European Master in Work, Organizational and Personnel Psychology

Transformational Leadership, Team Psychological Safety and Team Process Improvement:
the mediating role of team psychological safety in the relationship between transformational leadership and team process improvement.

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Abstract

Framework: Leadership has gained great importance in Organizational research. Leaders have a major influence on groups' members and dynamics, therefore it is important to study their effect on teams' outcomes. Transformational leadership can generate significant changes on group members attitudes and assumptions, through different mechanisms. Team psychological safety can be one of those mechanisms, as it has already been studied as a mediator between different variables. One of these variables is team effectiveness, which might be evaluated through different dimensions, such as team process improvement.

Objectives: The aim of this study is to analyse the relationship between transformational leadership and team process improvement, considering the mediating role of team psychological safety. It is expected that a transformational leader, by giving support to its team, will promote an atmosphere where people feel safe enough to take risks, developing innovative behaviours and consequently effectiveness may be achieved, through team process improvement.

Method: It is a non-experimental, cross sectional study, focused on the group level of analysis. The sample is composed of 82 working groups, from 57 Portuguese organizations, with a total of 435 participants (82 leaders and 353 team members). Team members were surveyed about transformational leadership and team psychological safety, whereas leaders were surveyed about team process improvement.

Results: Results showed that team psychological safety mediates de relationship between transformational leadership and team process improvement.

Conclusion: This study highlights the relevance of transformational leadership for achieving team effectiveness. A transformational leader promotes psychological safety on its team, so members feel comfortable being creative, innovating and taking risks, and that fosters team process improvement, leading to higher team effectiveness. Finally, this paper provides organizations with practical suggestions for improving team effectiveness.

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Introduction

Working teams exist since humanity exists and they have been present in different ways all along human history (Kozlowski & Ilgen, 2006). They may be defined as individuals interrelated, sharing responsibilities for defined outcomes for their organizations (Sundstrom, De Meuse, & Futrell, 1990). Teams are in everyone's life, and their effectiveness is important to welfare on a big range of society's functions (Kozlowski & Ilgen, 2006). Teams are inserted on complex, competitive and dynamic environments. This requires members to work on different tasks, through coordinated processes implying a mixture of cognitive, motivational or affective, and behavioural resources. When these team processes are aligned with the environment's demands, the team may be effective; in contrast, when they are not, the team is not effective (Fuller, Marler, & Hester, 2006; Kozlowski & Ilgen, 2006).

This paper will focus on the study of one of team effectiveness's dimensions: team process improvement. This dimension is perceived as the ability team members have to detect deficits on groups' processes and correct or delete them, developing innovative solutions to achieve a better performance (Kirkman, Rosen, Tesluk, & Gibson, 2004; Rousseau & Aubé, 2010).

The leader's behaviours have a central role in the way teams interact and achieve their objectives (Dimas, Rebelo, & Lourenço, 2016; Volmer, 2012). In the present study, we focus on the role of transformational leader behaviours on team process improvement. Transformational leadership has the ability to increase and develop their followers' interests, stimulating them to look beyond their own self-interests for the group's wellness. These leaders give support to their team members, which might contribute to create a psychological safety environment (Bass, 1990). This means team members will feel comfortable and safe enough to take risks and to present innovative ideas and solutions to problems (Edmondson, 1999), which is related to team process improvement.

Accordingly, the aim of the present study is contributing towards clarifying the role of transformational leadership (i.e., a leadership style that generates on followers a strong commitment to the team) on team process improvement (i.e., a team effectiveness dimensions) considering the role of team psychological safety (i.e., the group shared belief of being safe enough to take interpersonal risks) as the intervening mechanism.

The present study is based on the Input-Mediator-Output-Input (IMOI) model proposed by Ilgen, Hollenbeck, Johnson, and Jundt (2005), which comes from the Input-Process-Output (IPO) model formulated by McGrath on 1964 as a way to conceptualize team effectiveness.

The IPO model "identifies the composition, structure and processes of a team and the key antecedents to their effectiveness" (Rico, de la Hera & Tabernero, 2011, p. 58). It recognizes the influence of organizational and situational factors, on the structure of the team, which will affect all the other variables (input, process, output) (Rico et al., 2011). This model received numerous critics such as having a static perspective of team effectiveness and being unitary and simple (Kozlowski & Ilgen, 2006; Rico et al., 2011). Therefore, new alternative models started to emerge, with more suitable ways of perceiving team effectiveness, such as the IMOI model proposed by Ilgen and colleagues (2005). These authors considered that not all the mediational factors between inputs and outcomes are processes. Therefore, they reformulated the IPO model creating IMOI which means Input-Mediator-Output-Input. This model recognizes the existence of a wider sort of variables as mediators, and the cyclical nature of feedback processes, which means that outcomes might become new inputs afterwards (Ilgen et al., 2005; Rico et al., 2011).

In the IMOI model, inputs are all the teams' resources, which can be external or internal, and they may be considered at different levels such as members', group and organizational ones. Mediators are the emergent states and processes that allow team members to combine available resources while performing the tasks assigned by the organization. Lastly, outcomes are the results achieved by the group, that may be in terms of team performance or also may include members' affective reactions, such as satisfaction, viability or innovation, which will maintain the group performance over time (Mathieu, Maynard, Rapp, & Gilson, 2008; Rico et al., 2011). Based on the IMOI model, in the present study, transformational leadership is conceptualized as the input, team psychological safety as the mediator variable, and team process improvement as the output (see figure 1).
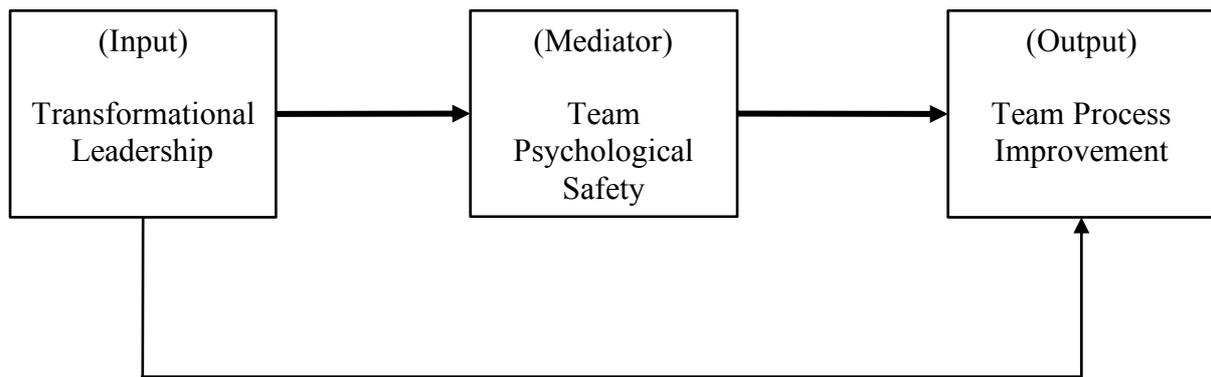
Figure 1. Hypothesized model

Two significant contributions of the present study to the literature on working teams might be highlighted. First, we contribute to the study of the indirect influence of transformational leadership on team results (e.g., Weng, Huang, Chen, & Chang, 2013), by considering the mediating role of team psychological safety. Second, we focus on a team outcome that has received little attention in the literature. In an economic context that is continuously changing, the ability of a group to react and adapt, rethinking processes and strategies, emerge as a key criterion of team effectiveness (Rousseau & Aubé, 2010). Thus, clarifying the mechanisms that lead to team process improvement presents both theoretical and practical relevance. In the following sections the theoretical framework and the scientific development on the subject up until today will be introduced, supporting our hypotheses. Further on, the method, results, discussion, conclusions with theoretical and practical implications of the study, and limitations, will be presented.

State of Art

Leadership has received significant attention in the research field over the last decades, being transformational leadership on of the most studied theories (Judge & Piccolo, 2004). As introduced before, this study relates this type of leadership with team process improvement, one of team effectiveness's dimensions, taking into consideration the mediating role of psychological safety. Along this section, these concepts are going to be introduced, so as the research done regarding the relations between them.

Transformational Leadership

Transformational leadership was first studied by Burns in 1978, when he introduced the concepts of transactional and transformational leadership. Afterwards, in 1985, Bass developed a new and more detailed theory, based on Burns conceptualizations, but with some basic differences: while Burns proposed that transformational and transactional leaderships were opposites sides of the same continuum, Bass conceptualized it as two different concepts. Furthermore, he recognized that the same leader could present both types of leadership, at different times. After different revisions and modifications, Bass's theory now consists in four dimensions of transformational leadership, three dimensions of transactional leadership and a none leadership dimension. The dimensions of transformational leadership are: charisma or idealized influence, intellectual stimulation, inspirational motivation and individualized consideration (Bass & Avolio, 1994; Judge & Piccolo, 2004; Yukl & Van Fleet, 1992).

