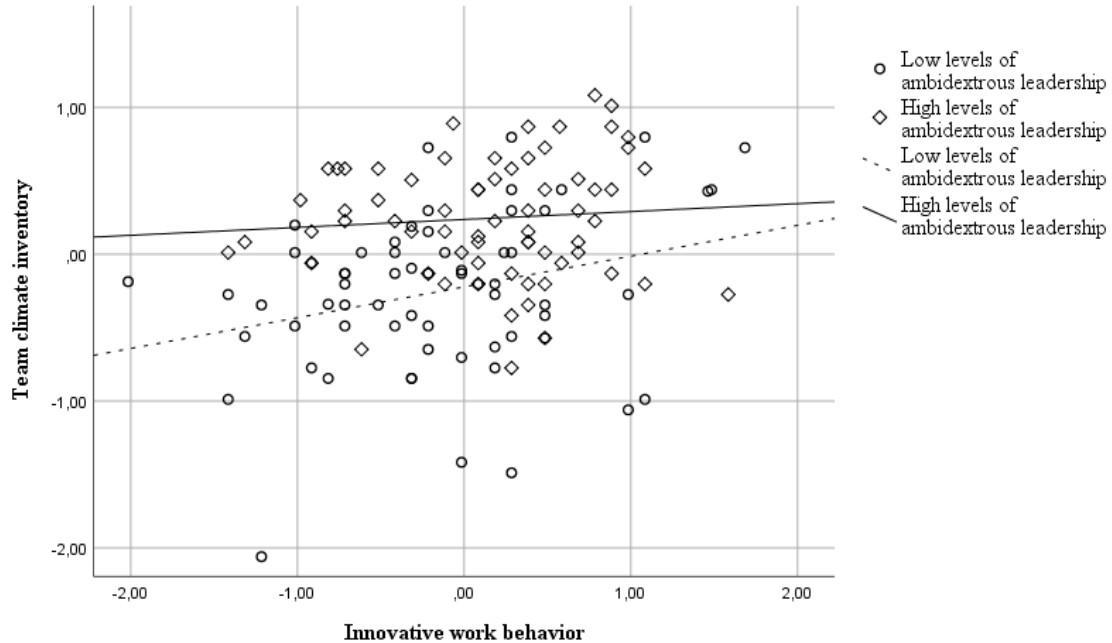
\* $p < .05$ ; \*\* $p < .01$ .

Hypothesis 1c: Ambidextrous leadership has a positive relationship with creative team climate in a Swedish healthcare setting.

Table 7 shows that both ambidextrous leadership, innovative work behavior and the interaction term were significant at a 95% confidence level in both Model 2. Therefore, Hypothesis 1c was supported.

Figure 2

A scatter plot showing the different levels of the moderating effect of ambidextrous leadership on the relationship between team climate and innovative work behavior.



Hypothesis 2c: There is an interaction between the independent variables ambidextrous leadership and innovative work behavior, in their relationship with the dependent variable creative team climate. Ambidextrous leadership acts as a moderator that strengthens the positive relationship between innovative work behavior and creative team climate.

As shown in Model 3 of Table 7, the interaction term was significant at a 95% confidence level ( $\beta = -.186$ ;  $p < .05$ ).

Figure 2 shows a scatter plot where all included variables have been centered. The moderating variable is ambidextrous leadership, which has been divided into two subgroups, via a median split. Scores below the median ( $Mdn = .014$ ) were marked as “low” while scores above the median were marked as “high”.

The explained variance for low levels of ambidextrous leadership was  $R^2 = .083$  ( $r = .288$ ), while the explained variance for the high levels of ambidextrous leadership was  $R^2 = .007$  ( $r = .084$ ).

According to the result, there is an interaction between ambidextrous leadership and innovative work behavior, in their relationship with creative team climate. Counter to Hypothesis 2c, low levels of ambidextrous leadership did strengthen the relationship between team climate inventory and innovative work behavior ( $b = .21$ ), more than high levels ( $b = .05$ ) did. Hence, Hypothesis 2c was rejected.

## Discussion

The aim of this study was to empirically test the relations between ambidextrous leadership (consisting of opening and closing leadership), individual innovative work behavior, and creative team climate for innovativeness in a Swedish healthcare setting. During the last decade, researchers such as Alghamdi (2018), Denti (2013), Mueller et al. (2018) Rosing et al. (2011), and Zacher and Rosing (2015) have reached a consensus that ambidextrous leadership is a good predictor of innovativeness and innovative performance in working environments. To my knowledge this will be the first time ambidextrous leadership have been tested in a Swedish healthcare setting.

**Opening leadership behavior.** Out of the three leadership approaches, opening leadership behavior turned out to have the second strongest relationship to a creative team climate. This corresponds well with earlier research, also claiming positive effects between opening leadership behavior and creative team climate (Alghamdi, 2018; Rosing et al., 2010; Rosing et al., 2011). According to previous research as well as the result of this study, opening leadership behavior will show a stronger relationship to creative team climate when being in the right proportion with closing leadership behavior (Alghamdi, 2018; Rosing et al., 2010; Zacher & Rosing, 2015). However, as both the findings of this study along with earlier research suggest, opening leadership behavior is shown to have a stronger positive effect on creative team climate, than what closing leadership behavior (Alghamdi, 2018; Rosing et al., 2010; Zacher & Rosing, 2015). Acting in accordance with the opening leadership behavior in the Swedish healthcare system, at least for shorter periods, could therefore lead to an increase in the employees' innovative work behavior. By temporarily increasing the employees' innovative work behavior, it yields higher likelihood for autonomy, self-expression, and team support in the team (Chen & Hou, 2016; Holleman et al., 2009; Naqshbandi et al., 2019; Zacher et al., 2014). As both Naqshbandi et al. (2019) and Veenendaal and Bondarouk (2015) have stated, an empowering and supportive leadership has a positive effect on innovativeness at work, which possibly would give better work-related influence and conditions among the medical professionals. However, for a sustainable result in the long run, a balance between opening leadership behavior and closing leadership behavior is needed (Zacher & Rosing, 2015).

