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Transformational leadership and team effectiveness: the mediating role of affective team commitment

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Abstract

Framework: Leadership is one of the most explored themes by the sciences involved in the study of organizations. The influence of the leader on the group members and on the way the group works and performs makes its study important when the objective is to know the groups, their processes and their dynamics. The direct effects of transformational leadership on team effectiveness have already been widely studied but the mechanisms underlying this relationship are underdeveloped.

Objectives: The current investigation's aim was to contribute to clarify the effects of the transformational leadership on the effectiveness of teams. Based on the *Input-Mediator-Outcome-Input* effectiveness model (IMOI), the leadership (*input*) was supposed to predict the effectiveness, being its impact on the results of the team achieved by means of the relationship established with intervening or mediating variables. In the present study, the mediating role of affective team commitment was analyzed. In the evaluation of the effectiveness (*outcome*) the following criteria were considered: performance, viability, quality of group experience and team process improvement.

Methodology: The sample was composed by teams working in different organizational contexts. Two different questionnaires were administrated. Team members were surveyed about leadership, about affective team commitment and about the quality of the group experience, whereas team leaders were asked to measure team performance, viability and innovation. Hypotheses were tested through structural equation modeling.

Results: Results revealed that affective team commitment partially mediates the relationship between transformational leadership and quality of the group experience.

Conclusions: The present study highlighted the importance of transformational leadership and affective team commitment on the four key criteria of team effectiveness.

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Introduction

In our time, organizations worldwide tend to structure their work around teams and workgroups¹ to perform more rapidly, flexibly and adaptively (Kozlowski & Ilgen, 2006). The several applications of teams in organizations led to an approach that emphasizes their nature as finalized systems and the emergence of a new focus dedicated to this issue: effectiveness (Lourenço & Dimas, 2011). Because the effectiveness of teams matters for individual, organizational and societal well-being it is essential to study the processes that promote it (Kozlowski & Ilgen, 2006).

The theoretical framework of group effectiveness models integrated in the I-P-O model (Input-Process-Output), originally proposed by McGrath (1964) seems, nowadays, to be inadequate to summarize the recent investigation. It has been considered to restrict thinking about the teams, making therefore necessary to improve those models that refer to it (Ilgen, Hollenbeck, Johnson, & Jundt, 2005; Marks, Mathieu, & Zaccaro, 2001; Salas, Stagl, Burke, & Goodwin, 2007). Ilgen et al. (2005), based on a critical analysis of the different proposals in the literature, suggest an alternative way to design and represent the team effectiveness system. They propose to "transform" the I-P-O structure into a structure designated as IMOI (Fig. 1) (Input, Mediator, Output, Input).

For these authors, replacing the P (process) by the letter M (mediator) reflects a broader spectrum of variables that exert influences as mediators to explain the variability in effectiveness. At the same time, it contributes to a conceptual clarification, namely with regard to emerging states, which, although already present in some models, were treated as group processes. The addition of an extra "I" in the model evokes the concept of causal feedback cycles. Also, it emphasizes the importance and stands out the traditional distinction between criteria and determinants of effectiveness, to the extent that the "criteria" may also function as determinants or inputs in a new cycle. The elimination of the hyphen between letters means, according to Ilgen et al. (2005), that the causal links are not necessarily linear, being, instead, nonlinear or conditional.

¹ In the present study, and following other authors (e.g., Allen & Hecht, 2004; Guzzo, 1996), we make no distinction between groups and teams, using the two terms interchangeably.

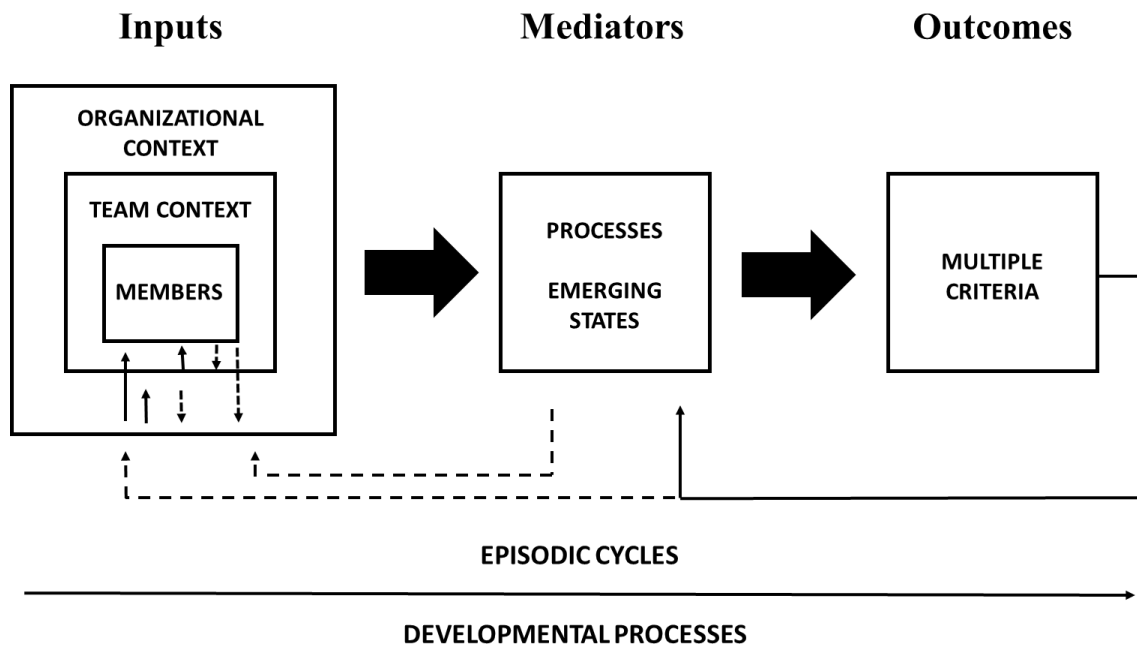


Figure 1. *Input-Mediator-Outcome (IMO) Team Effectiveness Framework (adapted from Mathieu et al., 2008)*

In the light of the IMOI model, leadership, which is the focus of the present research, can be conceived as an input from the team context. This means that leadership can affect the processes and the emerging states of the team and thus having an effect on the outputs of the latter. According to Bass (1999), the changings in the marketplace and in the workforce led to a need to adopt a transformational leadership style by the leaders instead of others, such as the transactional one. Nowadays professionals see themselves in a relation between colleagues rather than superior-subordinate, thus transformational leadership became crucial to promote followers' job satisfaction.

The literature about transformational leadership theory and its relationships with performance has provided general support to the link between these two constructs (Avolio, 2010). Various studies have demonstrated that perceived transformational leadership correlates with positive team outcomes in various working settings, both in public and private organizations (Bass & Bass, 2009; Trottier, Van Wart, & Wang, 2008).

Up until today, research has mainly focused on direct effects of transformational leadership on team outcomes. However, other studies suggest that transformational leadership affects effectiveness also indirectly through the involvement of team members (Podsakoff, MacKenzie, Moorman, & Fetter, 1990; Zaccaro, Rittman, &

Marks, 2001). The process by which transformational leaders can exert its influence, through mediating variables, on the follower's team effectiveness has not been sufficiently addressed in the literature (Givens, 2008). Preliminary results shown in a recent study set on sport teams (Van Beek, 2011) indicate that affective team commitment might be a good mediator between transformational leadership and team performance, which is one of the criteria that can be used to evaluate effectiveness. Transformational leaders have the capacity to motivate team members to work harder and beyond what is expected for the sake of the group (Polychroniou, 2009). Thus, making them more committed to the team, the team performance would be enhanced. However, team performance, although being the most widely studied (Mathieu, Maynard, Rapp, & Gilson, 2008), is not the only relevant criterion to evaluate team effectiveness (Aubé & Rousseau, 2005). Because teams are more than performance, it is important to consider also other criteria to evaluate team effectiveness such as team viability, team process improvement and quality of group experience (Aubé & Rousseau, 2005; Dimas, Alves, Lourenço, & Rebelo, 2016). Thus, the mediating role of affective team commitment in the relationship between transformational leadership and other team effectiveness dimensions has not been adequately studied yet. Therefore, it is important to further investigate on this relation. In the present study, framed in the IMOI model, this relation will be studied considering transformational leadership as an input, affective team commitment as an emerging state of the working group and four criteria of team effectiveness as the outputs (Fig.2).

