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Master Thesis

Supportive Behaviours and Team Effectiveness:
The mediating role of Team Learning Behaviours

Iolanda Loreiro

Faculdade de Psicologia e de Ciências da Educação - Universidade de Coimbra

<table>
<tr><td>Home tutor</td><td>Host tutor</td></tr>
<tr><td>Ph.D. Teresa Rebelo</td><td>Ph.D. Virginia Orengo</td></tr>
<tr><td>Faculdade de Psicologia e de Ciências da Educação</td><td>Facultat de Psicologia</td></tr>
<tr><td>Universidade de Coimbra</td><td>Universitat de València</td></tr>
</table>

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Title of the Master Thesis

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Keywords

Teams; Supportive Behaviours; Team Effectiveness; Team Learning Behaviours

Student

Iolanda Loreiro

Faculdade de Psicologia e Ciências da Educação - Universidade de Coimbra

iolanda.loreiro@gmail.com

Home tutor

Teresa Rebelo, PhD

Faculdade de Psicologia e Ciências da Educação - Universidade de Coimbra

terebelo@fpce.uc.pt

Host tutor

Virginia Orengo, PhD

Facultat de Psicologia - Universitat de València

virginia.orengo@gmail.com

Abstract

According to the literature, supportive behaviours constitute a determinant of team effectiveness. The current research aims to clarify further the relationship between supportive behaviours and team effectiveness criteria, analysing the mediating role of team learning behaviours. To evaluate team effectiveness four criteria (performance, viability, quality of group experience and team processes improvement) were considered. The sample was made up of 535 participants from 90 teams ($N = 445$ team members, $N = 90$ team leaders), working in 40 Portuguese organisations from different sectors and areas of activity. The measures for data collection used were Portuguese adaptations of *Team Effectiveness Measures*, *Team Learning Behaviors' Instrument*, and *Supportive Behaviours Scale*. Regression analyses PROCESS macro is mainly used for analysing data. The results revealed that team learning behaviours partially mediate the relationship between supportive behaviours and team performance and totally mediate the relationship between supportive behaviours and team viability. Thus, the present study highlights the importance of supportive behaviours and team learning behaviours on some criteria of team effectiveness.

Keywords - Teams; Supportive Behaviours; Team Effectiveness; Team Learning Behaviours

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Introduction

Groups and teams[1] form the greatest part of an organisational activity, and they can be of many different types and sizes (Martin, 2005). In fact, the actual basic unit of the structure of the work organisation is the team rather than the individual (Rousseau, Aubé, & Savoie, 2006). There are multiple definitions for teams, but the one used in this research comes from the studies of Hackman (1987): a team is a set of individuals interdependent in their tasks and who share responsibility for outcomes. They see themselves, and are seen by others, as an intact social entity embedded in one or more larger social systems and manage their relationship across organisational boundaries. According to Aubé and Rousseau (2005), there are many advantages associated with the use of work teams in organisations, including increased productivity, flexibility, innovation, and employee satisfaction, as well as decreased production costs, turnover, and absenteeism. Along these lines, this study focuses on the effectiveness of work teams, exploring the role of team learning behaviours on the relationship between supportive behaviours and team effectiveness criteria.

In work team settings, members' behaviours were divided into two broad categories, specifically task work behaviours and teamwork behaviours (Rousseau, Aubé, & Savoie 2006). In this study, our focus is the teamwork behaviours, more precisely team supportive behaviours. They are defined as the "extent to which team members voluntarily provide assistance to each other when needed during task accomplishment" (Aubé & Rousseau, 2005, p. 193).

Besides that, team learning is also important for teams to learn how to efficiently work together and for organisations to manage their continuously changing environment. Learning behaviours consist of activities carried out by team members through which a group obtains and processes data that allow it to adapt and improve, being a continuous *process of reflection and action* (Edmondson, 1999, p. 353). Some examples of team learning behaviours are asking questions, seeking feedback,

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[1] In the present study, we make no distinction between groups and teams, using the two terms interchangeably and following the same line of other authors (e.g., Allen & Hecht, 2004; Cohen & Bailey, 1997; Kozlowski & Bell, 2003). Although, we will use, more frequently, the term team (e.g., team effectiveness, team learning behaviours, and others).

experimenting, reflecting on results and discussing errors or unexpected results of actions (Edmondson, 1999).

Through these learning behaviours, teams can detect changes in the environment, learn about that, improve members' collective understanding of a situation or discover unexpected consequences of their previous actions (Edmondson, 1999). With this study, we aim to analyse whether learning behaviours mediate the relation between the supportive behaviours and the effectiveness of a team.