The result further showed an interaction between opening leadership behavior and innovative work behavior in their relationship with creative team climate. Low levels of opening leadership behavior resulted in stronger positive relationship between team climate inventory and innovative work behavior, than high levels of ambidextrous leadership did. This result is contradictory to earlier studies and refutes Hypothesis 2a. One explanation for the outcome can be the very specific context in which this study was made. For example, to my knowledge, this is the only time ambidextrous leadership was tested in a Swedish healthcare setting. Based on the fact that the medical professionals were facing cutbacks, staff shortage and increased work-related stress, it is plausible that high opening leadership behaviors result in less efficient work and more stress for the staff. After all, the higher the opening leadership behavior, the higher the risk for not providing sufficient service and the less certain that the services will be provided in time (March, 1991; Mueller et al., 2018; Rosing et al., 2011; Zacher & Rosing, 2015; Yi et al., 2019). This, in turn, would probably result in more time-pressure and work-related stress. With other words, low opening leadership behaviors could be preferable in a workplace with cutbacks, staff shortage, and time-sensitive

work assignments. A more detailed explanation for all leadership behaviors will be further discussed under the heading “*Limitations and future research*”.

**Closing leadership behavior.** An interesting result is that closing leadership behavior turned out to have a significantly positive relationship with creative team climate, opposite from Hypothesis 1b. Earlier research point to that closing leadership behavior reduces the individual and innovativeness and a creative team climate, since it focuses on following plans and schedules (Alghamdi, 2018; Haase et al., 2018; He & Wong, 2004; Kao et al., 2015; March, 1991; Parker, 2014). Taken together, this suggests that closing leadership behavior might be a beneficial factor in this healthcare environment. One reason for this might be that closing leadership behavior was shown to almost measure at the same level as opening leadership behavior, which give a balance in the workplace. In the end, it is crucial for employees to both follow protocol and policies in hospital environments, at the same time as having flexibility in patient meetings and high information sharing in the work group (Al Dari et al., 2018; Rehnberg, 2019; Vårdanalys, 2016). As earlier research indicates, having a high information sharing, which in this case is following protocol and communicate, is shown to strengthen a creative team climate for innovativeness at work (e.g., Chou et al., 2018; Peralta et al., 2015). Another reason for the positive relationship can be due to the stress level and pressure of the employees since most of them were on a tight schedule which they had to follow. This presumption harmonizes with the above-mentioned speculation of low opening leadership behaviors.

When closing leadership behavior was interacting with innovative work behavior, the effect on a creative team climate was non-significant, giving no support for Hypothesis 2b. This result can be interpreted in several ways. For example, based on the positive relationship with a creative team climate, the reason for the insignificant result can be due to the stress as well as the workload in the team, leading to too much pressure on performance. This result is further discussed under the heading “*Limitations and future research*”.

**Ambidextrous leadership.** As expected, the result of this study showed that ambidextrous leadership has the proportionally strongest effect on team climate inventory than any other factor being measured. Referring to the research mentioned earlier, this result has most likely to do with at least three factors. The first factor, being the most well-established, is that a harmony between opening and closing leadership behavior is shown to lead to a greater effect on team climate inventory, than if the two styles would be individually used (e.g., Gibson & Birkinshaw, 2004; He & Wong, 2004; March, 1991; Rosing et al., 2010; Rosing et al., 2011; Zacher & Rosing, 2015). The second is because the leadership approach is known to be one of the foremost predictors of both employee and organizational innovation (e.g., Alghamdi, 2018; Mumford et al., 2002; Rosing et al., 2011). This means, if the leadership is not satisfying (e.g., if it is not supportive or focuses on negative feedback), the motivation, innovative initiative and wellbeing will decrease and vice versa (Holleman et al., 2009; Janssen, 2005; Kao et al., 2015; Latif et al., 2017; Rosing et al., 2011). Leading with an ambidextrous leadership means leading with an active flexibility, a high level of responsibility as well as being sensitive to the staff's needs, wellbeing, and the organizational goals (Rosing et al., 2011). Because of this active responsibility to adjust to the situational needs, the leader must be proactive and provide support, empowerment, and encouragement to the team, which is shown to be the case for this approach (Krause, 2004; Latif et al., 2017; Rosing et al., 2011). Furthermore, it gives the leader more responsibility to ensure that everyone

in the entire team has a mutual vision, agreed upon goals, as well as clarified objectives. This increases the chances for the creation and maintenance of a safe psychosocial climate, which in turn is a moderator for increasing a creative team climate for innovativeness at work (Al Dari et al., 2018; Montani et al., 2015; West, 2002).