With idealized influence, Bass meant that transformational leaders are charismatic and inspire their followers appealing to an emotional level. They show conviction, inspire trust and confidence when facing difficult issues. They emphasize on commitment and highlight the importance of accepting the consequences of taking decisions. They are role models, showing determination and confidence, and, as a result, followers are loyal, trust them, and want to identify with them (Bass, 1990, 1997, 1999; Judge & Piccolo, 2004).

Transformational leaders might intellectually stimulate their followers, by challenging assumptions, promoting their intelligence rationality, stimulating new perspectives, ideas, and ways of proceeding. They encourage their followers to express their ideas and arguments, promoting a creative and innovative thinking (Bass, 1997; Judge & Piccolo, 2004).

Inspirational motivation is displayed by transformational leaders when they share their optimistic vision of an attractive future and the way how to get there. They challenge their followers with high levels of performance and provide a meaning for the task they have (Bass, 1999; Judge & Piccolo, 2004).

This kind of leaders demonstrate individualized consideration, which means they care about each follower individually. They consider their personal needs, concerns, difficulties, and also abilities and aspirations. This allows them to help each of their followers on their personal

development, by giving support, teaching, coaching or just advising (Bass, 1997, 1999; Judge & Piccolo, 2004).

Yukl (1989a) defines transformational leadership as an influential process that can generate big changes in the attitudes and the assumptions of group members, building commitment to the group's mission, objectives and strategies. Bass (1999) proposes that transformational leaders are those ones who move their followers beyond their immediate personal interests, looking forward to the team or organization ones. This is why it can be assumed that he defined transformational leadership in terms of the effect the leader has on his/her followers. These leaders let their followers feel important for the team, they show them how valuable is their work for the team/organization. They push their followers to transcend their personal interests and think about what is good for the whole organization. As a result, team members feel confident, trust their leader and respect him/her. They are capable of adopting leadership roles when needed and feel motivated to do much more than what was expected from them to do. Transformational leaders pay attention to the individual needs of their followers and help them to look at their problems on a new way. They appeal to higher ideals and moral values like liberty, justice, equality, peace and humanities (Bass, 1997; Robbins & Judge, 2010; Yammarino, 1994; Yukl & Van Fleet, 1992).

There are some behaviours which characterize these leaders. Podsakoff, McKenzie, Moorman, and Fetter (1990), after a literature review, identified six behaviours that transformational leaders present: 1) they have a vision and share it with employees, getting them to accept it; 2) they provide an appropriate model; 3) they promote the acceptance of group goals; 4) they develop high performance expectations; 5) they show concern about personal interests and needs of their followers; and 6) they stimulate them to rethink the way they do their tasks. Carless, Wearing and Mann (2000), inspired by these conclusions, described transformational leaders as those who present the following seven behaviours: (1) communicate a vision, (2) develop staff, (3) provide support, (4) empower staff, (5) are innovative, (6) lead by example, and (7) are charismatic.

Transformational leaders must have a vision of what they want for the future, communicate it to their followers and inspire them to share the same vision. This is a way to motivate them, and make sure that the whole team shares the same values and pushes in the same direction (Carless et al., 2000; Yammarino, 1994).

Also, leaders must impulse their employees to have a personal development, they must comprehend and considerate them individually, detecting their personal needs and skills, and encouraging them. So, to push on their personal development and help them to improve, transformational leaders delegate tasks and responsibilities, taking into account every one's capabilities and acting as coaches to those who need more help to develop (Bass, 1990; Carless et al., 2000; Kuhnert, 1994).

Transformational leaders are supportive, which means they give positive feedback to their followers, highlighting their personal goals. In this way they show confidence and motivate their staff (Carless et al., 2000; Yukl, 1989b).

With empowerment, Carless et al. (2000) refer to the fact that transformational leaders involve their team members in decision making and problem solving. For achieving this, it is necessary a positive feedback, to give emotional support and encourage subordinates to believe in themselves (Carless et al., 2000; Conger & Kanungo, 1988; Yamarino, 1994).

Transformational leaders are innovative, which means they take risks in order to achieve their vision and objectives. They like challenges, and so they motivate their staff to have the same attitude, accepting mistakes as a learning opportunity. In this same direction, they lead by the example, providing a role-model that is consistent with what they express (Carless et al., 2000; Podsakoff et al., 1990).

The last behaviour Carless and colleagues (2000) presented is charisma: transformational leaders are charismatic, meaning that they influence their subordinates developing on them strong feelings of identification with the leader, motivation and inspiration, and also serve as coaches or mentors. Some authors considered charismatic leadership as a style of leadership, but in this theory, it is conceptualized as an essential characteristic of transformational leaders (Bass, 1990; Yukl, 1989b).

Transformational Leadership and Team Psychological Safety

Team psychological safety is a topic that has received considerable scientific attention in recent years, not only in the field of Psychology but also in fields like Management or Organizational Behaviour. At the beginning of 1960s, pioneering organizational scholars started to explore this topic, but after that there were many years of lack of interest. In the 1990s the interest

returned, and until today it has been gaining space on the scientific agenda (Edmondson & Lei, 2004). Nowadays, it is an important topic of study, because of the increasing importance that learning and innovation have in the field (Edmondson & Lei, 2004).

Edmondson (2003) defines team psychological safety as every member's perception about what will be the consequences of taking interpersonal risks at the work environment. It means taking for granted beliefs about how others will react when one speaks up or participates. It is a confidence that comes from the mutual respect and trust between members (Edmondson, 1999, 2003).

It is important to distinguish that a psychological safety climate does not mean a pleasant place, full of close friends, and neither the absence of problems. In fact, we are in presence of a psychological safety climate when people feel able to have productive discussions, which will help to prevent problems and achieve goals. They feel comfortable and safe, so they are more focused on solving problems and achieving group objectives, than on protecting themselves. Team psychological safety promotes risk-taking and learning behaviours (Edmondson, 2002).

Many authors insist in differentiating team psychological safety from trust, two different concepts that are easily mistaken. Edmondson (1999) recognizes that team psychological safety in a team includes trust, but it is much more than that. It would be a climate where people trust in each other, but also have a great respect, and everyone feels comfortable being themselves.

Team psychological safety can be conceptualized as a group-level construct. This means that characterizes the team as a whole, and not the individual members, although their perceptions must be similar, because they are under the same influences and sharing the same experiences (Edmondson, 1999, 2003). According to Edmondson (2003), team leaders have a central role promoting team psychological safety and should present three fundamental behaviours in order to foster the emergence of this team perception. Firstly, they must be available and approachable, meaning that they need to reduce any kind of barriers followers may perceive, which may disallow a discussion. Secondly, leaders should welcome feedbacks from followers, because in this way, group members will feel their contributions are welcome, and they also feel respected and important. And finally, leaders must show modelling openness and fallibility; they are role models in their teams, so if they are reticent to discussion and to reviewing different points of view, group members would replicate this behaviour (Dimas et al, 2016).

Some previous studies related transformational leadership to team psychological safety. For instance, Zhou and Pan (2015) argued that transformational leaders help to create a safe interpersonal environment, where employees feel confident to exchange ideas and ask challenging questions. Through idealized influence and inspirational motivation, transformational leaders stimulate mutual support and trust within team members. They create a cooperative climate rather than a competitive one, which will lead to a high level of team psychological safety. The results of their study supported a positive influence of transformational leadership, through a psychological safety climate, on the employee creative process engagement.

Carmelli, Sheaffer, Binyamin, Reiter-Palmon, and Shimoni (2014) also studied transformational leadership and team psychological safety but related to reflexivity. They found that transformational leadership behaviours develop employees' capacity for creative problem-solving. As a consequence of typical transformational leader's attitudes, such as encouraging followers to rethink working processes, considering new viewpoints, questioning ideas, they promote an ambitious vision and motivate followers to take interpersonal risks and show them that reflexivity is valued. Therefore, building on previous research, we propose the following hypothesis:

Hypothesis 1: Transformational leadership will have a positive influence on team psychological safety.