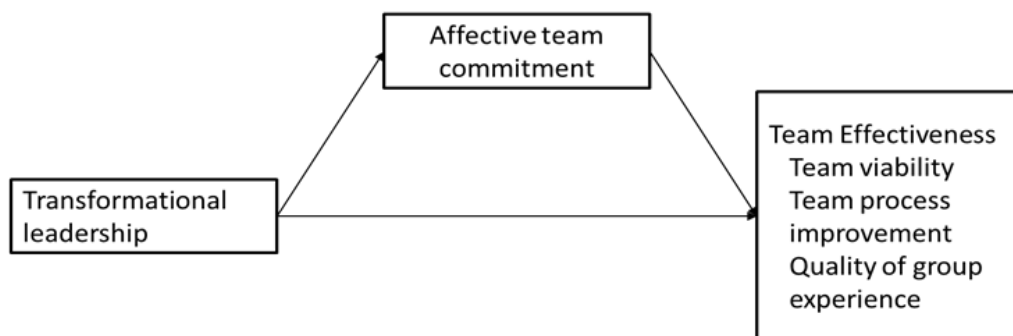


Figure 2. *Hypothesized model*

State of Art

Transformational leadership

Among the several theories about leadership, transformational leadership has been the most widely studied over the last three decades (Bass, 1991; Judge & Piccolo, 2004; Zhu, Newman, Miao, & Hooke, 2013). The theory of transformational leadership has been introduced by Bass (1985), which developed the first intuition found in the work of Burns (1978). Transformational leadership was conceptualized as having four independent dimensions, known by 4I's: inspirational motivation, intellectual stimulation, idealized influence and individualized consideration (Bass, 1985; Bass & Avolio, 1994).

Inspirational motivation arises when leaders offer followers a sense of drive in their job that produces additional, goal-oriented energy for the group or the organization (Bass, 1985). They do so by generating a new vision, fostering commitment to that vision and setting clear and reasonable strategies for accomplishing the vision. Then, making sure to communicate the vision clearly and precisely to followers, they generate optimism amongst followers and, in consequence, with true effort, the objectives can be achieved and the vision accomplished (Avolio, 2010).

Transformational leaders promote intellectual stimulation when they inspire and boost creativity in their followers by fostering and increasing an independent and innovative way of thinking (Bass & Avolio, 1994). Such leaders encourage followers to make questions, reflect deeply about their work, and find innovative and better ways of implementing their tasks. In this context, learning is considered to be valuable, problems are considered as opportunities to learn, and employees are seen as sources of solutions and of new ideas.

Transformational leaders offer idealized influence acting as role models, exhibiting behaviors widely admired and esteemed in the organization and society, like ethical behavior, taking on not-self-centered personal goals, and the will and aptitude to chase these objectives even though this would imply personal costs and self-sacrifice (Bass & Avolio, 1994). The exemplary behavior of the leader generates respect, trust and makes followers proud of their group and organization, besides making them keener to make harder efforts to achieve its goals (Bass & Avolio, 1994).

Individualized consideration is evident when leaders instill in their followers the perception that the leaders genuinely care for them and their well-being (Judge & Piccolo, 2004). Transformational leaders do so by taking actions like keeping communication lines open, offering individual mentoring to followers, when appropriate, listening accurately to their concerns and needs and pro-actively taking steps to address these ones (Avolio, 2010).

In contrast to transformational leadership, transactional leadership refers to the relation of exchange between leader and followers to meet their own self-interests (Bass, 1999). The transactional leadership works through the use of contingent reward to the performance, active or passive management-by-exception or *laissez-faire*. With the use of the 4I's, instead, transformational leaders foster followers to go beyond immediate self-interests, elevating their maturity as well as concerning for achievement, self-actualization and well-being of others (Bass, 1999). Transformational leaders also influence followers' values, emotions and attitudes and motivate them to perform beyond their expectations (Yukl, 2012).

Podsakoff and colleagues (1990), considering a review of the literature on transformational leadership, concluded that the construct can be summarized in six core behaviors. These are the identification and articulation of a vision, implementation of an appropriate model, encouragement to accept group goals, high performance expectations, individualized support to staff and intellectual stimulation. Adapting this summary, Carless, Wearing and Mann (2000) distinguished between the leader behaviors of providing support to staff and encouraging their individual development. Hence, their list is constituted by seven behaviors. These authors, also, preferred the broader concept of "charisma" in contrast to the narrower concept of "high performance expectations" refereed by Podsakoff and colleagues (1990). The latter is usually considered to be part of charismatic behavior (Bass, 1985). Accordingly, following the previous work of Carless and colleagues (2000), in this study, the following behaviors are considered to cover the concept of transformational leadership: (1) communicates a vision, (2) develops staff, (3) provides support, (4) empowers staff, (5) is innovative, (6) leads by example, and (7) is charismatic.

Transformational leadership and team effectiveness

Nowadays, the several applications of workgroups and teams in organizations led to an approach that emphasizes their nature as finalized systems and the emergence of a new focus dedicated to this issue: effectiveness (Lourenço & Dimas, 2011). Several authors, over the past decades, tried to understand the factors associated with effectiveness. Thus, many models of effectiveness have been proposed (Beaudin & Savoie, 1995; Hackman, 1987; Savoie & Beaudin, 1995; Tannenbaum, Beard, & Salas, 1992).

Hackman (1987) provided a model of team effectiveness that received strong support being used in a wide range of studies. According to this model team effectiveness can be evaluated through three different criteria: 1) the degree by which team's products or services meets, or exceeds, the standards of quantity and quality of those who receive, review, and/or use them; 2) the degree by which social processes within the team keeps, or enhances, the capability of the group to work together and become a more competent and performing unit over time 3) the degree by which group experience meets members' needs and contributes to increase members' satisfaction, well-being and development (Hackman, 1987; 2012).

Up until now, many perspectives and representations of team effectiveness coexist (Lourenço, Miguez, Gomes, & Carvalho, 2004). This led many authors (Beaudin & Savoie, 1995; Lourenço & Passos, 2013; Savoie & Beaudin, 1995) to consider the existence of various, instead of one, concepts of effectiveness. In reality, team effectiveness represents a concept with which is not easy to deal with. This is because it does not correspond to an objective reality. Rather, effectiveness should be analyzed and measured according to the values, interests and preferences of actors and systems to which it refers to (Dimas et al., 2016). This makes the concept strongly bound to the context, that is, effectiveness is not context free. Savoie, Larivière, and Brunet (2006), considering the existing studies on team effectiveness, proposed an integrative and general model that involves five potential dimensions: *social* which can be represented by member's satisfaction or quality of group experience, *economic* which can be represented by team performance or goal achievement, *politic* which can be represented by the legitimacy or reputation of the group to its constellation of stakeholders, *systemic* which can be represented by team viability, and a fifth criterion, which relies on the capability of the team to innovate.

Based on this framework we are going to consider four criteria, in line with Hackman (1987) and Savoie et al. (2006) models, to evaluate team effectiveness: team performance, team viability, team process improvement and quality of group experience. The political dimension was not accounted in the present study because it would have been hard to find a feasible and homogenous way to assess this dimension considering the heterogeneous nature of our sample.

Performance might be an appropriate criterion to provide a measure to the economic dimension (Aubé & Rousseau, 2005; Savoie et al., 2006) which correspond to the first dimension considered in Hackman model (1987). It refers to the extent to which team outcomes respect standards criteria of quantity and quality of work, delivery time and costs (Kline & Sulsky, 2009).

Team viability is conceptualized as a team-level effectiveness criterion that can be defined as the capacity of the team to adapt to changes and to cope with challenges in an ever-changing environment (Aubé & Rousseau, 2005). A high level of team viability means that team members are capable to deal with internal and external changes and keep working together as a whole in the future (Rousseau & Aubé, 2010). Team viability might be an appropriate criterion to provide a measure to the systemic dimension (Aubé & Rousseau, 2005; Savoie et al., 2006), which is in line with the second dimension of Hackman model (1987).

Team process improvement refers to the capacity of team members to enhance existing processes and find innovative ways to improve team outcomes (Kirkman, Rosen, Tesluk, & Gibson, 2004). This construct received less attention in the literature than other criteria like team performance or team viability (Rousseau & Aubé, 2010). Still, it should be considered a crucial team outcome because the new practices developed can be shared in the organization, which in turn can lead to competitive advantages (Hackman & Wageman, 1995). Team process improvement might be an appropriate criterion to provide a measure to the innovative dimension (Savoie et al., 2006; Rousseau & Aubé, 2010), which is in line with the first and second dimension of Hackman model (1987), but it is somehow broader and more comprehensive.

Quality of group experience refers to the degree of a positive social climate within the working group (McGrath, 1991). This criterion, which is similar to member's satisfaction, provides information about the social dimension of team effectiveness at

the team level (McGrath, 1991; Savoie et al., 2006; Sonnentag, 1996). This last criterion is in line with the third dimension of Hackman model (1987).

Previous studies investigated the direct effects of transformational leadership on some team effectiveness dimensions such as team performance (Judge & Piccolo, 2004; Mathieu et al., 2008; Purvanova & Bono, 2009; Rao & Kareem Abdul, 2015). Based on 117 independent samples on a period of 25 years of research, the meta-analytic review conducted by Wang, Oh, Courtright, and Colbert, (2011), showed that transformational leadership has significant positive relationship to team performance.

Regarding team process improvement, previous studies also revealed a positive and direct relationship between transformational leadership and innovative work behavior, which are related concepts since both concern the ability of the team to implement new ways of working (Gumusluoglu & Ilsev 2009; Reuvers, Van Engen, Vinkenburg, & Wilson-Evered, 2008). While, considering the quality of group experience, beyond the positive effects already mentioned, Gilbreath and Benson (2004) and Van Dierendonck, Haynes, Borrill, and Stride (2004), found that transformational leadership has also a positive relation with the well-being of followers.