However, contrary to what was expected, this study's result showed that innovative work behavior had a negative effect on team climate inventory when interacting with ambidextrous leadership. According to the result, low levels of ambidextrous leadership resulted in stronger positive relationship between team climate inventory and innovative work behavior, than high levels of ambidextrous leadership did. This result is opposite to earlier studies and refutes Hypothesis 2c. Based on the background variables of this study and the result of earlier studies, this outcome can most likely be explained by two factors.

The initial factor is that this is probably the first time ambidextrous leadership is tested in a Swedish healthcare setting and that this setting was under very specific conditions. As mentioned above, cutbacks, staff shortage, and work-related stress are common in Swedish healthcare settings and this could in turn influence the result considerably. Both high levels of work-related stress and too complex work-assignments under time-pressure has shown to negatively affect idea generation and innovative performance (e.g., Audenaert et al., 2017; Cowan, Sanditov, & Weehuizen, 2011; Hammond et al., 2011; Mumford et al., 2002; Saleem, Tufail, Atta, & Asghar, 2015). Hence, controlling for variables such as *stress*, *job complexity*, and *workload*, would probably have given a better understanding of the result. Furthermore, high levels of ambidextrous leadership under a high time-pressure combined with a heavy workload might on the one hand give more focus on the staff's day-to-day experience. However, on the other hand, this type of environment has been shown to not take employee opinions into consideration when planning for the long-term work (Gustafsson, 2019; Olsson et al., 2007; Sjöberg, 2019). If the employees perceive they are not being listened to, I assume there will be a lower tendency for them to act with an innovative work behavior. For this reason, another variable to control for should also be *perceived understanding* among the medical professionals.

The second factor explaining the outcome is that all the answers from the medical staff members were analyzed together instead of being analyzed separately, for each profession. For example, there is a chance that the answers from medical doctors could differ significantly from nurses and the answers from the assistant nurses would differ even more from both groups. If so, this would call for different strategies of leading the different professions. Both theories being discussed above are further discussed under the heading "*Limitations and future research*".

## **Limitations and Future Research**

This study has several limitations that need to be considered in future research. One general limitation is the varied professions of the respondents, being both doctors, nurses, and assistant nurses. Since the different professions have very different assignments as well as work environments, it would, in hindsight, be better to study just one of the professions (or all of them separately) in order to get a better understanding. Currently, the separate samples are too small to make a conclusion, but they can be used to complement future research.

Another limitation is that further control variables could have been used, such as *job complexity* and *stress*. Job complexity has been found to be positively related to innovative work behavior, by Audenaert et al. (2017), Hammond et al. (2011), Oldham and Cummings (1996), Tierney & Farmer (2002), among others. Their results show that this partly is because complex jobs are more challenging and intellectually stimulating, which in turn tend to increase idea generation and individual innovation. These positive effects have also been shown to last with increased working age, contrary to non-complex jobs (Zacher & Frese, 2011). Stress is also a likely control variable, as moderate levels of stress maintain innovative performance, while high levels of stress decrease it (Cowan et al., 2011; Saleem et al., 2015). An increased job-related stress is likely to be a consequence of both the inadequate staffing and cutbacks in Swedish healthcare (Gustafsson, 2019; Gustafsson & Lindholm, 2019; Olsson et al., 2007). High levels of stress have been shown to be associated with lower work productivity, job satisfaction and staff turnover (Mumford et al., 2002; Xerri & Reid, 2018), which further decreases creative team climate for innovativeness (Pilař et al., 2014). According to the results of this study, opening and closing leadership behavior and ambidextrous leadership showed a positive relationship with a creative team climate. While opening leadership behavior and ambidextrous leadership had a significant negative effect on creative team climate for innovativeness, when interacting with innovative work behavior, closing leadership behavior showed no significant interaction. My hypothesis is that this, most probably, is due to the staff shortage and a high job-related stress level, in combination with a job complexity being too high in comparison. As a result, closing leadership behavior can give employees the direction and focus needed in order to get the job done in time and simultaneously leave room for sufficient autonomy and innovativeness. This prevents the employees from spending too much time on explorative behavior and instead focus on exploitative behavior, which gives more predictable results faster but is at the cost of innovative behavior.

Besides job complexity and stress, control variables that previously have been linked to creativity and innovation are *personality* and *intrinsic motivation* (Shalley, Gilson, & Blum, 2009). Controlling for these factors, would have given a greater understanding for the effect of the other factors and their relatedness to each other and is hence recommended to measure in future research.

One more limitation is that this study included but a few factors for the measurement of a creative team climate for innovativeness at work. In view of the results of both this and earlier studies, future research should examine more of these factors, especially in combination with each other, to find out how to sharply improve the working conditions and work-related innovativeness in Swedish healthcare settings.

A clear strength of this study is the compact instruments chosen for the questionnaire. According to my knowledge, this is the first time the 14-item (TCI-14) version of the team climate inventory scale was used in a Swedish healthcare setting. Based on the results from this study and the result of earlier research, TCI-14 was shown to be a time- and cost-effective instrument to use in this type of setting, in comparison with longer versions. Taken together with earlier validations of TCI-14 in other settings (e.g., Loo & Loewen 2002; Strating & Nieboer, 2009), this version of the instrument should be considered over longer versions, since it will reduce both time, costs, and the risk for loss of data. As mentioned earlier, due to the cutbacks, staff shortage and increased work-related stress in Swedish healthcare, more time- and cost-

effective solutions are needed for a long-term stabilization and sustainability (Sjöberg, 2019; Vårdanalys, 2016).