Team Psychological Safety and Team Process Improvement

During the last decades, organizations have been pushed to change their working configuration, from more individual jobs on a well-defined and kind of rigid structure, to focusing more on team working, within flexible and more complex environments (Kozlowski, Grand, Baard, & Pearce, 2015). Globalization, new technologies and ways of communication, and changes inside organizations, such as new dynamic environments, demand faster responses and more flexibility from companies (Kozlowski et al., 2015). Therefore, in this context, teams gain importance because they can innovate, solve problems and implement changes. Hence, the concept of team effectiveness gained relevance not only for organizations themselves, but also in the research field (Kozlowski et al., 2015; Nembhard & Edmondson, 2006).

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A team may be conceived as effective when its processes are aligned with the context demands (Kozlowski et al., 2015). Either way, defining wither a team is effective or not, is not totally objective, because it depends on whom is evaluating it. Hence team effectiveness is not a context-free concept, and it involves different non-objective criteria. Considering a team as effective will be related to what it is expected from that team at that right moment, by the one who is evaluating it (Beaudin & Savoie, 1995). Hackman (1987) described three criteria to assess team effectiveness: 1) in an effective team the task outcome of the group meets or exceeds the expected standards of who is receiving or reviewing it; 2) the social processes used while carrying out the work, must maintain or improve members' capability to work together on future group tasks; 3) members should satisfy their personal needs through their group experience, or at least not frustrate them.

More recently, Rousseau and Aubé (2010) also conceptualized team effectiveness as a multidimensional construct that should be studied by considering different dimensions, namely team performance, team viability and team process improvement. This third dimension is the one that receives attention in this study. It is strongly related with innovation, and it might be understood as the ability of team members to remove deficits on group processes, improving current ones and developing pioneering solutions to achieve better task outcomes (Kirkman et al., 2004; Rousseau & Aubé, 2010). This dimension is related with innovation, because in both cases the focus is on how a team establishes new ways of doing things (Gumusluoglu & Ilsev, 2009; Reuvers, Van Engen, Vinkenburg, & Wilson-Evered, 2008).

The importance of studying team process improvement has to do with the positive impact that it might have on the organization. When new practices and procedures are implemented, productivity might increase, the overall quality improve, and production's times and costs reduce. All these might have a positive impact on the company's competitive advantage (Fuller et al., 2006; Hackman & Wageman, 1995).

As Edmondson and Mogelof (2004) state, the organization's ability to innovate is crucial for its success in such a dynamic and changing world. But, as innovating involves risk, uncertainty and also failure, a psychological safety climate is needed. The presence of team psychological safety helps with risk taking and so, enables creativity and innovation (Behafar, Friedman, & Oh, 2015; West, 1990). In psychological safety environments members have no fear of failing, and so they can show engagement with learning and innovation (Edmondson & Mogelof, 2004). By reducing the fear to participate or to take interpersonal risks, team psychological

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safety enables team members to feel much more comfortable on suggesting new and revealing ideas and thinking out of the box, so it promotes innovation (Edmondson, 2002).

In line with this, some studies have previously found support for the relationship between team psychological safety and team effectiveness (or some of its dimensions). For example, Edmondson (1999) in her study about team psychological safety and team learning behaviours, concluded that these two variables are related and that they affect team performance. Also, Baer and Frese (2003) found support for the relationship between team psychological safety and team performance and innovation. Therefore, we also predict the existence of a relationship between team psychological safety and one of team effectiveness's dimensions, in this case: team process improvement. Hence, our second hypothesis:

Hypothesis 2: Team psychological safety will have a positive influence on team process improvement.

Transformational Leadership, Team Psychological Safety, and Team Process Improvement

Leadership behaviours influence team results, both directly and indirectly, because they influence the group's functioning. Indeed, organizational literature has given vast importance to the study of the mechanisms through which leaders influence team results (Podsakoff, MacKenzie, & Bommer, 1996), their influence on team outcomes is real, although many times it is on an indirect way (Moynihan, Pandey, & Wright, 2012). Recent investigations studied the relationship between transformational leadership and different variables such as reflexivity, motivation, engagement, team interaction, corporate performance, among others (e.g., Carmelli et al., 2014; Chang, Lee, Wei, & Huang 2017; Zhou & Pan, 2015).

Regarding our interest, there is extensive research about the relationship between transformational leadership and team effectiveness, starting from Bass when he developed the theory in 1985 (Judge & Piccolo, 2004). A meta-analysis published by Judge and Piccolo (2004) about transformational and transactional leadership, studied the relationship between transformational leadership with effectiveness and team performance, among other hypotheses. More recent studies continued the investigation about transformational leadership and team effectiveness, concluding there exists a positive relation between these variables (e.g. Choi, Kim, and Kang, 2017; Gyanchandani, 2017).

Either way, most of the studies are focused mainly on team performance, and not in the other dimensions (Mathieu et al., 2008). Moreover, although there are several investigations about the relation between transformational leadership and team performance, most of them study the existence of a direct relationship (e.g. Dionne, Yammarino, Atwater, & Spangler, 2004; Wang, Oh, Courtright, & Colbert, 2011). Therefore, Wang and colleagues (2011) insisted on suggesting for future research, the study of mediators in that relationship, arguing that transformational leadership affects effectiveness through different mechanisms, which are far from being completely acknowledge.

In line with this, recent investigations have been trying to identify the indirect mechanisms through which transformational leadership affects team results, although once more, most of them focused on team performance (e.g. Chou, Lin, Chang, & Chuang, 2013; Pradhan, Jena, & Bhattacharyya, 2018; Wang et al., 2011). Chou et al. (2013) studied the indirect relationship between transformational leadership and team performance, mediated by cognitive trust and collective efficacy. Gyanchandani (2017) focused on Indian IT sector, investigated the leadership styles on the sector and their impact on team performance. He concluded that transformational leaders, by enhancing a creative environment, promote work engagement and team performance.

Nevertheless, team effectiveness can be measured by other dimensions too, not just team performance, being team process improvement the one that interests us. Although this one itself has not received much attention (Rousseau & Aubé, 2010), there are two recent empirical studies that identify the indirect relationship between transformational leadership and different team effectiveness criteria, one of them considering supportive behaviours as the mediator (Pessoa, Dimas, Lourenço, & Rebelo, 2018) and the other one considering affective team commitment (Paolucci, Dimas, Zapalà, Lourenço, & Rebelo, 2018). In both studies team process improvement is one of the studied criteria.

Moreover, other recent studies relate innovation with transformational leadership, and as it was said before, team process improvement is strongly related with innovation (Boerner, Eisenbeiss & Griesser, 2007; Rousseau & Aubé, 2010). According to Fathurrahim, Nimran, Arifin, and Musadieq (2018) transformational leaders allow collaborators to innovate, what has to do with one of the transformational leader's behaviours described above: empowerment.

Chang et al. (2017) published an empirical study about the relation between motivation and transformational leadership with innovative behaviours, in high performance Taiwan's companies. They concluded that transformational leadership has a strong impact on innovation. The reason has to do with the fact that these leaders become easily role models for their subordinates, they encourage and foster knowledge and creativity, provide guidance and promote a comfortable feeling on their followers. As a consequence, employees develop innovative behaviours. Also, the aforementioned authors state that high levels of transformational leadership increase workers motivation and performance. Followers show motivation and inspiration, so they feel encouraged to face and support changes, which relates with what Faupel and Süß (2018) concluded after studying the effects of transformational leaders on their employees during organizational changes.

Regarding our mediator, there are numerous studies pointing to the mediating role of team psychological safety in the relationship between antecedent conditions and outcomes. On a recent literature review, Newman, Donohue, and Eva (2017) identified 44 empirical studies focused on the antecedents of team psychological safety, and 38 of them treated it as a mediator to explain how different inputs such as organizational practices, behaviours, relationships, team characteristics, among others, influenced on workplace outcomes at different levels: individual, team and organizational. Edmondson and Lei (2004) mention that several studies have investigated leadership as an antecedent of the effects of team psychological safety mediation, for example on learning or performance.

By giving support to team members, stimulating individual and team development and valuing innovation, transformational leaders will contribute to create a psychological safety workplace, where members feel free to present suggestions, to take risks and to rethink existing processes and strategies, what translates in higher levels of team process improvement. In line with this, we propose our third hypothesis:

Hypothesis 3: Team psychological safety will have a mediating role in the relationship between transformational leadership and team process improvement.

Method

Sample

This research is non-experimental, cross-sectional and is focused on the group level of analysis. Our sample is composed of 82 working groups, belonging to 57 Portuguese organizations. The total number of participants is 435, where 82 of them are team leaders and 353 team members.

Some criteria were stablished in order to decide whether a group could participate on the study or not. Specifically, 1) at least 50% of team members and the team leader needed to deliver valid questionnaires; 2) questionnaires could not have 10% or more of the items without being answered, in each of the scales of the questionnaire; 3) teams had to be composed of at least three people, they had to had a designed leader and there must have existed an interdependent work between members, trying to achieve a common objective (Bryman & Cramer, 2004).