Taking a broad approach to include the multiplicity of outcomes that matter in organisational settings, the effectiveness occurs at several levels: individual, group and organisational levels. When evaluating team effectiveness conditions it is possible to plan and develop intervention strategies to promote improvements in conditions and labour relations, as well as the well-being of the organization. As follows, it is essential to be clear about the dimensions of team effectiveness that are being considered, and at which level they are being considered (Cohen & Bailey, 1997). Rather than considering group effectiveness in terms of performance, the effectiveness assessment should comprise multiple measurement criteria. In the present study, to evaluate team effectiveness, we followed the criteria proposed by Aubé and Rousseau (2005) and Rousseau and Aubé (2010): *team performance*, *team viability*, *quality of group experience* and *team processes improvement*, which correspond to four dimensions: *economic*, *perenniality*, *social* and *innovation*, respectively (Beaudin & Savoie, 1995; Savoie et al., 2006).

Thus, and based on the Input-Mediator-Outcome-Input (IMOI) model (Kozlowski & Ilgen, 2006), the goal of this research is to test if supportive behaviours influence four criteria of team effectiveness (performance, viability, quality of group experience, and processes improvement) through the mediation of team learning behaviours. In the scope of the IMOI model, supportive behaviours are viewed as an antecedent of effectiveness, learning behaviours as a mediating process, and effectiveness criteria as outcomes. In this way, the present research aims to clarify the effects of supportive behaviours on the effectiveness of work teams incorporating intervening or mediating variables that can be team processes (such as the case of the present study) or emergent states.

This study aims to expand the current knowledge about supportive behaviours and team effectiveness because there is a lack of studies including intervening variables in this relationship, according to the results of literature review. Usually, studies are focused on team effectiveness as a whole or on one or two criteria (team performance and team satisfaction), and there are more studies on team leaders' supportive behaviours (e.g., Aubé & Rousseau, 2005; Podsakoff & MacKenzie, 1997; Rousseau, Aubé, & Tremblay, 2013) than on members' supportive behaviours.

Theoretical Framework

Supportive Behaviours and Team Effectiveness

It is consensual in the literature that team members, on a voluntary basis, provide assistance to each other when needed during tasks accomplishment, which bears the name of supportive behaviours (Aubé & Rousseau, 2005).

The concept of supportive behaviours seeks to reflect the instrumental and emotional support existing among team members (Tardy, 1985). Therefore, the emotional support refers to the set of actions that team members take to value and assist others by reinforcing a sense of self-esteem (e.g., providing encouragement and feedback). The instrumental support involves different types of tangible help that team members provide to each other (e.g., assist in complex tasks) (Aubé & Rousseau, 2005).

The study of supportive behaviours stems from the concept of social support as a fundamental resource. Social support integrates all levels of social interaction of help at work, coming not only from peers, but also from leaders and supervisors (Sundin, Hochwälder, Bildt, & Lisspers, 2007). According to Organ (1988), employee aid behaviour promotes mutual support and allows for the prevention of work-related problems, as well as encouraging others about their achievements or professional development (Podsakoff & MacKenzie, 1997).

The interest in the study of support behaviours derives from the consequences that this behavioural process entails for the teams and/or organisations (Podsakoff & MacKenzie, 1997). However, the literature mainly focuses the supportive actions of the leaders (Aniceto, 2016; George & Bettenhausen, 1990; Jacobs & Singell, 1993;

Pessoa, 2016), therefore, a lack of studies that rely on team members' supportive behaviours exist.

Given that the purpose of a team is to produce goods or services, team performance is the most frequently used criterion of team effectiveness as stated by Ilgen (1999). However, team performance is not the only effectiveness criterion that is relevant in organisational settings. Additionally, considering the multiple constituency approaches, team effectiveness can be assessed by different constituencies, such as supervisors and team members (Aubé & Rousseau, 2005).

Also, the effectiveness of the team, as a multidimensional concept, can be understood and evaluated by different criteria. These criteria can be integrated into five dimensions such as: social (group experience contributes to the well-being of its members); economic (combines efficiency and productivity and assumes the achievement of the objectives that the organisations and/or team propose); politic (reputation and/or legitimacy of the action of the teams with external organisational actors); perenniality (capacity for growth, adaptation and stability of the system-group over time and in face of changes in the surrounding environment); and innovation (ability to innovate at the level of internal processes or at the level of results) (Savoie, Larivière, & Brunet, 2006).

Therefore, effectiveness assessment should comprise multiple measurement criteria, and in the present study, effectiveness is assessed by four indicators or criteria, specifically *performance*, *viability*, *quality of group experience* and *team processes improvement* (Aubé & Rousseau, 2005; Rousseau & Aubé, 2010). These four criteria correspond to four of the mentioned dimensions: economic, perenniality, social and innovation, respectively (Beaudin & Savoie, 1995; Savoie et al., 2006). In our research, we did not address the political dimension because this study does not include the collection data from external organisational actors (e.g., customers, suppliers, etc.).