In summary, leading with an ambidextrous leadership in a Swedish healthcare setting under these specific conditions, seem to have affected the outcome. This is probably due to a combination of several factors, such as work-related stress, cutbacks, and staff shortage. Since no other study has measured ambidextrous leadership in a Swedish healthcare setting under these specific conditions, more research in this context is needed to better understand the big picture and how to adjust to the conditions.

## **Practical Implications**

The findings of this study, in combination with the empirical data from earlier research, indicated that ambidextrous leadership has a positive relationship with creative team climate in healthcare settings, which has been shown to give better health related conditions and higher productivity. In accordance with this aspect, applying higher levels of ambidextrous leadership would be beneficial. However, the result of this study also indicated that high levels of ambidextrous leadership might not always be beneficial for an innovative work behavior under certain conditions, such as work-related stress and staff shortage. Earlier research has also shown that adjusting to employee opinions in long-term planning are important for an increased innovative work behavior among the staff members (Gustafsson, 2019; Olsson et al., 2007; Sjöberg, 2019). Current practical implications could therefore be to inform about the shown effects of ambidextrous leadership in healthcare settings and inform about what conditions might be a hindrance for the beneficial result. However, taken everything in consideration, more research is needed before other practical implications of ambidextrous leadership in Swedish healthcare settings can be applied.

## **Conclusion**

Leadership, in general, is shown to be one of the highest influencing factors on creative team climate. On the one hand ambidextrous showed a positive relationship with creative team climate in a Swedish healthcare setting. However, ambidextrous leadership had a negative effect on creative team climate, when interacting with innovative work behavior, which is opposite from earlier research. Hence, this study's results show that there are more factors to take into account than just the leadership style. These factors are for example the level of stress, job complexity, and perceived understanding among the medical professionals. Based on the findings, several improvements of the Swedish healthcare system can be done. One improvement is to seek to understand how these background factors affect the staff members, in order to change the conditions and adjust the leadership style. Based on earlier research, adjustments to the need of staff members will increase the creative team climate for innovativeness at work. More research is needed to understand how this is done in a Swedish healthcare setting.

## References

- Agrell, A., & Gustafson, R. (1994). The Team Climate Inventory (TCI) and group innovation: A psychometric test on a Swedish sample of work groups. *Journal of Occupational and Organizational Psychology*, 67(2), 143-151. doi: 10.1111/j.2044-8325.1994.tb00557.x
- Al Dari, T., Jabeen, F., & Papastathopoulos, A. (2018). Examining the role of leadership inspiration, rewards and its relationship with contribution to knowledge sharing. *Journal of Workplace Learning*, 30(6), 488-512. doi: 10.1108/JWL-11-2017-0105
- Alghamdi, F. (2018). Ambidextrous leadership, ambidextrous employee, and the interaction between ambidextrous leadership and employee innovative performance. *Journal of Innovation and Entrepreneurship*, 7(1), 1-14. doi: 10.1186/s13731-018-0081-8
- Andersson, A., Elg, M., Perseus, K., & Idvall, E. (2013). Evaluating a questionnaire to measure improvement initiatives in Swedish healthcare. *BMC Health Services Research*, 13, 48. doi: 10.1186/1472-6963-13-48
- Anderson, N., & West, M. (1996). The team climate inventory: Development of the TCI and its applications in teambuilding for innovativeness. *European Journal of Work and Organizational Psychology*, 5(1), 53-66. doi: 10.1080/13594329608414840
- Anderson, N., & West, M. (1998). Measuring climate for work group innovation: Development and validation of the team climate inventory. *Journal of Organizational Behavior*, 19(3), 235-258.
- Audenaert, M., Vanderstraeten, A., & Buyens, D. (2017). When innovation requirements empower individual innovation: The role of job complexity. *Personnel Review*, 46(3), 608-623. doi: 10.1108/PR-10-2014-0219
- Basadur, M. (2004). Leading others to think innovatively together: Creative leadership. *The Leadership Quarterly*, 15(1), 103-121. doi: 10.1016/j.leafqua.2003.12.007
- Belsley, D.A. (1991). *Conditioning diagnostics: collinearity and weak data in regression*. New York: Wiley.
- Boada-Grau, J., De Diego-Vallejo, R., De Llanos-Serra, E., & Vigil-Colet, A. (2011). Version breve en español del Team Climate Inventory (TCI-14): Desarrollo y propiedades psicométricas. *Psicothema*, 23(2), 308-313.
- Bos-Nehles, A., Renkema, M., & Janssen, M. (2017). HRM and innovative work behaviour: A systematic literature review. *Personnel Review*, 46(7), 1228-1253. doi: 10.1108/PR-09-2016-0257
- Candi, M., Ende, J., & Gemser, G. (2013). Organizing innovation projects under technological turbulence. *Technovation*, 33(4-5), 133-141. doi: 10.1016/j.technovation.2013.01.002
- Canuto, O. (2018, August 17). How globalization is changing innovation. *World Economic Forum*. Received from <https://www.weforum.org/agenda/2018/08/globalisation-has-the-potential-to-nurture-innovation-heres-how>
- Chen, A., & Hou, Y. (2016). The effects of ethical leadership, voice behavior and climates for innovation on creativity: A moderated mediation examination. *The Leadership Quarterly*, 27(1), 1-13. doi: 10.1016/j.leafqua.2015.10.007