Hence, at the beginning the sample was composed of 104 working groups belonging to 66 organizations, with a total of 452 team members, and after applying these criteria, some of the teams were left outside of the study.

The surveyed organizations are from different sectors of activity, namely from services (73%), followed by the industrial sector (15%). Regarding the number of employees the participating organizations have, 42% of them have 10 or less workers, 18.5% between 11 and 49, 19.8% between 50 and 249, and 19.8% have 250 or more workers.

Working teams belong to different areas, most of them are from the services sector (41.5%), followed by the commercial area (19.5%) and by production and project teams (both with 9.8%).

Teams have an average of six members (SD = 3.55), varying from three to 18, being mostly females (67.1%), with ages between 18 and 70 years (M = 38; SD = 12.33). Regarding their studies, 36.7% have a higher education degree. The average time of members in the team was six years (SD = 7.25), ranging from one week to 46 years.

The team leaders' ages were between 20 to 66 years (M = 42.16, SD = 10.86) and 55.7% were males. Most of them (55.7%) have a higher education degree. They have been part of the teams for an average of five years (SD = 4.87), ranging from one month to 20 years.

Data Collection Procedures

Data was collected by a convenience sample method (Hill & Hill, 2005), between October 2016 and January 2017.

Firstly, companies were contacted face to face, by phone or mail, and an explanation about the investigation was provided with a presentation letter (Appendix A). After this first contact, the collaboration project was presented (Appendix B). This document explained the STEP project – Successful Team Effectus Project – and its objectives, which are studying the way in which different aspects of group functioning are related with team effectiveness. Also, the document described the kind of collaboration expected, who were able to participate and, rights and duties of the research team.

Then data collection was scheduled, and so questionnaires were applied. Online and paper surveys were provided for leaders and team members of Portuguese organizations. Team members were surveyed about their perception of transformational leadership and team psychological safety, whereas team leaders were asked to evaluate team process improvement. These questionnaires were all answered at the same time; leaders questionnaires took 10 minutes, and team members questionnaires 20 minutes, approximately.

All participants provided their informed consent and both confidentiality and anonymity were guaranteed by the research team. In cases where the questionnaire was applied online, e-mail addresses of participants were not published in any circumstance. The research team also assured that data would be treated at the group level and that no individual data would be analysed.

Measures

Transformational Leadership

The instrument used to measure transformational leadership is the Global Transformational Leadership (GTL) scale developed by Carless and colleagues (2000) and validated for the Portuguese language by Van Beveren, Dimas, Lourenço and Rebelo (2017). This scale (Appendix D) considers transformational leadership as a single construct that is represented by seven behaviours which identify transformational leaders following Carless et al.'s (2000) model: 1) communicate their vision, 2) develop staff, 3) give support, 4) give empowerment,

5) are innovative, 6) lead by example, and 7) have charisma. Hence, the GTL is composed of seven items, measured in a 5-point Likert type scale, that goes from 1 "almost does not apply" to 5 "applies fully". The items were preceded by the stem "My leader" and followed by statements like "communicates a clear and positive vision about the future". This scale was answered by team members. The psychometric properties of the Portuguese version were assessed by Van Beveren et al (2017) with a sample composed of 456 members of 70 workgroups from 26 Portuguese organizations, located in the centre and the centre-north of the country. Teams were composed, on average, of nine members (SD = 6.77). In order to validate the factorial structure of the scale, firstly an Exploratory Factorial Analysis (EFA) was performed with half of the sample and afterwards a Confirmatory Factorial Analysis (CFA) with the other half. The EFA showed a KMO (Kaiser-Meyer-Olkin Measure of Sampling Adequacy) value of .93 and Bartlett's test was also statistically significative ($\chi2(21)$ = 1118.957, p < .001), both indicating that the factorial analysis is appropriate. Then, the EFA's results showed a one-factor solution with an eigenvalue of 5.76, which explains 70.23% of the variance, with all the items loading above .78. The internal consistency assessed by the Cronbach's alpha was of .93. The obtained model from the EFA was then tested through a CFA, showing an acceptable adjustment between data and the hypothesized model [$\chi2$ (14) = 43.88, p < .001; CFI = .98; RMSEA = .097, intervals of confidence 90% between .065 and .130, statistically significant]. The internal consistency in this second sub-sample was adequate (α = .96), and for the complete sample the Cronbach's alpha was of .94 (Van Beveren et al., 2017).

Team Psychological Safety

This construct was measured by Team Psychological Safety Scale developed by Edmondson (1999) and adapted and validated for the Portuguese language by Ferreira (2017) (Appendix D). It is composed of seven items measured in a 7-point Likert type scale that goes from 1 "very inaccurate" to 7 "very accurate", being three of these items reverse. Items include statements like this: "If we make a mistake in this team, this will be usually used against us". This scale was answered by team members. Psychometric properties of this scale were validated by Ferreira (2017) through an EFA, with the same sample this study is using. On average, teams were composed of 6 members (SD = 3.56). The EFA showed a KMO value of .66 and Barlett's test was also statistically significant ($\chi2(3)$ = 190.2, p < .001), both indicating that the factorial analysis is appropriate. Therefore, a unidimensional solution was

achieved, which explained 62.62% of the total variance, with an eigenvalue of 1.9, and all values loading above .50. The internal consistency measured by Cronbach's alpha was .70, which is adequate (Ferreira, 2017).

Team Process Improvement

Team process improvement was assessed using the Team Process Improvement Scale, answered by group leaders (Appendix C). It is a scale developed by Rousseau and Aubé (2010) and was adapted to the Portuguese language and validated by Albuquerque (2016). It contains five items, measured on a 5-point Likert type scale, that goes from 1 "almost does not apply" to 5 "applies almost completely". Items are preceded by the stem "Team members have successfully implemented new ways of working...", and followed by different statements, for example "to facilitate achievement of performance goals". The psychometric properties of the Team Process Improvement scale were assessed by Albuquerque (2016) through an EFA and Reliability Analysis with Cronbach's alpha, with a sample of 76 team leaders from 26 Portuguese organizations from central and north central regions of the country. Teams were composed, on average, of nine members (SD = 6.77). The results of the EFA showed a unique factor solution with an eigenvalue of 3.51, explaining 70.2% of the total variance. All the items loaded above .82. The reliability analysis showed an acceptable internal consistency, with a Cronbach's alpha of .89 (Albuquerque, 2016). Further studies, such as Aniceto (2016) and Pessoa (2016), tried to test the model obtained through the EFA with a CFA, using a sample of 122 leaders. The results showed lack of adjustment between the data and the hypothesized model [$\chi2$ (5, N = 122) = 18.26, p = .003; CFI = .95; RMSEA = .15, intervals of confidence 90% between .08 and .22, statistically significant], so the model needed to be adjusted. Hence, to solve this, they considered a free estimation of the parameter related to the variation of measure errors e1 and e4, and then the CFA showed that the model achieved acceptable values [$\chi2$ (4, N = 122) = 6.43, p = .169; $\Delta \chi2$ (1) = 11.83, p < .001; CFI = 0.99; RMSEA = .07, intervals of confidence 90% between .00 a .17, statistically significant] showing an adequate adjustment between the sample and the model. The internal consistency measured by Cronbach's alpha was .86, which is good (Aniceto, 2016; Pessoa, 2016).

Control Variables

Some previous studies showed that the effect of team processes and conditions might be influenced by the employee and team characteristics (e.g., Aubé & Rousseau, 2005; Barrick,

Stewart, Neubert, & Mount, 1998; Mohammed & Angell, 2004). Therefore, team size and overall team tenure (from the team level), and member's tenure in the team (from the individual level) were included and considered as possible control variables. To obtain this information, leaders were asked about the number of members their team had, and for how long they have been working together. Concerning the employee characteristics, team members were asked about the time they have been working in the team.

Data Analysis and Previous Procedures

To begin with, missing-value analysis was conducted, for all the scales that take part of this study, and as it was said before, all the elements who had more than 10% of missing values were deleted. The team process improvement scale did not present missing values. Concerning transformational leadership and team psychological safety scales, the missing answers tendency was analysed through the Little MCAR test. The results of the test for transformational leadership [χ^2 (33) = 30.54, p = .590] and team psychological safety ($\chi^2(50)$ = 73.76, p = .333) were not significant revealing that there is randomness in the missing answers' distribution. In this way, missing values were replaced by the items' mean (Hair, Black, Babin, & Anderson, 2009).