Therefore, based on these considerations, the results of previous studies and in line with Hackman (1987) and Savoie et al. (2006) models we introduce the first hypothesis of this study:

H1: Transformational leadership is positively related to team effectiveness, namely to team performance (H1a), to team viability (H1b), to team process improvement (H1c), and to quality of group experience (H1d).

Transformational leadership and affective team commitment

Transformational leadership has been related with followers' identification with the leader and consequently attachment to the concerned group or organization (Kark, Shamir, & Chen, 2003). For this reason, leadership style is considered a main determinant of organizational commitment (Mowday, Porter, & Steers, 2013).

Transformational leaders enhance followers' identification with the figure of the leader and link the mission and goals of a group or an organization to collective values and ideologies. Thus, such leaders promote high levels of organizational commitment (Avolio, Zhu, Koh, & Bhatia, 2004). Individuals and groups to which an employee is bound to can be foci of commitment. The latter can be represented by the organization

as a whole or an immediate work unit, such as the workgroup. Leadership at different levels is likely to enhance commitment at corresponding organizational levels (Strauss, Griffin, & Rafferty, 2009), precisely transformational leaders at team level would enhance the commitment to the team, while transformational leaders at organizational level promote commitment to the broader organization.

Organizational commitment has been increasingly studied in the field of organizational psychology in the last few decades (Allen & Meyer, 1997; Bergman, 2006). According to Meyer and Allen (1991) and Allen and Meyer (1996) organizational commitment could be represented by three distinct dimensions: *affective commitment* (the affective orientation toward a group or organization), *normative commitment* (the perception of obligation to remain in the organization) and *continuance commitment* (the recognized costs of quitting the organization).

Affective commitment, which constitutes the focus of the present study, denotes an emotional relationship that the individual develops toward the organization, associated with the identification and involvement with it (Martins, Rebelo, & Tomás, 2011). Affective commitment refers to the emotional bond between individuals and broader groups, such as working teams and organizations. This kind of commitment can produce different positive outcomes. First, involving the experience of positive affective states, encourage team members to engage in proactive behaviors (Parker, 2007). In this sense, positive affect can promote unstructured and original behaviors (George, 1990), promote a responsible lasting focus and encourage individuals to set harder and stimulating objectives (Isen & Reeve, 2005). Second, affective commitment implies psychological attachment to a social entity, which could be a group or an organization, beyond the individual.

Recently, research concentrates not only on organizational level, but also on commitment at the team level (Hsu & Mujtaba, 2011). Following this path, Herscovitch and Meyer (2002) found that commitment to a specific target, such as working groups, would be a better predictor of behaviors relevant to this target than general organizational commitment.

According to Becker and Billings (1993) affective team commitment is defined as the perceived level of commitment by team members towards the group they belong to. Following the indications of Bass (1999) there is a clear need for better understanding how transformational leadership influences work-related attitudes such as

affective team commitment. According to the social exchange theory when individuals are treated fairly and reliably, they tend to reciprocate with positive behaviors towards the leader and the team (Blau, 1964). Based on this theory, it is expected that transformational leadership enhances affective team commitment (Strauss et al., 2009), which is the second hypothesis of the current study.

H2: Transformational leadership is positively related to affective team commitment.

Affective team commitment and team effectiveness

Several studies have found that affective team commitment correlates positively to some dimensions of team effectiveness, such as team performance (Bishop & Scott, 1997; Neining, Lehmann-Willenbrock, Kauffeld, & Henschel, 2010; Vandenberghe, Bentein, & Stinglhamber, 2004), perceived strong attachment (Strauss et al., 2009), and willingness to promote initiatives to improve (Ng, Feldman, & Lam, 2010; Strauss et al., 2009). These studies suggest that employee affectively committed to the group, perform better, carry on working together and are willing to improve in terms of products and processes. Affective team commitment was also found to strongly correlate with positive affect, which is at the base of the team viability and quality of group experience (Marchand & Vandenberghe, 2013). Bentein, Vandenberghe, Vandenberg, and Stinglhamber (2005) in their longitudinal study observed that affective team commitment was negatively related to turnover intentions. Turnover intentions may translate in employees leaving the team and this can undermine the team viability. It is supposed that when team members have emotional attachments to their teams and are committed with them, they would behave in order to produce beneficial outcomes to the teams (Van Beek, 2011).

Therefore, based on the previous literature and extending the empirical studies that have been developed we proposed the following hypothesis:

H3: Affective team commitment is positively related to team effectiveness, namely to team performance (H3a), to team viability (H3b), to team process improvement (H3c), and to quality of group experience (H3d).

Transformational leadership, affective team commitment and team effectiveness

According to Hackman and Wageman (2005) the investigation concerning transformational leadership, beyond studying its functions, should be focused on the conditions that foster team effectiveness.

The direct relationships between transformational leadership and team outcomes, such as job satisfaction, innovation processes and job performance, have been supported by empirical and meta-analytic findings (e.g., Judge & Piccolo, 2004; Mumford & Licuanan, 2004;). However, an increasing number of studies (e.g., Moynihan, Pandey, & Wright, 2012) suggests that a great part of the influence, that transformational leadership can generate, is tangible but indirect. Much more than acting directly, leaders can promote the conditions for success by shaping key mediating variables, making their overall influence easy to miss. Previous studies tend to concentrate on direct rather than indirect effects of leadership, underestimating, in this way, the overall influence leaders can generate (Moynihan et al., 2012).

During the past decade, researchers have begun to give more attention to “mediating processes that explain why certain inputs affect team effectiveness and viability” (Ilgen et al., 2005, p. 519). For example, despite the direct effect of transformational leadership on innovation processes already got empirical support (Gumusluoglu & Ilsev 2009; Reuvers et al., 2008) a recent study conducted with teams of nurses found that transformational leadership did not actually influence innovation behaviors directly. Instead, this relation was mediated by indirect effect of patient safety climate and innovation climate (Weng, Huang, Chen, & Chang, 2015). Furthermore, in a recent investigation in military settings, the findings showed that positive affect partially and significantly mediated the relation between transformational leadership and team viability (Boies & Howell, 2009).

Transformational leadership, even though is fundamental in reaching high levels of team outcomes, might not directly affect team effectiveness if team members are not affectively committed to the team. Bass and Bass (2009) suggest that one reason why transformational leadership can increase effectiveness is because of its impact on proactive work role behaviors. According to Strauss and colleagues (2009) and Parker (2007), these behaviors are strongly related to affective commitment.

Transformational leaders have the capacity to motivate followers to do more than normally expected, raising their consciousness about new outcomes and motivate

them to transcend their own interests for the sake of the team (Polychroniou, 2009). Thus, making employees committed to the team, transformational leaders could indirectly enhance several team outcomes. Supporting this assumption, in a recent study, Van Beek (2011) found good levels of correlation between transformational leadership, affective team commitment and subjective team performance in sport team environment. Based on Baron and Kenny's (1986) mediation model, the author studied the mediating effect of affective team commitment through path analysis, which showed partial mediation between transformational leadership and subjective team performance (Van Beek, 2011). Like in this case, affective team commitment might be a good mediator between transformational leadership and other dimensions of team effectiveness. In this study, expanding the existent literature, the focus is centered on working teams in organizational environment. We examine if transformational leadership has an indirect relationship through affective team commitment, besides the direct relationship, on the four team effectiveness criteria, namely: team performance, team viability; quality of work team experience; and team process innovation.

Hence, we introduce the hypothesis of mediation:

H4: Affective team commitment mediates the relationship between transformational leadership and team effectiveness, namely between transformational leadership and team performance (H4a), team viability (H4b), team process improvement (H4c), and quality of group experience (H4d).

Methodology

Participants and procedure

This is a non-experimental cross-sectional study that focuses on group level analysis and is conducted in Portuguese work settings.

Firstly, we contacted companies by phone and/or by e-mail and provided an explanation about the investigation, detailed in a presentation letter (Appendix A). Secondly, the institutional letter (Appendix B) containing further information on the research design and the informed consent was supplied. Then, the data collection was scheduled. Data were collected using both paper and on-line surveys. Different kind of questionnaires were administered to members of working groups and their respective leaders. Data related to three dimensions of team effectiveness (team performance, team viability and team process improvement) were collected through questionnaires administered to team leaders (Appendix C). These dimensions of team effectiveness were assessed by team leader based on the previous work of Rousseau and Aubé (2010), which assumed that immediate supervisor are knowledgeable about the results of their own teams and reliable to assess them. Data related to transformational leadership, affective team commitment and the other team effectiveness dimension (quality of group experience) were collected through questionnaires administered to team members (Appendix D).

Data were collected between November 2014 and April 2016, being the present study part of a wide project focused on workgroups

These criteria were used to select the teams: 1) the group had to be formally recognized in the organization as a team; 2) the team had to be formed at least by three members (excluding the leader); 3) the leader (supervisor) had to be formally recognized too.