- Chou, C., Huang, Y., & Lin, C. (2018). Organizational intellectual capital and its relation to frontline service employee innovative behavior: Consumer value co-creation behavior as a moderator. *Service Business*, 12(4), 663-684. doi: 10.1007/s11628-018-0387-4
- Cowan, R., Sanditov, B., & Weehuizen, R. (2011) Productivity Effects of Innovation, Stress and Social Relations. *Journal of Economic Behavior and Organization*, 79(3), pp. 165-182. doi: 10.1016/j.jebo.2011.01.028
- Dackert, I., Brenner, S., & Johansson, C. (2002). Team Climate Inventory with a Merged Organization. *Psychological Reports*, 91(2), 651-656. doi: 10.2466/PRO.91.6.651-656
- Das, P., Verburg, R., Verbraeck, A., & Bonebakker, L. (2018). Barriers to innovation within large financial services firms. *European Journal of Innovation Management*, 21(1). doi: 10.1108/EJIM-03-2017-0028
- de Jong, J., & den Hartog, D. (2007). How leaders influence employees' innovative behaviour. *European Journal of Innovation Management*, 10(1), 41-64. doi: 10.1108/14601060710720546
- de Jong, J., & den Hartog, D. (2010). Measuring Innovative Work Behaviour. *Creativity and Innovation Management*, 19(1), 23-36. doi: 10.1111/j.1467-8691.2010.00547.x
- Denti, L. (2013). *Leadership and innovation in R&D teams*. (Doctoral thesis, Göteborgs universitet, Göteborg). Retrieved from <https://gupea.ub.gu.se/handle/2077/33160>
- Denti, L., & Hemlin, S. (2012). Leadership and innovation in organizations: A systematic review of factors that mediate or moderate the relationship. *International Journal of Innovation Management*, 16, 1-20. doi: 10.1142/S1363919612400075
- Denti, L., & Hemlin, S. (2016). Modelling the link between leader-member exchange and individual innovation in R&D. *International Journal of Innovation Management*, 20(3). doi: 10.1142/S1363919616500389
- Field, A. (2018). *Discovering statistics using IBM SPSS statistics*. (5. ed.) London: Sage Publications.
- Gibson, C.-B. and Birkinshaw, J. (2004). The antecedents, consequences, and mediating role of organizational ambidexterity. *Academy of management Journal*, vol. 47 no. 2, pp. 209-226. doi: 10.5465/20159573
- Gong, Y., Huang, J.-C., & Farh, J.-L. (2009). Employee learning orientation, transformational leadership, and employee creativity: The mediating role of employee creative self-efficacy. *Academy of Management Journal*, 52, 765-778. doi: 10.5465/AMJ.2009.43670890
- Greguras, G., & Diefendorff, J. (2010). Why does proactive personality predict employee life satisfaction and work behaviors? A field investigation of the mediating role of the self-concordance model. *Personnel Psychology*, 63(3), 539-560. doi: 10.1111/j.1744-6570.2010.01180.x
- Gupta, A. (2008, October 20). Prescription for Change. *The Wall Street Journal*. Retrieved from <https://www.wsj.com/articles/SB122426733527345133>
- Gustafsson, A. (2019, December 14). Region Stockholm ska spara ytterligare 1,1 miljard på sjukvården. *Dagens Nyheter*. Retrieved from <https://www.dn.se/sthlm/region-stockholm-ska-spara-ytterligare-1-1-miljard-pa-sjukvarden/>