Secondly, as this study was conducted at the group level of analysis and measures provided by team members were collected individually, it was necessary to aggregate variables obtained from team members (i.e., transformational leadership and team psychological safety) to the team level. This was achieved by calculating the averages scores of the answers of team members for each scale (transformational leadership and team psychological safety). As suggested by Woehr, Loignon, Schmidt, Loughry, and Ohland (2015) to justify aggregation, across-group and within-group indices were calculated. ICC (1) and ICC (2) assess the consistency of the aggregated measures, between teams, representing the average level of agreement across the teams (Woehr, et al., 2015; Bliese, 2000). On the other hand, the r_{WG} index suggest the level of within-group agreement. Higher values indicate an adequate agreement and according to James, Demaree and Wolf (1984) median r_{WG} values over .70 are generally considered sufficient to support aggregation. In this study, r_{WG} average values for transformational leadership was 0.91 and for team psychological safety was 0.73, which reveal that the level of agreement within the teams is enough to aggregate team members' scores with confidence to the team level. The ICC (1) and ICC (2) values obtained for transformational leadership (.38 and .72 respectively) and team psychological safety (.33 and .68 respectively.)

were also in line with the values considered acceptable in the literature (Bliese, 2000; Klein & Kozlowski, 2000) and provided support to the aggregation of data to the team level.

Results

Correlation Analysis

Table 1 reports means, standard deviations, r_{WG}, ICCs, correlations (Pearson) and reliability coefficients of the variables used in the study. Team size, Overall team tenure, and Average member tenure at the team are also included as described before. Either way, when analysing the correlations, none of them showed to be correlated to the main variables of this study. Hence, there is no need to take them into account as control variables in the rest of the results' analysis.

Table 1.

Descriptive statistics, scales reliabilities, r_{WG}, ICCs, and correlations between variables

	M	SD	R_{WG}	ICC (1)	ICC (2)	1	2	3
1. Transformational leadership	3.94	0.65	0.91	.38	.72	(.93)		
2. Team psychological safety	4.86	1.00	0.73	.33	.68	.47**	(.63)	
3. Team process improvement	3.89	0.78	-	-	-	.25*	.45**	(.98)
4. Team size	6.41	3.55	-	-	-	.02	-.05	-.20
5. Overall team tenure	6.17	6.45	-	-	-	-.06	.01	.11
6. Member's tenure in the team	5.35	5.42	-	-	-	-.14	-.22	-.09

Note. N=82 teams. Reliability coefficients (Cronbach's alpha) are reported in brackets. * $p < .05$. **$p < .01$

Looking at Table 1 it is possible to check that correlation coefficients are in line with what is expected in the hypotheses. For instance, the correlation coefficients between transformational leadership and team psychological safety ($r = .47$, $p < .00$) and team process improvement ($r = .25$, $p = .021$) were positive and significant, as well as the correlation coefficients between team psychological safety and team process improvement ($r = .45$, $p < .00$).

Hypotheses Testing

Hypotheses were tested using PROCESS, a macro from SPSS developed by Hayes (2013). Model 4 of this macro allows, through bootstrapping, the construction of a 95% confidence interval for assessing a simple mediation (a 5000 estimated bootstraps samples will be used to build the interval). The indirect effect on the simple mediation will be calculated from the product of the independent variable's coefficients on the mediator, and from the mediator on the dependent variable. The effect will be statistically significant if zero is not included between the maximum and minimum limits of the 95% confidence interval generated by PROCESS.

Control variables were not included on the analysis because of their lack of significance in the correlations with the interested variables (cf. Table 1).

Table *2.*

Mediation Analysis

DV/ *Predictor*	b	SE	LLCI	ULCI	R^2
Team psychological Safety					0.22**
Transformational Leadership	.73*	.15	0.43	1.03	
Team Process Improvement					0.20**
Team psychological Safety	.33**	.09	0.15	0.5	
Transformational Leadership	.07	.14	-0.21	0.34	
Indirect effect	.24	.08	.11	.41	

Note: N= 82 teams. DV=dependent variable. b=non-standardized regression coefficient. SE=Standard error. CI= confidence interval. LLCI=lower CI limit. ULCI= Upper CI limit. $* p < .05 ** p < .01$.

Regarding the first hypothesis, results indicated that transformational leadership was a significant predictor of team psychological safety (b = .73, SE = .15, p < .01), explaining 22.33% of the variance of that variable (R^2 = .22, F (1, 80) = 23, p < .001). Concerning the second hypothesis, results revealed that team psychological safety was a significant predictor of team process improvement (b = .33, SE = .09, p < .001) (c.f. Table 2). Hence, results provided support for these two hypotheses.

The indirect effect (Hypothesis 3) was tested using a bootstrap analysis. Results indicated the indirect coefficient was significant, as zero is not included between the maximum and minimum limits of the 95% confidence interval generated by PROCESS (b= .24, SE = .08, 95% CI = .11, .41), supporting the third hypothesis (c.f. Table 2). On the other hand, since the direct effect was not significant (b = 07, SE = .14; p = .63), meaning this that transformational leadership was no longer a significant predictor of team process improvement after controlling for the mediator (team psychological safety), the mediation identified was a full mediation. The model, with the aforementioned results, are represented in Figure 2.
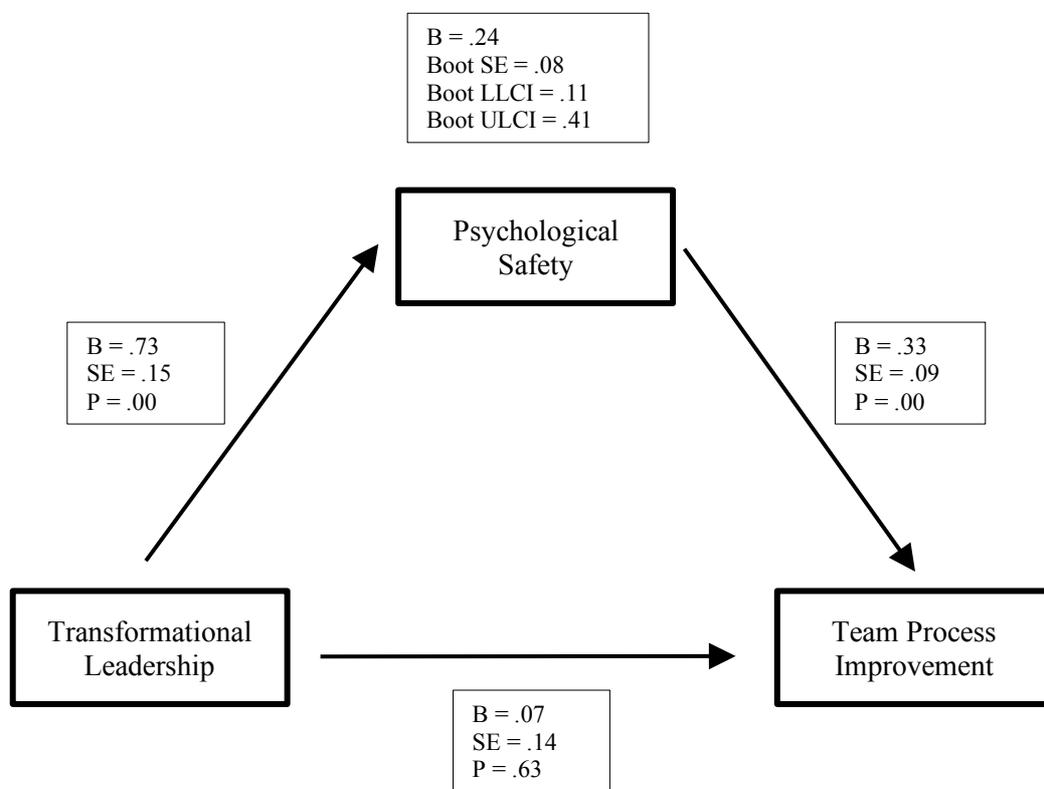

Figure 2. Results for the mediational model tested through PROCESS

Discussion

When studying groups, their processes and dynamics, is of utter importance analysing the leader's influence on its members, as well as on the group functioning and performance. The importance of adopting a transformational leadership style in order to achieve team objectives has a strong empirical support in the literature (Judge & Piccolo, 2004; Wang et al., 2011). Behaviours adopted by leaders, influence team results, both directly and indirectly, because of the impact they have on how the group works. Thus, specialized literature has made emphasis on the importance of studying the mechanisms that leaders use to influence the working team's results (Podsakoff et al., 1996).