The final sample consisted of 90 working groups, representing 40 Portuguese organizations, from different sectors of activity (e.g., industry, research, services), with an average of 7 elements per group ($SD = 5.16$). In all the teams, at least 60% of team members answered the questionnaire. Participating organizations were respectively large (18.5%), medium (47%), small (18.5%) and micro (16%) organizations. The activities most represented in the sample, given the diversity of teams, corresponded to services (34.2%), followed by industry (24.4%), research (9.8%), consultancy (9.8%)

teaching (4.9%), and sales (4.9%). Similarly, the functions performed by team members differed widely: 12.8% were factory operator, 12.2% were technicians, 11.5% were trades, 9.6% were researchers, 4.1% were designers and 3.0% were engineers.

The sample of the team members was made up of 445 participants, around a half were female (52.9%), aged between 18 and 67 years ($M = 35.49$; $SD = 10.03$). The educational level varied from basic to higher degrees. The most represented were the employees who completed secondary education (36.2%), followed by employees who hold bachelor degrees (23.4%), elementary school degrees (19.3%), master degrees (14.1%), primary school degrees (5.7%) and Phd degrees (0.7%). The average time for each employee in the organization was approximately 9 years and ranged from 1 month to 43 years ($SD = 8.46$). The average time for each employee in the team was 5 years and ranged from 1 month to 33 years ($SD = 5.71$). Finally, the daily interaction face-to-face between team members was about 5 hours ($SD = 2.82$).

Regarding the sample of the team leaders, it consisted of 90 individuals, 66.3% male, aged between 18 and 67 years ($M = 39.38$; $SD = 9.91$). The respondents worked, on average, 8 years within the current team ($SD = 6.9$), and 14 years within the current organization ($SD = 7.8$). The educational level varied from basic to higher degrees. The most represented were the leaders who had completed secondary education (48.8%) followed by leaders with bachelor degrees (30.5%), master degrees (9.8%) Phd degrees (4.9), elementary school degrees (4.9%) and primary school degrees (1.2%).

Measures

Transformational leadership

Transformational leadership was assessed by team members through the *Global Transformational Leadership (GTL)* developed by Carless and colleagues (2000) and adapted and validated for Portuguese language (van Beveren, Dimas, Lourenço, & Rebelo, 2017). This scale assesses transformational leadership as unique construct represented by the seven intrinsic behaviors considered in Carless and colleagues' model (2000): (1) communicates a vision, (2) develops staff, (3) provides support, (4) empowers staff, (5) is innovative, (6) leads by example, and (7) is charismatic. Thus, it is composed of seven items evaluated on a 5-points Likert type scale ranging from *almost does not apply* (1) to *applies fully* (5). The items are preceded by the stem "My leader..." and followed by statements like "communicates a clear and positive vision

about the future”. The psychometric properties of the Portuguese version of the scale were tested with a sample of 456 subjects of 70 working groups representing 26 organizations of the regions Centre and North-Centre of Portugal. The working groups were composed on average by 9 members ($SD = 6.77$) and covered various sectors of activity like industry, commerce, and services. Two procedures were used: an Exploratory Factorial Analysis (EFA) was run with half of the sample and a Confirmatory Factorial Analysis (CFA) was conducted with the other half. The factorial solution obtained from EFA showed a unique factor with an eigenvalue of 5.76 explaining 70.23% of the variance with all items loading higher than .78. The model obtained through the EFA was then tested by CFA showing an adequate adjustment between data and the hypothesized model [$\chi^2 (14) = 43.89, p < .001$; CFI = .98; RMSEA = .097, intervals of confidence 90% between .07 and .13, statistically significant]. The Cronbach’s alpha for the complete sample was .94 (van Beveren, et al., 2017).

Affective team commitment

Affective team commitment was assessed by team members through the *Affective Commitment Scale (ACS)* from TCM – *Employee Commitment Survey* developed by Meyer and Allen (2004) and validated for the Portuguese language at the organizational level (Martins et al., 2011) but not yet at the team level (results concerning the validation of these scale is presented in the Results section). This scale is composed by six items that are measured on a 5-points Likert scale ranging from *totally disagree* (1) to *totally agree* (5). Three items are positive statements like “I would really like to develop the rest of my career in this team”, while other three are reversed. One sample statement is “I don’t feel like bound to this team”.

Team effectiveness

Team effectiveness was measured through the scales of *Team Effectiveness* developed and validated by Aubé and Rousseau (2005) and Rousseau and Aubé (2010). These are four distinct instruments, all validated for Portuguese language (Albuquerque, 2016) that assess four different criteria of team effectiveness: team viability, team performance, team process improvement, and quality of group experience.

The *team viability* scale contains four items to measure the team's capability to adapt in changing environment, to integrate new members and to keep working as a whole in the future. Team leaders evaluated team viability of their respective team on a 5-points Likert type scale from *it almost does not apply* (1) to *it applies fully* (5). The psychometric properties for the Portuguese version of the scale were tested through EFA with a sample of 76 leaders. The factorial solution obtained showed a unique factor with an eigenvalue of 2.26 explaining 56.72% of the variance with all items loading higher than .68. The obtained Cronbach's alpha was .74 (Albuquerque, 2016). The model obtained with the EFA was tested later by Pessoa (2016) through CFA with a sample of 122 showing an adequate adjustment between data and the hypothesized model [$\chi^2 (2, N = 122) = 1.88, p = .392$; CFI = 1.00; RMSEA = .00, intervals of confidence 90% between .00 and .18, statistically significant]. The Cronbach's alpha was .72.

The *team performance* scale contains five items related to the achievement of performance objectives, quality and quantity of product or service the team is providing, and costs and deadlines respect. Team leaders evaluated team performance of their respective team on a 5-points Likert type scale from *very low* (1) to *very high* (5). The psychometric properties for the Portuguese version of the scale were tested through EFA with a sample of 76 leaders. The factorial solution obtained showed a unique factor with an eigenvalue of 2.94, explaining 58.75% of the variance and with all items loading higher than .64. The obtained Cronbach's alpha was .81 (Albuquerque, 2016). The model obtained through the EFA was tested later by CFA with a sample of 122 leaders showing a low level of adequacy of adjustment between data and the hypothesized model [$\chi^2 (5, N = 122) = 34.93, p < .001$; CFI = .87; RMSEA = .22, intervals of confidence 90% between .16 and .30, statistically significant], that showed the needs for adjusting the model. After some adjustments (namely, correlating the measure errors e1 and e2, and e4 and e5, because items 1 and 2 and items 4 and 5 had some overlapping content) the values for the adequacy of the model achieved acceptable values [$\chi^2 (3, N = 122) = 2.90, p = .407$; $\Delta \chi^2 (2) = 32.03, p < .001$; CFI = 1.00; RMSEA = .00, intervals of confidence 90% between .00 a .15, statistically significant] (Pessoa, 2016). The Cronbach's alpha was .83.

The *team process improvement* scale contains five items that are basically the same as the team performance scale, but in this case are preceded by the stem “team members have successfully implemented new ways of working...”. Team leaders evaluated team process improvement of their respective team on a 5-points Likert type scale from *it almost does not apply* (1) to *it applies fully* (5). The psychometric properties for the Portuguese version of the scale were tested through EFA with a sample of 76 leaders. The factorial solution obtained showed a unique factor with an eigenvalue of 3.51, explaining 70.2% of the variance and with all items loading higher than .82. The obtained Cronbach’s alpha was .89 (Albuquerque, 2016). The model obtained through the EFA was tested by CFA with a sample of 122 leaders showing a low level of adequacy of adjustment between data and the hypothesized model [$\chi^2(5, N = 122) = 18.26, p = .003$; CFI = .95; RMSEA = .15, intervals of confidence 90% between .08 and .22, statistically significant], that showed the needs for adjusting the model. After some adjustments (namely, free estimation of the parameter relative to the variation of measure errors e_1 and e_4 , relative to item 1 and item 4) the values for the adequacy of the model achieved acceptable values [$\chi^2(3, N = 122) = 6.43, p = .169$; $\Delta \chi^2(1) = 11.83, p < .001$; CFI = 0.99; RMSEA = .07, intervals of confidence 90% between .00 a .17, statistically significant] (Pessoa, 2016). The Cronbach’s alpha was .86.

The *quality of group experience* scale contains three items concerning the social climate within the team. Team members evaluated quality of group experience in their own team on 5 points Likert scale from *totally disagree* (1) to *totally agree* (5). The psychometric properties for the Portuguese version of the scale were tested through EFA with a sample of 456 subjects of 70 working groups representing 26 organizations of the regions Centre and North-Centre of Portugal. The working groups were composed on average by 9 members ($SD = 6.77$) and covered various sectors of activity like industry, commerce, and services. The factorial solution obtained showed unique factor with an eigenvalue of 2.72 explaining 90.82% of the variance with all items loading higher than .94. The obtained Cronbach’s alpha was .95 (Albuquerque, 2016). Because the scale contains just three items was not possible to run a CFA (Byrne, 2010).

Control variable

Team size was included in this study as a control variable because previous research already demonstrated that the effect of team processes and conditions is affected by the number of team members (e.g., Aubé & Rousseau, 2005). To get such information we asked team leaders to report the number of team members of their team.

Results

Preliminary analysis

First, we conducted the missing-value analysis for all the scales considered. No missing value was detected in the sample of leaders. In the team members' sample the percentage of non-answered questions was below 10% for all the scales (Bryman & Cramer, 2011), so no questionnaires were excluded (missing values were replaced by the mean value of the respective item).