- Gustafsson, A., & Lindholm, A. (2019, December 18). Tusentals protesterade mot neddragningarna i vården. *Dagens Nyheter*. Retrieved from <https://www.dn.se/sthlm/protest-mot-sjukvardsneddragningar-i-centrala-stockholm/>
- Hair, J., Black, W., Babin, B., & Anderson, R. (2013). *Multivariate data analysis: Advanced diagnostics for multiple regression*. Pearson Prentice Hall Publishing. Retrieved from [http://www.mvstats.com/Downloads/Supplements/Advanced\\_Regression\\_Diagnostics.pdf](http://www.mvstats.com/Downloads/Supplements/Advanced_Regression_Diagnostics.pdf)
- Hammond, M., Neff, N., Farr, J., Schwall, A., & Zhao, X. (2011). Predictors of Individual-Level Innovation at Work: A Meta-Analysis. *Psychology of Aesthetics, Creativity, and the Arts*, 5(1), 90-105. doi: 10.1037/a0018556
- Haase, J., Hoff, E., Hanel, P., & Innes-Ker, Å. (2018). A Meta-Analysis of the Relation between Creative Self-Efficacy and Different Creativity Measurements. *Creativity Research Journal*, 30(1), 1-16. doi: 10.1080/10400419.2018.1411436
- He, S., Wong, H. (2004). Exploration vs. exploitation: An empirical test of the ambidexterity hypothesis. *Organizational Science*. vol. 15, no. 4, pp. 481–494.
- Holleman, G., Poot, E., Mintjes-de Groot, J., & Van Achterberg, T. (2009). The relevance of team characteristics and team directed strategies in the implementation of nursing innovations: A literature review. *International Journal of Nursing Studies*, 46(9), 1256-1264. doi: 10.1016/j.ijnurstu.2009.01.005
- Hu, B., & Zhao, Y. (2016). Creative self-efficacy mediates the relationship between knowledge sharing and employee innovation. *Social Behavior and Personality: An international journal*, 44, 815–826. doi: 10.2224/sbp.2016.44.5.815
- Janssen, O. (2000). Job demands, perceptions of effort-reward fairness and innovative work behaviour. *Journal of Occupational and Organizational Psychology*, 73, 287-302. doi: 10.1348/096317900167038
- Janssen, O. (2005). The joint impact of perceived influence and supervisor supportiveness on employee innovative behaviour. *Journal of Occupational and Organizational Psychology*, 78(4), 573-579.
- Jansen, J., van den Bosch, F., & Volberda, H.-W. (2005). Exploratory innovation, exploitative innovation, and ambidexterity: The impact of environmental and organizational antecedents. *Schmalenbach Business Review*, 57: 351-363.
- Junni, P., Sarala, R. M., Taras, V., & Tarba, S. (2013). Organizational ambidexterity and performance: A meta-analysis. *The Academy of Management Perspectives*, 27(4), pp. 299–312. doi: 10.5465/amp.2013.0025
- Kamaruddeen, A. M., Yusof, N. A., & Said, I. (2010). Innovation and innovativeness: Difference and antecedent relationship. *The Icfai University Journal of Architecture*, 2(1), 12.
- Kao, P., Pai, P., Lin, T., & Zhong, J. (2015). How transformational leadership fuels employees' service innovation behavior. *The Service Industries Journal*, 35(7-8), 448-466. doi: 10.1080/02642069.2015.1015519
- Keith, T. (2019). *Multiple Regression and Beyond: An Introduction to Multiple Regression and Structural Equation Modeling*. Routledge.
- King, E., Chermont, K., West, M., Dawson, J., & Hebl, M. (2007). How innovation can alleviate negative consequences of demanding work contexts: The influence of climate for innovation on organizational outcomes. *Journal of Occupational and Organizational Psychology*, 80(4), 631-645. doi: 10.1348/096317906X171145

- Kivimäki, M., & Elovainio, M. (1999). A short version of the Team Climate Inventory: Development and psychometric properties. *Journal of Occupational and Organizational Psychology*, 72(2), 241-246.
- Koeslag-Kreunen, M., Van Den Bossche, P., Hoven, M., Van Der Klink, M., & Gijsselaers, W. (2018). When Leadership Powers Team Learning: A Meta-Analysis. *Small Group Research*, 49(4), 475–513. doi: 10.1177/1046496418764824
- Krause, D. (2004). Influence-based leadership as a determinant of the inclination to innovate and of innovation-related behaviors: An empirical investigation. *The Leadership Quarterly*, 15(1), 79-102. doi: 10.1016/j.leaqua.2003.12.006
- Krause, T. (2007). The Effective Safety Leader: Personality, Values & Emotional Commitment. *Occupational Hazards*, 69(9), 24.
- Latif, T., Qadeer, F., & Farooqi, S. (2017). Individual innovative behavior: Interplay of reputation, job requirement and expected positive performance outcomes. *Asian Management Research Journal*. 2. 3-21.
- Li, W., Bhutto, T., Nasiri, A., Shaikh, H., & Samo, F. (2018). Organizational innovation: The role of leadership and organizational culture. *International Journal of Public Leadership*, 14(1), 33-47. doi: 10.1108/IJPL-06-2017-0026
- Loo, R., & Loewen, P. (2002). A Confirmatory Factor-Analytic and Psychometric Examination of the Team Climate Inventory: Full and Short Versions. *Small Group Research*, 33(2), 254-265. doi: 10.1177/104649640203300205
- Manso, G. (2017). Creating Incentives for Innovation. *California Management Review*, 60(1), 18-32. doi: 10.1177/0008125617725287
- March, J. (1991). Exploration and exploitation in organizational learning. *Organization Science*, 2(1), 71–87. <https://doi.org/10.1287/orsc.2.1.71>
- Mathisen, G., Einarsen, S., Jørstad, K., & Brønnick, K. (2004). Climate for work group creativity and innovation: Norwegian validation of the team climate inventory (TCI.) *Scandinavian Journal of Psychology*, 45(5), 383-392.
- Montani, F., Odoardi, C., & Battistelli, A. (2015). Envisioning, Planning and Innovating: A Closer Investigation of Proactive Goal Generation, Innovative Work Behaviour and Boundary Conditions. *Journal of Business and Psychology*, 30(3), 415-433. doi: 10.1007/s10869-014-9371-8
- Mueller, J., Renzl, B., & Will, M. (2018). Ambidextrous leadership: A meta-review applying static and dynamic multi-level perspectives. *Review of Managerial Science*, 1-23. doi: 10.1007/s11846-018-0297-9
- Mumford, M. D., Scott, G. M., Gaddis, B., & Strange, J. M. (2002). Leading creative people: Orchestrating expertise and relationships. *The Leadership Quarterly*, 13, 705-730. doi: 10.1016/S1048-9843(02)00158-3
- Naqshbandi, M., Tabche, I., & Choudhary, N. (2019). Managing open innovation. *Management Decision*, 57(3), 703-723.
- Odoardi, C. (2015). The relationship between proactive goal generation and innovative behaviour at work. *Journal of Management Development*, 34(5), 553-565. doi: 10.1108/JMD-04-2014-0037
- Odoardi, C., Battistelli, A., & Montani, F. (2010). Can goal theories explain innovative work behaviour? The motivating power of innovation-related goals. *Bollettino di Psicologia Applicata [Bulletin of Applied Psychology]*, 3(17), 261-262.