The purpose of this study was to shade further light on the relationship between transformational leadership and team process improvement. As Moynihan and colleagues (2012) proposed, the influence of transformational leaders on team outcomes is real, although many times it is an indirect influence. Moreover, Paolucci and colleagues (2018) in their study founded that, regarding the relationship between transformational leadership and team process improvement, the direct effect was not significant but it was indirect effect through a mediator (affective team commitment). Hence, our intention was also to study the relationship between the leadership behaviours and team outcomes, in this case considering the mediational role of team psychological safety. It was expected that transformational leadership behaviours would contribute to an atmosphere where people feel secure enough so as to take risks, adopting innovative behaviours, and so achieving team effectiveness through team process improvement.

Contributing to the literature on transformational leadership, and in line with previous findings (e.g., Zhou & Pan, 2003), our results supported the positive relation between transformational leadership and team psychological safety. This means that, as Edmondson (1999, 2003) stated, leaders can foster team psychological safety if they behave on a certain way. For example, they should be available to the group, give feedback and encourage their followers, behaviours showed by transformational leaders (Edmondson, 2003). They tend to be supportive, develop their staff, empower them (Carless et al., 2000), and animate them to be participative on debates, express their feelings, and be fearless of taking risks (Boerner et al., 2007). So, all these behaviours, observed in transformational leaders, will influence on the establishment of a psychological safety environment, which is aligned with the findings in this study.

Furthermore, and in line with previous literature, our results support the positive relationship between team psychological safety and team effectiveness, more precisely, team process improvement (e.g. Edmondson, 1999; Edmondson & Mogelof, 2004; West, 1990) (Hypothesis 2). These results are of utter importance because, as it was said before, team process improvement has received poor attention in scientific research. Our results highlighted the importance of team psychological safety for increasing the levels of team process improvement. This is aligned with Edmondson's findings, who in several studies (2002, 2003), stated that people in a psychological safety environment do not need to take care or be worried about protecting themselves. This lets people focus on discussions, exchange ideas, be creative, without being worried about what others might think or say. And that is why team psychological safety is important for innovation, as some authors have already shown (e.g. Behafar et al., 2015; Edmondson, 2002, 2003; Edmondson & Lei, 2004). So, in order to achieve team process improvement, team members should have a share belief of being enable to suggest improvements and react to changing demands, proposing innovative solutions (Kirkman et al., 2004). This shared belief is what defines team psychological safety.

The third hypothesis, which predicted an indirect relationship between transformational leadership and team process improvement, mediated by team psychological safety, was also supported by the results of this study. A leader is someone who stimulates, influences and guides its followers, and the whole team, towards the achievement of specified objectives (Gyanchandani, 2017). Transformational leaders have the ability to influence team outcomes, many times on an indirect way, through different mediating variables (Moynihan et al., 2012). Teams are composed of people, and their feelings and behaviours can be strongly influenced by interactions among them. As defined by Yukl (1989) transformational leadership is an influential process that can generate important changes in their followers' attitudes and assumptions. Accordingly, transformational leaders influence their followers' behaviours, feelings and interactions, and in that way, they end up influencing teams' outcomes (Podsakoff et al., 1990). In line with this, our results emphasized team psychological safety as an indirect mechanism through which transformational leaders will influence team process improvement. As expected from the literature review, team psychological safety is a common mediator that explains teams and organizational outcomes (Newman et al., 2017). Likewise, Edmondson and Lei (2004) showed the relation between transformational leadership as an input, and team psychological safety as the mediator, being the outcome team performance (another of team effectiveness's dimensions). By contributing to create a psychological safety environment,

where people are not worried about what others can think or say about them, where team members feel encouraged to take risks and be creative, transformational leaders will influence the level of process improvement that team members implement. In this way, team functioning can be improved, looking forward to better ways of doing things, achieving better results and pioneer solutions.

Conclusions and Implications

This study provides a contribution on team effectiveness research, namely related to team process improvement, which had received less attention than other team effectiveness's dimensions. Based on the IMOI model (Ilgen et al., 2005) we showed that transformational leaders foster team process improvement, by promoting team psychological safety in their teams.

With this results and conclusions, this paper provides new information about how to improve team effectiveness in organizational teams, making a contribute to the study of team process improvement.

Team effectiveness has been mainly studied through one of its dimensions: team performance, while is much more than that (Rousseau & Aubé, 2010). Organizations should focus on the other dimensions too, such as team process improvement or team viability Hence, we highlight the importance of transformational leaders to achieve team effectiveness through team process improvement, by providing a psychological safety climate.

Considering what organizations care about, this research intents to make practical contributions too. Therefore, by focusing on team's study, we are aligned with the actual working tendencies. Team working has been gaining importance at organizations in the last decades, and nowadays more companies are relying on teams. Thus, research focused at a team level and related to increasing team effectiveness, must be of companies' interest.

It is expected that transformational leaders have a strong impact on team effectiveness. Therefore, organizations should invest on evaluating future leaders and hiring those candidates that have a transformational style. In addition, leaders' training programs should be developed, as a way to enhance and promote, in actual leaders, transformational leadership behaviours.

Accordingly, leaders should be taught on how to modify their supervision style focusing on the main behaviours of the transformational leader.

It is supposed that, with the expected results, organizations will have strong reasons to promote team psychological safety environments. Apart from having the right leaders, the organization should implement initiatives that can also promote the teams' perception of psychological safety. For example, open-space offices where leaders work close to their team members. In these contexts, leaders can reward/recognize when someone speaks up, express its ideas and also, they can promote discussions and ideas-exchange as everyday practices. Additionally, companies should try to maintain some stability in their teams, for example by not changing their leaders regularly, and having clear defined structures, so to reduce members' possible feelings of being insecure, confused about roles and responsibilities, or having lack of confidence. Furthermore, another suggestion for organizations is to implement team building activities, with special focus on improving communication, confidence and respect among members, as a way to enhance social relations between their members and facilitate the development of team psychological safety.

Limitations and Suggestions for Future Research

This study employed a cross-sectional research design, which might be a limitation because it limits the conclusions about the causality of the relationship between transformational leadership, team psychological safety and team process improvement. Therefore, we suggest for further investigation, longitudinal studies to clarify the identified relationships. Another limitation is related to the possible common source bias that can be caused because transformational leadership and team psychological safety were obtained both from team members. Either way, as the third variable, team process improvement, was obtained from a different source, team leaders, we have a multi-source approach which lowers the risk of having the aforementioned bias. Additionally, by aggregating the variables to the group level, the risk of having common source bias is also reduced (Podsakoff, MacKenzie, Lee, & Podsakoff, 2003).

As team effectiveness is a concept that might be difficult to define objectively, because it depends on the perception of whom is evaluating and its expectations, for future research we suggest trying to asses this variable with different instruments in order to contrast the results.

We can also mention that in this study companies belong to different industry sectors, and inside the company, teams also belong to different areas. This fact might generate differences between teams' and leaders' answers. As expectations and exigence might vary from one sector to another (ex: Militar, Healthcare, Sales, Services, etc.) or between different departments of the same company, it might be interesting to focus on one industry or one working area. By not combining people from different industries/areas results might be more accurate.

Regarding the statistic model, in this study there were just considered one input, one mediator and one output, hence for further investigations, more complex models can be studied. So far as we know, two other variables have been analysed as mediators in the relationship between transformational leadership and team process improvement, such as supportive behaviours and affective team commitment (Pessoa, Dimas, Lourenço, & Rebelo, 2018; Paolucci, Dimas, Zapalà, Lourenço, & Rebelo). Therefore, an interesting study might be integrating all these variables in the same model. Additionally, a broader study can be conducted considering the same variables, plus the other dimensions of team effectiveness (team performance and team viability). Also, a suggestion for further investigations is to study how other variables might moderate the whole model itself, such as the hierarchy of the members in the team or the level of responsibility they have.

A final recommendation might be studying these variables in healthcare teams. There are some previous studies in this sector (e.g., Nembhard & Edmondson, 2006; Weng, Huang, Chen & Chang, 2013) because of the impact that professional hierarchy has on these teams, and the consequence that it might have on teams' outcomes. Sometimes nurses detect mistakes or improvement possibilities, but because of this professional hierarchy they might not share their ideas or opinions with the doctors in the team. Accordingly, if team leaders foster team psychological safety on healthcare teams, and nurses feel enable to make suggestions and that their opinions are welcome, a better health service might be offered to patients. Thus, in our view, this might be a clue for future research.

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APPENDIXES

Appendix A - *Carta de Apresentação às organizações Portuguesas*

(Presentation Letter to Portuguese Organizations)

Coimbra, XX de outubro de 2016

Exmo/a. Senhor/a Doutor/a XXX

Dirigimo-nos a V. Exa. na qualidade de investigadoras da Universidade de Coimbra, onde nos encontramos a realizar estudos de mestrado.