All measures used in this study, apart from the Affective Commitment scale at team level, were already validated for Portuguese language. Therefore, before testing the hypotheses it was necessary to analyze the psychometric properties of such instrument. The total sample was randomly divided into two sub-samples in order to obtain evidence of cross-validity. With the first one composed by 220 subjects we conducted an Exploratory Factorial Analysis (EFA), while with the second part composed by 225 subjects we conducted a Confirmatory Factor Analysis (CFA).

Before performing EFA it is necessary to check the normality of the distribution in the scores obtained from the sample and the factorability of the correlation matrix obtained. We did so checking the Kaiser-Meyer-Olkin measure of sampling adequacy and Bartlett's test of sphericity. Both measures showed good results [KMO = .80, $\chi^2(15) = 541$, $p < .001$]. Thus, we run the EFA with principal components extraction criterion. The factorial solution obtained showed two distinct factors with respective eigenvalue of 3.26 and 1.06 explaining respectively 54.32% and 17.77% of the variance. Five items out of six showed good levels of loading ($> .6$) for one factor, while only one (item 3) showed good level of loading (.65) for the second factor. Moreover, this item showed cross loadings for both factors (.55 and .65 respectively for the first and the second). Because the scale was supposed to have a unique factor structure we decided to force the analysis to one factor, also because the eigenvalue of the second factor was low, as well as the variance explained. At this point we obtained a factorial solution showing one factor with all items loading higher than .55. The Cronbach's alpha of the scale was .82. At this stage, item 3 showed some problems for the reasons explained above. Moreover, its elimination would have led to an increase of the Cronbach's alpha to .83. However, because the difference was little and the solution containing 6 items was acceptable we decided to retain item 3 at this stage.

In the following phase, the model obtained through the EFA was tested through CFA. Following the recommendations of Byrne (2010), we checked indexes as the chi-square test, the CFI (Comparative Fit Index), and the RMSEA (Root Mean Square Error of Approximation) and its confidence interval. According to suggestions provided by Kline (2011), χ^2/df ratio should be less than 3, CFI value higher than .90 and RMSEA value lower than .08. The results of the first CFA indicated a poor goodness of fit between the observed variance-covariance matrix and the tested model, showing an inadequate adjustment between data and the hypothesized model [$\chi^2(9) = 110.45$, $p < .001$; CFI = .84; RMSEA = .22, intervals of confidence 90% between .19 and .26, statistically significant]. This revealed the need to adjust the model. The modification indices (MI) provided by AMOS software indicated the existence of a high modification rate for the covariance of the error of item 3 ("I would like to develop the rest of my career in this team") with the error of item 1 ("This team has an important personal meaning to me") (MI = 48.1). The same was shown between the covariance of the error of item 3 and the error of item 4 ("I really feel the problems of this team as mine") (MI = 32.2). At this phase of the analysis we decided to remove item 3 because of all the problems showed until this point. Moreover, looking at the content of the items we considered that it had an overlapping meaning with item 1 and 4. Thus, by deleting it we would not have lost much information. The following CFA provided better findings, but still not satisfactorily adequate [$\chi^2(5) = 38.48$, $p < .001$; $\Delta \chi^2(4) = 71.97$, $p < .001$; CFI = .93; RMSEA = .17, intervals of confidence 90% between .12 and .23, statistically significant]. The modification indices (MI) provided by AMOS program, at this point, indicated the existence of a high modification rate for the covariance of the error of item 1 with the error of item 4 (MI = 33). Because item 1 and 4 showed some overlap of content, we decided to correlate the errors of these two items. We chose to do this, instead of deleting one of the items, because doing so the overall internal consistency would have remained equal (.83 if item 4 was deleted) or lowered (.80 if item 1 was deleted). Furthermore, we would have lost important information because the two items had different content. This procedure allowed a significant improvement in the quality of the fit indices considered [$\chi^2(4) = 3.34$, $p = .501$; $\Delta \chi^2(1) = 35.14$, $p < .001$; CFI = 1; RMSEA = .00, intervals of confidence 90% between .00 and .09, statistically significant], which showed a good fit between the variance-covariance matrix and the tested model. The Cronbach's alpha was .83.

Table 1. Goodness-of-fit indices of the measurement models tested ($N= 225$).

| | χ^2 | df | $\Delta \chi^2$ | χ^2/df | CFI | RMSEA | C.I. (90%) |
|-------------------------|-----------------------|----|----------------------|-------------|-----|-------|--------------------------|
| Initial model (6 items) | 110.45 ^{***} | 9 | - | 12.27 | .84 | .22 | .19 - .26 ^{***} |
| Revision 1 (5 items) | 38.48 ^{***} | 5 | 71.97 ^{***} | 7.70 | .93 | .17 | .12 - .23 ^{***} |
| Revision 2 (5 items) | 3.34 | 4 | 35.14 ^{***} | 0.67 | 1 | .00 | .00 - .09 |

* $p < .05$. ** $p < .01$. *** $p < .001$

Data aggregation and correlation analysis

All constructs considered were at the team level. However, measures provided by team members, despite of being at team level, were collected individually from each team member. To examine whether the data justified the aggregation of team-level constructs (transformational leadership, affective team commitment and quality of group experience), the Average Deviation Index (AD_M Index) developed by Burke, Finkelstein, and Dusig (1999) was computed. The average AD_M values obtained for transformational leadership ($M = 0.50$, $SD = 0.28$), affective team commitment ($M = 0.52$, $SD = 0.31$) and quality of group experience ($M = 0.40$, $SD = 0.27$) were below the upper-limit cut-off criterion of 0.83 suggested by the authors. This revealed that the level of agreement within the teams was sufficient to aggregate team members' scores with confidence to the team level. Furthermore, to check if such aggregation was justified, we calculated the intraclass correlation coefficients ICC(1) and ICC(2) (Bliese, 2000) through the tool developed by Biemann, Cole, and Voelpel (2012). The ICC(1) value for transformational leadership (GTL) was .33, the ICC(1) value for affective team commitment was .16, and the ICC(1) value for Quality of group experience was .22 whereas the ICC(2) values for the same variables were .71, .49, .58, respectively. Overall, the values were 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.

Table 2 reports means, standard deviations, AD_M , ICCs, correlations and reliability coefficients of the variables used in the study. Team size was included as control variable. Amongst all the criterion variables in the study only quality of group experience was significantly related to team size.

Table 2. Descriptive statistics, scale reliabilities, ADM, ICCs, and correlations between variables.

| | M | SD | AD _M | ICC(1) | ICC(2) | 1. | 2. | 3. | 4. | 5. | 6. | 7. |
|-----------------------|------|------|-----------------|--------|--------|----------|---------|---------|---------|---------|-------|----|
| 1.GTL | 3.94 | 0.66 | 0.50 | .33 | .71 | (.96) | | | | | | |
| 2.ACS | 3.97 | 0.53 | 0.52 | .16 | .49 | .538*** | (.83) | | | | | |
| 3.QGE | 4.06 | 0.56 | 0.40 | .22 | .58 | .612*** | .725*** | (.93) | | | | |
| 4.Performance | 4.05 | 0.58 | - | - | - | .287** | .270** | .372*** | (.83) | | | |
| 5.Process improvement | 3.88 | 0.63 | - | - | - | .331** | .285** | .393*** | .664*** | (.85) | | |
| 6.Viability | 4.05 | 0.57 | - | - | - | .347** | .333** | .347** | .609*** | .558*** | (.75) | |
| 7.Team size | 6.66 | 5.16 | - | - | - | -.376*** | -.192 | -.353** | -.124 | -.175 | -.094 | - |

Note. GLT *transformational leadership*, ACS *affective team commitment*, QGE *quality of group experience*. Reliability coefficients (Cronbach's alpha) are reported in brackets.
 * $p < .05$ ** $p < .01$ *** $p < .001$; N = 90 teams.

Looking at table 2 was possible to check that correlation coefficients were in line with what we expected in our hypothesis. More specifically, the coefficients from transformational leadership to team performance ($r = .29, p = .006$), team viability ($r = .35, p = .001$), team process improvement ($r = .33, p = .001$), and quality of group experience ($r = .61, p < .001$) were significant, as well as the correlation coefficient from transformational leadership to affective team commitment ($r = .54, p < .001$), and the correlation coefficients from affective team commitment to team performance ($r = .27, p = .01$), team viability ($r = .33, p = .007$), team process improvement ($r = .28, p = .001$), and quality of group experience ($r = .72, p < .001$).