- Ohly, S., Sonnentag, S., & Pluntke, F. (2006). Routinization, work characteristics and their relationships with creative and proactive behaviors. *Journal of Organizational Behavior*, 27(3), 257-279. doi: 10.1002/job.376
- Oldham, G. R., & Cummings, A. (1996). Employee creativity: Personal and contextual factors at work. *Academy of Management Journal*, 39, 607–634. doi: 10.5465/256657
- Olsson, J., Elg, M., & Lindblad, S. (2007). System characteristics of healthcare organizations conducting successful improvements. *Journal of Health Organization and Management*, 21(3), 283-296. doi: 10.1108/14777260710751744
- Omachonu, V., & Einspruch, N. (2010). Innovation in Healthcare Delivery Systems: A Conceptual Framework. *The Innovation Journal*, 15(1), 1-20.
- O'Reilly, C., & Tushman, M. (2013). Organizational ambidexterity: Past, present, and future. *Academy of Management Perspectives*, 27(4), 324-338. doi: 10.2139/ssrn.2285704
- Ouwens, M., Hulscher, M., Akkermans, R., Hermens, R., Grol, R., & Wollersheim, H. (2008). The Team Climate Inventory: Application in hospital teams and methodological considerations. *Quality, & Safety in Healthcare*, 17(4), 275-27580. doi: 10.1136/qshc.2006.021543
- Parida, V., Sjödin, D., Lenka, S., & Wincent, J. (2015). Developing Global Service Innovation Capabilities: How Global Manufacturers Address the Challenges of Market Heterogeneity. *Research-Technology Management*, 58(5), 35-44. doi: 10.5437/08956308X5805360
- Peltokorpi, V., & Hasu, M. (2014). How Participative Safety Matters More in Team Innovation as Team Size Increases. *Journal of Business and Psychology*, 29(1), 37-45. doi: 10.1007/s10869-013-9301-1
- Peralta, C., Lopes, P., Gilson, L., Lourenço, P., & Pais, L. (2015). Innovation processes and team effectiveness: The role of goal clarity and commitment, and team affective tone. *Journal of Occupational and Organizational Psychology*, 88(1), 80-107. doi: 10.1111/joop.12079
- Pilař, L., Pokorná, J., & Balcarová, T. (2014). Pro-active behaviour in context of team climate. *Acta Universitatis Agriculturae Et Silviculturae Mendelianae Brunensis*, 62(4), 685-695. doi: 10.11118/actaun201462040685
- Rahnama, A., Mousavian, S. J., Alaei, A., & Maghvan, T. S. (2011). Survey of relationship between creativity of staffs and organizational effectiveness (Case study of: The East Azarbaijan province and Ardebil Province Education). *Australian Journal of Business and Management Research*, 1(6), 97–104.
- Raisch, S., & Birkinshaw, J. (2008). Organizational Ambidexterity: Antecedents, Outcomes, and Moderators. *Journal of Management*, 34(3), 375-409. doi: 10.1177/0149206308316058
- Ramamoorthy, N., Flood, P., Slattery, T., & Sardessai, R. (2005). Determinants of Innovative Work Behaviour: Development and Test of an Integrated Model. *Creativity and Innovation Management*, 14(2), 142-150.
- Rank, J., Pace, V., & Frese, M. (2004). Three Avenues for Future Research on Creativity, Innovation, and Initiative. *Applied Psychology*, 53(4), 518-528.