No âmbito dos projetos de investigação de mestrado que estamos a realizar na área de Psicologia das Organizações e do Trabalho, sob a orientação dos Prof. Doutores Isabel Dórdio Dimas, Paulo Renato Lourenço e Teresa Dias Rebelo, na Faculdade de Psicologia e de Ciências da Educação da Universidade de Coimbra, propomo-nos estudar alguns processos de funcionamento dos grupos/equipas de trabalho.

Para levar a cabo esta investigação pretendemos, durante os meses de novembro e dezembro de 2016, aplicar em diferentes organizações, um questionário a diversos grupos/equipas de trabalho e aos respetivos líderes (tempo estimado para preenchimento: 15 a 20 minutos para os colaboradores e 10 minutos para o líder).

Às organizações participantes nesta investigação fica garantido o direito ao anonimato e à confidencialidade dos dados, bem como a entrega, após a conclusão dos mestrados, de uma cópia das teses. Caso manifestem o desejo de obter informação sobre os resultados referentes à vossa Organização em particular, disponibilizamo-nos, igualmente, para facultar esse *feedback*. Consideramos que o benefício poderá ser mútuo, na medida em que, por um lado, a organização de V. Exa. promove a investigação de excelência em Portugal e, por outro, beneficia de informação em retorno, assente no tratamento e análises de dados com rigor metodológico e cientificamente fundamentados.

Gostaríamos de poder contar com a colaboração da vossa Organização para este estudo. Neste sentido, e para uma melhor apreciação da investigação e da colaboração solicitadas, teremos todo o gosto em explicar este projeto, de forma mais detalhada, através do meio de comunicação que considerem mais adequado.

Desde já gratas pela atenção dispensada, aguardamos o vosso contacto.

Com os melhores cumprimentos,
(P'la equipa de investigação)

Contactos |

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Appendix B - *Projeto de Investigação para as empresas Portuguesas*

(Research Project to Portuguese Organizations)

Proposta de colaboração em Investigação
STEP: Successful Team *Effectus* Project
Condições que potenciam a eficácia grupal

1) Equipa responsável pelo projeto de investigação

- Ana Dias
- Ângela Palácio
- Daniela Pinho
- Inês Grilo
- Mónica Ferreira
- Rita Nascimento

(estudantes do 2º ano do Mestrado de Psicologia das Organizações e do Trabalho da Faculdade de Psicologia e de Ciências da Educação da Universidade de Coimbra)

Orientação:
- Prof.ª Doutora Isabel Dórdio Dimas
- Prof. Doutor Paulo Renato Lourenço
- Prof.ª Doutora Teresa Dias Rebelo

2) Introdução e Objetivos

A investigação sobre grupos em contexto organizacional é bastante extensa e diversificada. Existem, contudo, algumas áreas que se encontram insuficientemente estudadas, como é o caso das temáticas que são objeto do presente estudo. Com este trabalho propomo-nos estudar a forma como alguns aspetos relacionados com o funcionamento de um grupo (cf. "Variáveis em estudo", que apresentamos em seguida) se relacionam com a eficácia das equipas de trabalho, nomeadamente no que diz respeito ao desempenho grupal, à implementação de processos de melhoria de trabalho em grupo, à viabilidade grupal e à qualidade da experiência de trabalho em grupo.

Visamos, desta forma, contribuir para um melhor e mais profundo conhecimento relativo ao funcionamento dos grupos, bem como às condições que permitem potenciar a eficácia grupal.

Variáveis em estudo:

- Aprendizagem grupal – processo de reflexão e ação que se caracteriza por colocar questões, procurar *feedback*, experimentar, refletir sobre os resultados e discutir erros ou resultados inesperados das ações empreendidas;
- Coesão grupal – resultado de todas as forças que atuam sobre os membros de um grupo no sentido de os mesmos nele permanecerem;
- Confiança grupal – conjunto das perceções de confiabilidade que os membros de um grupo possuem relativamente uns aos outros;
- Conflito intragrupal – divergência de perspetivas no seio do grupo, percebida como geradora de tensão por pelo menos uma das partes envolvidas numa determinada interação;
- Capital psicológico das Equipas – estado psicológico positivo caracterizado por atributos como a autoeficácia, o otimismo, a esperança e a resiliência;
- Liderança Transformacional – processo de influência capaz de produzir mudanças nas atitudes e assunções dos membros de um grupo, gerando implicação face à sua missão, objetivos e estratégia. Traduz-se nos seguintes comportamentos: comunicar uma visão, desenvolver os colaboradores, fornecer apoio, delegar poder e capacitar os colaboradores, ser inovador, liderar pelo exemplo e ser carismático;
- Orientação para o coletivo – tendência para trabalhar de uma forma coletiva em contexto grupal;
- Segurança psicológica – clima de grupo caracterizado pela confiança e respeito mútuos, no qual as pessoas se sentem confortáveis para serem elas próprias.

3) Amostra e participação das organizações

O estudo incidirá sobre os membros dos grupos/equipas de trabalho e sobre os respetivos líderes. Para que seja considerada uma equipa é necessário que (1) seja constituída por três ou mais elementos, (2) os membros sejam reconhecidos e se reconheçam como equipa, (3) possuam relações de interdependência e (4) interajam regularmente tendo em vista o alcance de um objetivo comum.

A participação da organização no estudo consiste em possibilitar a recolha dos dados. Deste modo, a organização obriga-se a proporcionar as condições adequadas à execução das atividades que permitam recolher a informação necessária à realização do estudo.

O período de recolha de dados decorrerá durante os meses de novembro e dezembro de 2016, num período a acordar com a organização.

4) Formas de recolha da informação e tempo previsto

Na organização, será necessário efetuar:

a) O preenchimento de um questionário pelos membros das equipas de trabalho participantes no estudo (15-20 minutos).

b) O preenchimento de um questionário pelos líderes das equipas de trabalho (10 minutos).

A recolha será realizada em dois momentos: 1) num primeiro momento, junto dos membros de cada equipa; 2) cerca de 3 a 4 semanas depois, junto dos líderes.

5) Direitos e obrigações da equipa de investigação

A equipa de investigação terá o direito de:

- Não fornecer quaisquer resultados do estudo caso haja interrupção da participação ou recolha incompleta de informação;
- Devolver os resultados do estudo somente nas condições de a organização a) aceitar que esses dados sejam devolvidos num formato que proteja a identidade dos participantes e b) garantir que a informação recolhida nunca será utilizada com a finalidade de avaliar o desempenho dos colaboradores envolvidos;
- Fornecer os resultados somente aquando da conclusão do estudo.

A equipa de investigação obriga-se a:
- Assegurar as condições que permitam e garantam o consentimento informado dos participantes;
- Garantir a confidencialidade e o anonimato de todos os dados recolhidos e cumprir as demais normas éticas que regulamentam a investigação na área da Psicologia;
- Recusar a entrega de dados e resultados individuais, quer referentes a trabalhadores da organização participante, quer referentes a outras organizações da amostra;
- Efetuar a recolha de dados de forma a causar o mínimo transtorno possível à organização e aos seus colaboradores.
- Não disponibilizar, em circunstância alguma, a listagem de endereços de e-mail, que for fornecida para aplicação do questionário online
- Fornecer à organização, em formato digital (.pdf), um exemplar de cada uma das dissertações de mestrado realizadas com base na informação recolhida.

A Coordenação da Equipa de Investigação

_____

Declaração de Consentimento Informado (Representante da Organização)

Enquanto representante da Organização onde vai ser efetuado o projeto de investigação (STEP), declaro que tomei conhecimento e fui devidamente esclarecido/a quanto aos objetivos e aos procedimentos da investigação descritos neste documento. Declaro que aceito todos os direitos e obrigações enunciados, e que autorizo, de forma livre e informada, a sua realização com os colaboradores da Organização que represento, caso estes demonstrem interesse em participar na referida investigação.

_____, ___ de _____ de 2016

O representante,

_____

40

Appendix C - *Questionnaire for leaders*

> O presente questionário insere-se num estudo sobre os processos e os resultados dos grupos de trabalho em contexto organizacional. As questões que se seguem têm como objetivo conhecer a forma como avalia a sua equipa de trabalho, em função de um conjunto de critérios.
>
> Todas as respostas que lhe solicitamos são rigorosamente anónimas e confidenciais. Responda sempre de acordo com aquilo que pensa, na medida em que não existem respostas certas ou erradas.
>
> Leia com atenção as instruções que lhe são dadas, certificando-se de que compreendeu corretamente o modo como deverá responder. Certifique-se que respondeu a todas as questões.
>
> Muito obrigado pela colaboração!