Hypothesis testing

We tested our hypothesis through structural equation modeling. A path analysis model was studied using AMOS software. Such approach allows to estimate directly the indirect effects in the model (Preacher & Hayes, 2008). We used scale means as single indicators for each construct in the study. The aggregated database was used for this analysis ($N = 90$ teams). Parameters of the model were estimated through the maximum likelihood method. In the model, we also controlled the effect of team size on the quality of group experience. To evaluate the model fit, following the recommendations of Byrne (2010), we checked indexes as the chi-square test, the CFI (Comparative Fit Index), and the RMSEA (Root Mean Square Error of Approximation) and its confidence interval. The findings of the first model we run indicated a poor goodness of fit between data and the hypothesized model [$\chi^2 (10) = 86.56$, $p < .001$; CFI = .66; RMSEA = .29, intervals of confidence 90% between .24 and .35, statistically significant]. Because conditions suggested by Kline (2011) were not met by the model (χ^2/df ratio < 3 , CFI $> .90$ and RMSEA $< .08$), this revealed the need to adjust it. The modification indices (MI) provided by AMOS program indicated the existence of a high modification rate for the covariance of the error of indicator team performance with the error of indicator team viability (MI = 27.9) and the error of indicator team process improvement (MI = 34.2). The same was shown between the covariance of the error of team viability and the error of team process (MI = 21.4). Thus, we added covariance parameters between the residual parameters of team performance with team viability and team process improvement and between team viability and this last one. We did so based on the suggestions of Schreiber, Nora, Stage, Barlow, and King (2006). According to the authors, parameter constraints may be changed to improve the fit of the model, if such modifications are justified theoretically. So, besides statistical reasons provided by the software, we expected that the three criteria would be correlated to each other because they represent dimensions of the same construct, which is team effectiveness (Mathieu et al., 2008). Moreover, they are assessed by the same source (team leaders). This procedure allowed a significant improvement in the quality of fit indices [$\chi^2 (7) = 5.53$, $p > .05$; CFI = 1.00; RMSEA = .00, intervals of confidence 90% between .00 and .11, not significant]. The findings of the second model we run indicated good fit between data and the hypothesized model.

Table 3. Comparison of first and second model

| | χ^2 | df | $\Delta \chi^2$ | χ^2/df | CFI | RMSEA | C.I. (90%) |
|-----------|----------|----|-----------------|-------------|------|-------|--------------|
| 1st model | 86.56*** | 10 | - | 8.65 | .66 | .29 | .02 - .17*** |
| 2nd model | 5.53 | 7 | 81.03*** | 0.79 | 1.00 | .00 | .00 - .11 |

N = 90 teams. * $p < .05$. ** $p < .01$. *** $p < .001$.

Once established that the second model was superior to former one, we went through the analysis using bootstrap approximation through a two-side bias-corrected 95% confidence interval with 1000 samples. Standardized direct and indirect (mediated) effects were estimated (Fig.3) through such technic to provide further empirical evidence for our hypotheses (Hayes & Scharkow, 2013).

Hypothesis 1 concerned the direct positive relationship between transformational leadership and the four criteria of team effectiveness. The estimated direct effects from transformational leadership to team performance ($\beta = .20, p = .04$), team viability ($\beta = .27, p = .01$), and quality of group experience ($\beta = .26, p = .004$) were significant, except for team process improvement ($\beta = .21, p = .06$). These results provided support to hypothesis 1a, 1b and 1d, but not to hypothesis 1c.

Hypothesis 2 concerned the direct positive relationship between transformational leadership and affective team commitment. The estimated direct effect from transformational leadership to affective team commitment ($\beta = .54, p = .002$) was significant. This result provided support to hypothesis 2.

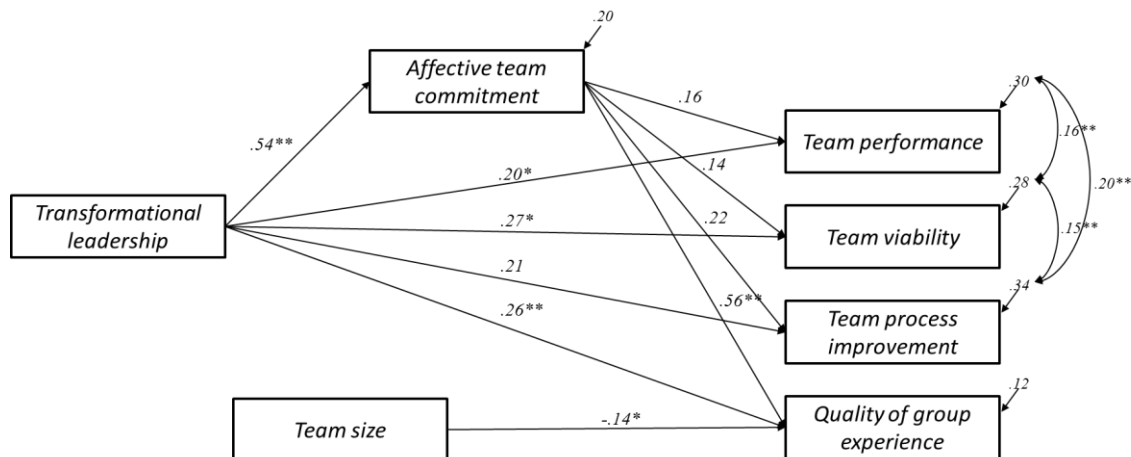


Figure 3. Results of path analysis model. Note. Standardized estimates; * $p < .05$, ** $p < .01$

Hypothesis 3 concerned the direct positive relationship between affective team commitment and the four criteria of team effectiveness. The estimated direct effect from affective team commitment to quality of group experience ($\beta = .56, p = .001$) was significant, while the estimated direct effects from affective team commitment to team performance ($\beta = .16, p = .16$), team viability ($\beta = .14, p = .19$), and team process improvement ($\beta = .22, p = .05$) were not. These mixed results provided support to hypothesis 3d, but failed to support hypothesis 3a, 3b, and 3c.

Hypothesis 4 stated that affective team commitment mediates the relationship between transformational leadership and the four criteria of team effectiveness. The results showed that the estimated indirect effects (Table 4) from transformational leadership, through affective team commitment, to team performance was .09 ($p = .14$), to team viability was .07 ($p = .18$), to team process improvement was .12 ($p = .04$) and to quality of group experience was .30 ($p = .001$). One of the four indirect effects was significant which supported hypothesis 4d. Because the direct path between transformational leadership and quality of group experience remained significant ($p = .004$) we can support the hypothesis that affective team commitment positively and partially mediates the relationships between transformational leadership and quality of group experience. Hypothesis 4a, 4b and 4c were not supported.

Table 4. Indirect effects through Affective team commitment

| Paths | β | 95% C.I. | |
|--|---------|-------------|-------------|
| | | Lower bound | Upper bound |
| TL \rightarrow ATC \rightarrow Team performance | .09 | -.03 | .22 |
| TL \rightarrow ATC \rightarrow Team viability | .07 | -.04 | .19 |
| TL \rightarrow ATC \rightarrow Team process improvement | .12 | .00 | .26 |
| TL \rightarrow ATC \rightarrow Quality of group experience | .30** | .18 | .46 |

Note. $N = 90$ teams. * $p < .05$. ** $p < .01$.

Discussion

Transformational leadership plays a crucial role in teams that contributes to their overall effectiveness (e.g., Purvanova & Bono, 2009; Reuvers et al., 2008). At the same time an essential role is represented by affective team commitment that is fundamental to several aspects of team effectiveness (e.g., Neiningen et al., 2010; Strauss et al., 2009).

Contributing to the literature on transformational leadership and in line with the previous findings, our results supported the hypothesis that leaders who display a transformational style of leadership would be able to generate positive results on team performance, team viability, and on quality of group experience (hypothesis 1a, 1b and 1d). This means that transformational leaders may boost the effectiveness of their teams motivating team members to go beyond expectations. We expected such direct effect also on team process improvement (hypothesis 1c). Indeed, looking at the table of correlations the relationship between transformational leadership and team process improvement appears to be positively significant. However, it seems that when the effect of transformational leadership is considered with the effect of affective team commitment, the direct effect of the former on team process improvement loses statistical significance.

In line with previous literature, our findings contribute to support the hypothesis that leaders with a transformational style will have a positive effect on the affective commitment that members would have toward their respective teams (hypothesis 2). Thus, team members that are led by a transformational leader would be emotionally bound to their respective teams and be committed to work harder within them (Blau, 1964).

Experiencing affective team commitment seems also to have a positive effect on some aspects of overall team effectiveness. In line with the existing literature, our findings support the hypothesis that team members emotionally bound to their team would experience better quality of group experience (hypothesis 3d).

From the literature review, we expected that teams in which the members are emotionally committed would also report better outcomes in terms of team performance (hypothesis 3a), team viability (hypothesis 3b) and team process improvement (hypothesis 3c). Indeed, looking at the correlation coefficients between affective team commitment and team performance, team viability, and team process improvement, respectively, there is a positive significant relation. However, it shows that when the

former is studied in relation with these three criteria of team effectiveness, together with transformational leadership, its effect loses statistical significance.

The main objective, in this research, is to study the effect of the affective dimension of commitment on the overall team effectiveness, when it is shaped by the transformational leadership style of the team direct supervisor. According to our findings the hypothesis that transformational leadership, besides the direct relation, has an indirect effect on quality of group experience through affective team commitment has been supported. Thus, affective team commitment, positively and partially mediates the relationship between transformational leadership and quality of group experience. This means that team members report higher levels of satisfaction and that working within their respective teams meets their needs and expectations when they are emotionally committed to their respective teams and such commitment is generated by the transformational style of their leaders. This corroborate the idea that affective aspects such as quality of group experience are strongly affected by affective/motivational team processed and states as it is the case of affective team commitment (Kozlowski, Grand, Baar, & Pearce, 2015). This effect is especially relevant when the latter is shaped by transformational leadership.