- Ragazzoni, P., Baiardi, P., Zotti, A. M., Anderson, N., & West, M. (2002). Italian validation of the team climate inventory: a measure of team climate for innovation. *Journal of Managerial Psychology*, 17(4), 325. doi: 10.1108/02683940210428128
- Rehnberg, C. (2019). *Vem vårdar bäst? – En ESO-rapport om svensk sjukhusvård i ett jämförande perspektiv*. (Report No. 8). Norstedts Juridik: Expertgruppen för studier i offentlig ekonomi. Received from [https://eso.expertgrupp.se/wp-content/uploads/2018/03/2019\\_8-vem-v%C3%A5rdar-b%C3%A4st-191202.pdf](https://eso.expertgrupp.se/wp-content/uploads/2018/03/2019_8-vem-v%C3%A5rdar-b%C3%A4st-191202.pdf)
- Robbins, S.-P., & Judge, T. (2017). *Organizational behavior* (17. ed.) Boston: Pearson.
- Robinson, C., & Schumacker, R-E. (2009). Interaction effects: centering, variance inflation factor and interpretation issues. *Multiple Regression Viewpoint*, 35(1): 6-11. doi: 10.1177/0162243913504305
- Rosing, K., Frese, M., & Bausch, A. (2011). Explaining the heterogeneity of the leadership-innovation relationship: Ambidextrous leadership. *The Leadership Quarterly*, 22(5), 956-974. doi: 10.1016/j.leaqua.2011.07.014
- Rosing, K., Rosenbusch, N., & Frese, M. (2010). Ambidextrous Leadership in the Innovation Process. In Gerybadze, A., Hommel, U., Reiners, H.-W., & Thomaschewski, D. (Eds.). *Innovation and International Corporate Growth*. Berlin: Springer, 191-204. doi: 10.1007/978-3-642-10823-5
- Saleem, M., Tufail, M., Atta, A., & Asghar, S. (2015). Innovative Workplace Behavior, Motivation Level, and Perceived Stress among Healthcare Employees. *Pakistan Journal of Commerce & Social Sciences*, 9(2): 438-446. doi: 10.1108/IJCHM-02-2017-0079
- Saroghi, H., Libaers, D., & Burkemper, A. (2015). Examining the relationship between creativity and innovation: A meta-analysis of organizational, cultural, and environmental factors. *Journal of Business Venturing*, 30(5), 714-731. doi: 10.1016/j.jbusvent.2014.12.003
- Scott, S., & Bruce, R. (1994). Determinants of innovative behavior: A path model of individual innovation in the workplace. *Academy of Management Journal*, 37(3), 580-607. doi: 10.5465/256701
- Shanker, R., Bhanugopan, R., Van Der Heijden, B., & Farrell, M. (2017). Organizational climate for innovation and organizational performance: The mediating effect of innovative work behavior. *Journal of Vocational Behavior*, 100, 67-77. doi: 10.1016/j.jvb.2017.02.004
- Shalley, E., Gilson, L., & Blum, C. (2009). Interactive effects of growth need strength, work context, and job complexity on self-reported creative performance. *Academy of Management Journal*, 52(3), 489-505. doi: 10.5465/AMJ.2009.41330806
- Sjöberg, M. (2019, November 2019). Stora problem inom svensk sjukvård. *Framtidens Karriär – Läkare*. Received from <https://karriarlakare.se/artikel/stora-problem-inom-svensk-sjukvard/>
- Strating, M., & Nieboer, A. (2009). Psychometric test of the Team Climate Inventory-short version investigated in Dutch quality improvement teams. *BMC Health Services Research*, 9(1), 126. doi: 10.1186/1472-6963-9-126
- Tierney, P., & Farmer, S. M. (2002). Creative self-efficacy: Its potential antecedents and relationship to creative performance. *Academy of Management Journal*, 45(6), 1137–1148 doi: 10.5465/3069429

- Veenendaal, A., & Bondarouk, T. (2015). Perceptions of HRM and their effect on dimensions of innovative work behaviour: Evidence from a manufacturing firm. *Management Revue*, 26(2), 138-160. doi: 10.1688/mrev-2015-02-Veenendaal
- Vetenskapsrådet (2011). *God forskningssed*. Stockholm: Vetenskapsrådet.
- Vårdanalys. (2016). *Vården ur befolkningens perspektiv 2016 – en jämförelse mellan Sverige och tio andra länder*. Stockholm: Myndigheten för vård-och omsorgsanalys. Received from <https://www.vardanalys.se/wp-content/uploads/2017/12/V%C3%A5rden-ur-befolkningens-perspektiv-2016-en-j%C3%A4mf%C3%B6relse-mellan-Sverige-och-tio-andra-l%C3%A4nder.pdf>
- Weintraub, P., & McKee, M. (2019). Leadership for Innovation in Healthcare: An Exploration. *International Journal of Health Policy and Management*, 8(3), 138-144. doi: 10.15171/ijhpm.2018.122
- West, M. (2002). Ideas are ten a penny: It's team implementation not idea generation that counts. *Applied Psychology-An International Review-Psychologie Appliquee-Revue Inte*, 51(3), 411-424. doi: 10.1111/1464-0597.01006
- West, M., & Anderson, N. (1996). Innovation in Top Management Teams. *Journal of Applied Psychology*, 81(6), 680-693. doi: 10.1037/0021-9010.81.6.680
- West, M., Borrill, C., Dawson, J., Brodbeck, F., Shapiro, D., & Haward, B. (2003). Leadership clarity and team innovation in health care. *The Leadership Quarterly*, 14(4), 393-410. doi: 10.1016/S1048-9843(03)00044-4
- Xerri, M., & Reid, Stuart R. M. (2018). Human resources and innovative behaviour improving nursing performance. *International Journal of Innovation Management*, 22(2), 1850019-1. doi: 10.1142/S1363919618500196
- Yi, L., Mao, H., & Wang, Z. (2019). How paradoxical leadership affects ambidextrous innovation: The role of knowledge sharing. *Social Behavior and Personality*, 47(4), 1-15. doi: 10.2224/sbp.7636
- Zacher, H. & Frese, M. (2011). Maintaining a focus on opportunities at work: The interplay between age, job complexity, and the use of selection, optimization, and compensation strategies. *Journal of Organizational Behavior*, 32(2), 291-318. doi:10.1002/job.683 doi: 10.1002/job.683
- Zacher, H., Robinson, A., & Rosing, K. (2016). Ambidextrous Leadership and Employees' Self-Reported Innovative Performance: The Role of Exploration and Exploitation Behaviors. *Journal of Creative Behavior*, 50(1), 24-46. doi: 10.1002/jocb.66
- Zacher, H., & Rosing, K. (2015). Ambidextrous leadership and team innovation. *Leadership, & Organization Development Journal*, 36(1), 54-68. doi: 10.1108/LODJ-11-2012-0141
- Zimlichman, E., & Levin-Scherz, J. (2013). The coming golden age of disruptive innovation in healthcare. *Journal of General Internal Medicine*, 28(7), 865-867. doi: 10.1007/s11606-013-2335-2