Declaração de consentimento informado (Participante)

Declaro que tomei conhecimento e fui devidamente esclarecido/a quanto aos objetivos e procedimentos da investigação a realizar. Foi-me garantida a possibilidade de, em qualquer altura, recusar participar neste estudo sem qualquer tipo de consequências. Desta forma, aceito participar neste estudo e permito a utilização dos dados que, de forma voluntária, forneço, confiando nas garantias de confidencialidade e anonimato que me são asseguradas pela equipa de investigação, bem como na informação de que não serão tratados de forma individual e de que apenas serão utilizados para fins de investigação.

Confirmo ☐

_____, _____ de _____ 2016

PARTE 1
(Dados demográficos - para fins exclusivamente estatísticos)

Idade: _____   Sexo: M □   F □
Habilitações literárias: _____
Nº. de trabalhadores da organização: Até 10 □   11- 49 □   50 – 249 □   250 ou mais □
Sector de atividade da organização: _____
Há quanto tempo (em anos) se formou a sua equipa (no caso de ter sido há menos de um ano, indique, por favor, o número de semanas ou de meses)? _____
Há quanto tempo (em anos) trabalha nesta organização (no caso de ter sido há menos de um ano, indique, por favor, o número de semanas ou de meses)? _____
Há quanto tempo (em anos) lidera esta equipa (no caso de ter sido há menos de um ano, indique, por favor, o número de semanas ou de meses)? _____
Função desempenhada: _____
Nº. de elementos da sua equipa: _____
Qual é a principal atividade da sua equipa? [assinale a resposta]
□ Produção   □ Comercial   □ Serviços   □ Projeto
□ Administrativa   □ Gestão   □ Outra. Qual?_____

Pedimos-lhe agora que nos indique em que medida as afirmações seguintes se aplicam à sua **equipa de trabalho**, assinalando com uma cruz (x) o valor que melhor se adequa a cada afirmação, utilizando a seguinte escala:

1	2	3	4	5
Quase não se aplica	Aplica-se pouco	Aplica-se moderadamente	Aplica-se muito	Aplica-se quase totalmente

Os membros desta equipa têm implementado com sucesso novas formas de trabalhar…	1	2	3	4	5
1. … para facilitar o cumprimento dos objetivos de desempenho.					
2. … para serem mais produtivos.					
3. … para produzirem trabalho de alta qualidade.					
4. … para diminuir o tempo de concretização das tarefas.					
5. … para reduzir custos.					

Appendix D - *Questionnaire for members*

O presente questionário insere-se num estudo sobre os processos e os resultados dos grupos de trabalho em contexto organizacional. As questões que se seguem têm como objetivo conhecer as opiniões e atitudes dos elementos de cada equipa no que diz respeito a algumas situações que podem acontecer no seio das mesmas.

Todas as respostas que lhe solicitamos são rigorosamente anónimas e confidenciais. Responda sempre de acordo com aquilo que faz, sente ou pensa, na medida em que não existem respostas certas ou erradas.

Leia com atenção as instruções que lhe são dadas, certificando-se de que compreendeu corretamente o modo como deverá responder. **Note que as instruções não são sempre iguais.** Antes de dar por finalizado o seu questionário, certifique-se de que respondeu a todas as questões.

Muito obrigado pela colaboração!

Declaração de consentimento informado (Participante)

Declaro que tomei conhecimento e fui devidamente esclarecido/a quanto aos objetivos e procedimentos da investigação a realizar. Foi-me garantida a possibilidade de, em qualquer altura, recusar participar neste estudo sem qualquer tipo de consequências. Desta forma, aceito participar neste estudo e permito a utilização dos dados que, de forma voluntária, forneço, confiando nas garantias de confidencialidade e anonimato que me são asseguradas pela equipa de investigação, bem como na informação de que não serão tratados de forma individual e de que apenas serão utilizados para fins de investigação.

Confirmo ☐

_____, _____ de _____ 2016

PARTE 1
(Dados demográficos - para fins exclusivamente estatísticos)

Idade: _____   Sexo: M □   F □
Como caracteriza a sua zona de residência?   Urbana □   Semiurbana □   Rural □
Habilitações literárias: _____
Já teve formação em trabalho de equipa? Sim □   Não □
Há quanto tempo (em anos) trabalha nesta organização (no caso de ter sido há menos de um ano, indique, por favor, o número de semanas ou de meses)? _____
Há quanto tempo (em anos) trabalha em equipa (no caso de ter sido há menos de um ano, indique, por favor, o número de semanas ou de meses)? _____
Há quanto tempo (em anos) trabalha nesta equipa (no caso de ter sido há menos de um ano, indique, por favor, o número de semanas ou de meses)? _____
Do total de horas que trabalha por dia, quantas dessas horas, aproximadamente, trabalha em interação com os seus colegas de equipa? _____
Função desempenhada: _____

PARTE 2

(Liderança Transformacional)
     Apresentamos, seguidamente, uma série de afirmações relativas aos **comportamentos do seu líder**. Para cada afirmação, pedimos que assinale com uma cruz (x) o valor que melhor se adequa ao que lhe é apresentado, utilizando a seguinte escala:

1	2	3	4	5
Quase não se aplica	Aplica-se pouco	Aplica-se moderadamente	Aplica-se muito	Aplica-se quase totalmente

O meu líder...	1	2	3	4	5
1. comunica uma visão clara e positiva do futuro.					
2. trata os seus colaboradores de forma individualizada, apoiando e encorajando o seu desenvolvimento.					
3. encoraja e atribui reconhecimento aos seus colaboradores.					
4. promove a confiança, o envolvimento e a cooperação entre os membros da equipa.					
5. estimula os membros a pensarem de novas formas nos problemas e questiona as ideias feitas.					
6. é claro acerca dos seus valores e pratica o que defende.					
7. incute orgulho e respeito nos outros e inspira-me por ser altamente competente.					

(Segurança psicológica)

De seguida apresentamos algumas afirmações **acerca da sua equipa de trabalho**. Pedimos-lhe que nos indique em que medida as afirmações se aplicam ou não se aplicam à realidade da sua equipa. Para isso, assinale com um X, à frente de cada afirmação, o valor que melhor corresponde ao que, em sua opinião, acontece na sua equipa de trabalho. Utilize, por favor, a seguinte escala:

1	2	3	4	5	6	7
Não se aplica	Quase não se aplica	Aplica-se pouco	Aplica-se moderada-mente	Aplica-se muito	Aplica-se quase totalmente	Aplica-se totalmente

	1	2	3	4	5	6	7
1. Se nesta equipa cometemos um erro, este é frequentemente usado contra nós.							
1. Os membros desta equipa são capazes de abordar problemas e assuntos difíceis.							
2. Por vezes, as pessoas desta equipa rejeitam outros por serem diferentes.							
3. Nesta equipa é seguro arriscar.							
4. É difícil pedir ajuda a outros membros da minha equipa.							
5. Ninguém desta equipa tentaria, deliberadamente, prejudicar os meus esforços.							
6. Quando trabalho com os outros membros da equipa, as minhas competências e talentos únicos são valorizados e utilizados.							

Appendix E - *Response to the feedback of PP*

The feedback I received after my Position Paper presentation was mostly regarding the oral presentation. I am considering everything they told me in order to prepare the next presentation and improve it in comparison to the last one. They mentioned I should specify the kind of study I am doing, how the sample was collected and how I was going to test my hypotheses. All this information was already on my Position Paper, although I did not expose it clearly during the presentation. I was also suggested to consider some control variables, that I am including now in the Research Paper.

Regarding the feedback I received from my tutors, I was suggested to improve my literature review so as to get a better support of the hypotheses. I think I achieved this, after looking for more articles on the topic and also reorganizing the exposure of the State of the Art. Each hypothesis is now introduced after the presentation of the literature and research that supports it.

Appendix F - *Response to the feedback of RP*

Regarding the feedback I received after my Research Paper, my tutor suggested me to work more on the way I presented my results, that is why in this final version I add an extra table and I describe in more detail or in a clearer way the results obtained from the mediation done with PROCESS. Also, some small changes were done in the discussion section, trying to avoid being redundant and repetitive, and making it easier to follow for the reader.

After the presentation of the Research Paper, the feedback I received was mainly regarding the presentation itself and not the content. Although one of the members of the judge e disagreed with the IMOI model I used, believing it was not correct, the other ones agreed with me on using it and the reasons why I choose it.