In contrast with a previous preliminary study conducted in sport teams (van Beek, 2011), our findings do not support the hypothesis concerning the mediating effect of affective team commitment between transformational leadership and team performance. Some considerations have to be done according to this. First of all, the nature of the teams has to be considered. While van Beek (2011) in his study was considering sport teams, we are considering teams in work organizations. The formers may have patterns of performance slightly different than the latters. It is likely that, in our case, teams show higher results in terms of performance because of organizational demands. Like that, a transformational leader would have an effect on their performance, but this one may not be affected by the emotional bound with the team because such teams have to provide high results driven by organizational constraints. Secondly, the way by which team performance was assessed is different between the two studies. In his study, van Beek (2011) considered subjective team performance as the degree by which team members were feeling of having high performance during the game, and objective performance as the points scored by the teams. Differently in our study, team performance is assessed by the team direct supervisor. As stated in the work

of Rousseau and Aubé (2010), we considered immediate supervisors the most knowledgeable about the characteristics of their own teams and reliable to assess their performance.

In contrast with our expectations, the findings do not support the hypothesis concerning the mediating effect of affective team commitment between transformational leadership and team viability. This could mean that transformational leaders may indeed have an effect on the capability of their teams to work over the time (direct effect significant), but that this might not be affected by the capability of the leader of making their team members emotionally committed to the team. Several considerations need to be made about this. First of all, further research is needed to check if such effect is consistent in other studies. Then, different typologies of teams should be tested as well. Boies and Howell (2009) showed that positive affect mediates positively the relation between transformational leadership and team viability. However, it has to be pointed out that such findings are related to military settings. Considering that our sample is composed of teams formally constituted within work organizations and that these teams have been working together for an average of five years, already, it might be that their capability to keep working together as a whole in the future is shaped from other variables that go beyond their affective commitment with the team. For instance, it might be interesting to study the role of other variables interacting in this relation such as team climate (Pirola, & Merlo, 2002) or network structure (Balkundi & Harrison, 2006).

The hypothesis that affective team commitment would mediate the relation between transformational leadership and team process improvement was not significant as well. However, it is important to highlight that the level of significance obtained (.05) was near the statistical significance. This could mean that somewhat transformational leaders may push their team members to create and implement some improvement in their ways of working by shaping their affective commitment, but also by influencing other variables, such as innovation climate (Weng et al., 2015). This means that, although team commitment is a variable to take into consideration in the relationship between transformational leadership and team process improvement, other variables need to be included.

Conclusions and Practical implications

Our study provides new information about how to improve team effectiveness in organizational teams. Our starting point, in this study, relied on the importance of recognizing the different aspects of team effectiveness. Often team effectiveness is evaluated as merely team performance (Mathieu et al., 2008), while teams are not only this. Beyond the economical and tangible results of their teams, organizations should focus on other aspects, such as the capability of these teams to keep working as a whole in the future, or their capabilities to create and implement new and effective ways of working, or the overall satisfaction of team members that they experience working within a determinate team.

Then, it is worth to mention that we chose to frame this research in the IMO model instead of the older I-P-O for several reasons. Firstly, because it is in line with the recent literature (Ilgen et al., 2005). Secondly, according with other authors (e.g., Kozlowski & Ilgen, 2006), we considered affective team commitment as a temporary construct, not stable and dependent on situational factors. According to Marks et al. (2001), it is more accurate to describe such construct as an emergent state. The latter concerns “properties of the team that are typically dynamic in nature and vary as a function of team context, inputs, processes and outputs” (p.357).

In this framework, our mixed findings seem to show that sometimes you need both transformational leadership style (*input*) and affective team commitment (*mediator*) to reach good outcomes on several levels of team effectiveness (*outcome*), sometimes it seems that you do not need both.

Even though transformational leadership has a crucial role in fostering team effectiveness (Wang et al., 2011), when team members are emotionally committed to their team, team outcomes such as the quality of group experience tend to increase. The results indicate that affective team commitment mediates partially the relationship between transformational leadership and the quality of group experience, suggesting that transformational leadership has, in addition to a direct effect on member satisfaction with the relations in the team, an indirect effect on it through affective team commitment.

Consequently, this study shows that transformational leadership can improve one key criterion of team effectiveness through its relationship with this important behavioral state.

Because of the potential of the transformational leadership style, organizations could take measures in selecting and developing their leaders. When it is time to hire or promote team leaders, the candidates that show better capabilities to engage in transformational leadership behaviors should be selected. Moreover, team leaders in organizations should be taught on how to modify their style of supervision focusing on the main behaviors of the transformational leader: (1) communicating a vision, (2) developing staff, (3) providing support, (4) empowering staff, (5) being innovative, (6) leading by example, and (7) being charismatic (Carless et al., 2000). Previous research has shown that transformational leadership can be trained effectively through focused training programs (Avolio, 2010). Thus, such programs should be implemented within organizations if their concern is team effectiveness.

Besides, affective team commitment shaped by transformational leaders, may have crucial role in organizational teams enhancing the satisfaction of team members. It is worth to mention that the results indicate that affective team commitment has an effect (even if not statistically significant) between transformational leadership and team process improvement, suggesting that transformational leadership may have some effect on members' capability to create and implement innovative ways of working through affective team commitment. Considering that creating and implementing innovative ways of working is demanding and time consuming, team members need to be motivated and strongly committed to their team to move through such process (Mumford, Scott, Gaddis, & Strange, 2002). Organizations should invest in activities that increase affective team commitment. Team building activities may be designed to enhance such strong emotional bound to the team. Even though this seems not to have a significant effect on the team performance it may help to enhance the team cohesion and the satisfaction of the members working in a certain workgroup (Tannenbaum, Salas, & Cannon-Bowers, 1996). On the other hand, more committed team members would invest more efforts in implementing new ways of working, fostering the overall effectiveness of the team, first, and the whole organization, then (Hackman & Wageman, 1995). Activities, such team building may be embedded in a broader training program that may imply lectures and seminars to teach team leaders on how to improve the affective commitment between the members of their teams.

More research is still needed to further study the benefits of leadership style and its effects on the behaviors and processes of their teams, to understand advantages and disadvantages that this might bring to organizations.

Limitations and suggestions for future research

While this study brings further information on the potential effects of transformational leadership on team effectiveness, there are some limitations that need to be addressed.

First of all, because of the cross-sectional design of the present investigation, it is not possible to infer with certainty casual effects between the variables in the study. Considering the mixed findings of our study, further research should study such relations through alternative designs such as longitudinal study or experimental research to provide definitive results of the casual links. Second, although we collected data through two different sources (i.e., team leaders and team members), which contributes to a more comprehensive and accurate diagnosis and enables the reduction of the effects of the common method variance, all variables were assessed through questionnaires. Even though this is a cheap, non-intrusive and easy way to get data, there are many disadvantages that need to be accounted, such as the social desirability bias that may affect the answers of the responders. This may have led, for example, direct supervisor to present a favorable picture of the team they were supervising (Rousseau & Aubé, 2010). Moreover, common method variance may, to some extent, have still influenced the results, because team members provided data regarding transformational leadership (independent variable), affective team commitment (mediating variable), and quality of group experience (dependent variable). Further research should use different kind of measures to overcome these issues. Especially for what concerns team performance, it might be interesting to have objective results to provide further explanation of its relations with transformational leadership and affective team commitment. Concerning the relation with team viability, it would be interesting to study the relation with transformational leadership through affective team commitment in different settings. Perhaps, it would be interesting a comparison between teams at different stages of their formation. According to Tuckman (1965) teams go through several stages during their lifetime. It is likely that affective team commitment would have a greater effect on dimensions of team effectiveness, such as team performance or team viability, during

earlier stages of its development, when team members are not still well-acquainted (Hackman, 2012). Regarding team process improvement, since our findings appear to be unclear, it could be interesting to further study such relation using different measures or considering different variables such as innovation climate (Weng et al., 2015).

Framed in the IMOI model, we studied the mediating role of affective team commitment, considering it as an emergent state of a team, between transformational leadership (input) and four criteria of team effectiveness (outcomes). In this framework, it would be interesting to further study such relation integrating other variables. Beside the mediating effect of affective team commitment, it would be interesting to study how continuance and normative commitment (Allen & Meyer, 1996) affect such relation. Moreover, to have a broader spectrum of team effectiveness, other criteria measuring the political dimension should be considered in future studies (Savoie et al., 2006). Also, it might be interesting to study the role of affective team commitment as a moderator. It would be interesting to see if under the condition of high or low affective team commitment the relation between transformational leadership and team effectiveness would be affected. Being the IMOI a cyclic model, it might be also studied the impact of affective team commitment on transformational leadership.

Another limitation that needs to be addressed is the context in which our data was collected. We collected our data in Portuguese organizations, thus our findings may be applied just at Portuguese population, limiting, on the other side, the external validity of our study. Portuguese organizations may have different characteristics that are not necessarily representative of organizations of other countries. Further studies should compare the findings carried out from studies in organizations in different countries other than Portugal.

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APPENDIXES

Appendix A

Carta de Apresentação às organizações Portuguesas

(Presentation Letter to Portuguese Organizations)



Coimbra, 18/01/2016

Exmo. Senhor Doutor XXX

Dirigimo-nos a V. Exa. na qualidade de investigadores 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 do Trabalho e das Organizações, sob a orientação da Prof.ª Doutora Isabel Dórdio Dimas, Prof. Doutor Paulo Renato Lourenço e Prof.ª Doutora 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 aplicar, durante o mês de Fevereiro de 2016, em diversas organizações, um questionário a diversos grupos/equipas de trabalho e aos respetivos líderes (tempo estimado para preenchimento: 20 a 25 minutos).

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 gratos 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

Liderança, Processos e Eficácia dos Grupos

1) Equipa responsável pelo projeto de investigação

Nicola Paolucci

(aluno do Mestrado *Work, Organizational and Personal Psychology* da Faculdade de Psicologia e de Ciências da Educação da Universidade de Coimbra)

Pedro Almeida Maia

(aluno do Mestrado *Work, Organizational and Personal Psychology* da Faculdade de Psicologia e de Ciências da Educação da Universidade de Coimbra)

Josef Bader

(aluno do Mestrado *Work, Organizational and Personal Psychology* da Faculdade de Psicologia e de Ciências da Educação da Universidade de Coimbra)

Orientação:

- Prof. Doutor Paulo Renato Lourenço
- Prof.^a Doutora Teresa Rebelo
- Prof.^a Doutora Isabel Dórdio Dimas

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. Desta forma, com este trabalho propomo-nos estudar a forma como processos/estados como a liderança transformacional, a autonomia e as relações existentes entre os membros do grupo se relacionam com a eficácia das equipas de trabalho. Visamos, assim, 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:

- Clima organizacional - conjunto de perceções partilhadas pelos trabalhadores de uma determinada organização;
- Aprendizagem grupal - processo que se caracteriza pela aquisição, partilha e integração do conhecimento por parte dos membros do grupo;

- Comprometimento afetivo - relação de vinculação que o trabalhador estabelece com a organização onde trabalha;
- Liderança Transformacional - traduz-se nos seguintes comportamentos: comunicar a visão, desenvolver os colaboradores, fornecer apoio, delegar poder e capacitar os colaboradores, ser inovador, liderar pelo exemplo e ser carismático;
- Comportamentos de suporte - grau em que os membros de cada equipa dão apoio uns aos outros, quando necessário, durante a realização de tarefas;
- Resiliência - num nível grupal, a resiliência traduz-se na capacidade de a equipa enfrentar e superar fracassos, contratempos, conflitos ou qualquer outra ameaça ao bem estar da equipa;
- Autonomia - grau de liberdade de que as equipas dispõem para decidir como conduzir as suas tarefas.
- Eficácia grupal - desempenho, viabilidade, qualidade da experiência grupal e melhoria dos processos.

3) Amostra e participação das organizações

O estudo será realizado nos grupos/equipas de trabalho e os respetivos líderes desta organização. Para que seja considerada uma equipa válida para este estudo é necessário que (1) seja constituída por três ou mais elementos, (2) os membros e o respetivo líder sejam reconhecidos e se reconheçam como equipa, (3) possuam relações de interdependência e (4) interajam regularmente tendo em vista o alcance de, pelo menos, um objetivo comum.

A participação da organização no estudo consiste em possibilitar a recolha dos dados, isto é, da informação necessária à realização do estudo. Deste modo, obriga-se a proporcionar as condições necessárias à execução das atividades referidas.

A recolha de dados decorrerá entre Dezembro de 2015 e Fevereiro de 2016, num período a acordar entre a equipa de investigação e 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 (10-20 minutos).
 - b) O preenchimento de um questionário pelos líderes das equipas de trabalho (5 minutos).
- Os questionários poderão ser preenchidos online.

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 na condição de a Organização aceitar que esses dados sejam devolvidos num formato que proteja a identidade dos participantes e que nunca sejam utilizados 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.

A Coordenação da Equipa de Investigação

Declaração de consentimento informado

Enquanto representante da Organização onde vai ser efetuada a recolha de dados no âmbito do projeto de investigação, 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 colaboradores/as da organização que represento. -----

_____, ____ de _____ de 201

O representante,

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 objectivo 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 correctamente o modo como deverá responder. Certifique-se que respondeu a todas as questões.

Muito obrigado pela colaboração!

[Tempo estimado de preenchimento: 5 minutos]

PARTE 1

(Dados demográficos - para fins exclusivamente estatísticos)

Idade: _____ Sexo: M F

Habilitações literárias: _____

Nº de trabalhadores da organização: _____

Tipo de organização: Micro Pequena Média Grande

Sector de actividade da organização: _____

Há quanto tempo se formou a sua equipa? _____

Há quantos anos trabalha nesta organização? _____

Há quantos anos trabalha nesta equipa? _____

Função desempenhada: _____

Nº de elementos da sua equipa: _____

Qual é a principal actividade da sua equipa? [assinale a resposta]

Produção Comercial

Administrativa Gestão

Outra. Qual? _____

Avalie o **desempenho da sua equipa de trabalho** de 1 (muito baixo) a 5 (muito alto), em função dos seguintes indicadores (assinale com um x):

| | Muito baixo | | Muito alto | | |
|--|-------------|---|------------|---|---|
| | 1 | 2 | 3 | 4 | 5 |
| 1. Alcance dos objetivos de desempenho. | | | | | |
| 2. Produtividade (quantidade de trabalho). | | | | | |
| 3. Qualidade do trabalho realizado. | | | | | |
| 4. Respeito pelos prazos. | | | | | |
| 5. Respeito pelos custos. | | | | | |

O conjunto das seguintes afirmações tem como objetivo **caracterizar a sua equipa de trabalho**. Neste sentido, diga, por favor, em que medida cada uma delas se aplica à equipa onde trabalha. Assinale com uma cruz (x) o valor que melhor se adequa ao que lhe é apresentado em 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 |

| | 1 | 2 | 3 | 4 | 5 |
|---|---|---|---|---|---|
| 1. Os membros da equipa adaptam-se às mudanças que ocorrem no seu ambiente de trabalho. | | | | | |
| 2. Quando surge um problema, os membros desta equipa conseguem resolvê-lo. | | | | | |
| 3. Os novos membros são facilmente integrados nesta equipa. | | | | | |
| 4. Os membros desta equipa poderiam trabalhar juntos por um longo período de tempo. | | | | | |

Para finalizar, pedimos-lhe 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 objectivo 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, não existindo respostas certas ou erradas.

Leia com atenção as instruções que lhe são dadas, certificando-se de que compreendeu correctamente 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!

[Tempo estimado de preenchimento: 20 a 25 minutos]

PARTE 1

(Dados demográficos - para fins exclusivamente estatísticos)

Idade: _____ Sexo: M F

Habilitações literárias: _____

Há quantos anos trabalha nesta organização? _____

Há quantos anos trabalha nesta equipa? _____

Do total de horas que trabalha por dia, quantas dessas horas, aproximadamente, trabalha em interacção com os seus colegas de equipa? _____

Função desempenhada: _____

PARTE 2

(GTL)

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 em 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 |

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 os 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. | | | | | |

(Comprometimento afetivo)

O conjunto das seguintes afirmações tem como objetivo caracterizar a sua relação com a sua equipa de trabalho. Neste sentido, diga, por favor, em que medida concorda ou discorda com cada uma das afirmações. Assinale com uma cruz (x) a opção que melhor se adequa à sua situação, utilizando a seguinte escala:

| 1 | 2 | 3 | 4 | 5 |
|---------------------|----------|---------------------------|----------|---------------------|
| Discordo fortemente | Discordo | Não concordo nem discordo | Concordo | Concordo fortemente |

Nesta equipa...

| | 1 | 2 | 3 | 4 | 5 |
|--|----------|----------|----------|----------|----------|
| 1. Esta equipa tem muito significado pessoal para mim. | | | | | |
| 2. Não tenho um grande sentimento de pertença para com esta equipa. | | | | | |
| 3. Gostaria muito de desenvolver o resto da minha carreira nesta equipa. | | | | | |
| 4. Sinto mesmo os problemas desta equipa como meus. | | | | | |
| 5. Não me sinto ligado/a a esta equipa. | | | | | |
| 6. Não me sinto como fazendo “parte da família” nesta equipa. | | | | | |

(Qualidade da experiência grupal)

Relativamente às relações na sua equipa de trabalho, pedimos-lhe que indique em que medida concorda ou discorda das seguintes afirmações, assinalando com uma cruz (x) a opção que melhor se adequa, utilizando a seguinte escala:

| 1 | 2 | 3 | 4 | 5 |
|---------------------|----------|---------------------------|----------|---------------------|
| Discordo fortemente | Discordo | Não concordo nem discordo | Concordo | Concordo fortemente |

| | 1 | 2 | 3 | 4 | 5 |
|---|----------|----------|----------|----------|----------|
| 1. Na nossa equipa, o clima de trabalho é bom. | | | | | |
| 2. Na nossa equipa, as relações são harmoniosas. | | | | | |
| 3. Na nossa equipa, damo-nos bem uns com os outros. | | | | | |