Team performance is fundamental to understand team effectiveness (Bell & Marentette, 2011). It is described as the level to which the team's outputs regard the criteria set by the organisation, regarding quantity and quality of work (Hackman, 1987), and reflecting how team members have accomplished their given tasks. In today's organisations, teams tend to exist for extended periods, managing bundles of

activities and are dynamic systems that experience change over time (Bell & Marentette, 2011). Making team viability is an important consideration when managing organisational teams (Bell & Marentette, 2011). Viability is the capacity to adapt to the changes and difficulties that intrudes on their work (Aubé & Rousseau, 2005; Hackman, 1987), so a "high level of team viability means that the team members have the capability to continue to work together over time" (Aubé & Rousseau, 2011, p. 567). Q*uality of group experience* is related to members' satisfaction, in a way that it underwrites the global positive feeling and personal growth. Finally, *team process improvement* stands for a set of changes that can occur inside work teams, and through their team leaders.

According to some authors (Campion, Medsker, & Higgs 1993; Podsakoff & MacKenzie, 1997), supportive behaviours have a high and consistent impact on organisational effectiveness, increasing this same effectiveness when members can help each other and have positive social interactions (Campion et al., 1993). Therefore, supportive behaviours stimulate and increase effectiveness, sustaining the effort in everyday tasks (Campion et al., 1993).

When team members adopt support behaviours (e.g., helping new co-workers to become more productive), they increase the effectiveness of the work group or unit (MacKenzie, Podsakoff, & Fetter, 1993), as well as the knowledge transfer within the organisation (Koning & van Kleef, 2015). Likewise, supportive behaviours allow team members to deal effectively with situations or conditions that are different from everyday practice. Team members can complete their tasks, which they would hardly do individually, through mutual support, promoting the integration of their contributions (Aubé & Rousseau, 2005). Hence, members' supportive behaviours are likely to improve team performance, as they enable other members to complete tasks and achieve their goals (Campion et al., 1993). In addition, empirical evidence shows that supportive behaviours are also capable of influencing other criteria of team effectiveness (Aubé & Rousseau, 2005). In this way, the quality of group experience can be improved through supportive behaviours, as well as mutual support among team members to deal assertively with internal and external organisational changes to the organisational context contributes to increasing the viability of the team (Heaney, Price, & Rafferty, 1995). Regarding innovative tasks, which require improvement of the team process, they can become counterproductive with the time pressure of

deadlines, blocking, in turn, the positive processes that can result from this type of tasks. However, the presence of supportive behaviours among team members, especially in the use of feedback between them, presents positive and direct relationships with effectiveness, allowing better results (Janz, Colquitt, & Noe, 1997). In the study of Axtell, Holman, Unsworth, Wall and Waterson (2000), the results showed that employees were more likely to make suggestions when they reported greater role-breadth self-efficacy and had enriched jobs with greater personal control. But they were more liable to get their ideas implemented when they experienced increased support for innovation from peers and management.

In brief, when team members were put together, they do not automatically work effectively, thus team effectiveness is determined by a multiplicity of team characteristics, processes and emergent states (Klein & Mulvey, 1995). In fact, supportive behaviours, defined as the mutual aid exerted by the members of the team during the accomplishment of tasks (Aubé & Rousseau, 2005), are an example of a behavioural processes that can influence team outcomes.

Supportive Behaviours and Team Learning Behaviours
The interest in the concept of team learning has gained particular prominence with Senge (1990), who affirmed that learning teams are an essential element of a learning organisation (Raes, Boon, Kyndt, & Dochy, 2015).

Social interactions are at the core of team learning, as they will enable teams to develop a shared understanding of work tasks, and the role of teams within organisations (Widmann, Messmann, & Mulder, 2016). However, team learning is not the sum of the individual learning's but rather the interaction between the team members themselves to find solutions to the various situations they face, whether regarding tasks and objectives or in interpersonal relationships (Dimas, Alves, Lourenço, & Rebelo, 2016).

Through the cognitive and social process, team learning behaviours allow team members to acquire, share, combine and apply knowledge making it embedded within the team or captured collectively as pool (Kozlowski & Ilgen, 2006). As a result, team learning behaviours are an important construct to be studied and highly

relevant in the organisational context since organisations are today centred in meeting the demands of knowledge management (Kayes & Burnett, 2006).

Team learning behaviours can emerge in several ways. For example, and according to Wong (2004), those behaviours can occur locally as in learning from within the team itself and/or distantly as in learning from the environment, external to the team. Additionally, team learning emerges as team members learn from the minority in the team and/or when team members learn from the team's best member (Ilgen, Hollenbeck, Johnson, & Jundt, 2005). For Edmondson (1999), learning behaviours are an on-going process of collective reflection and action characterised by exploring, reflecting, discussing errors and unexpected outcomes of actions, seeking feedback and experimenting within and as a team. The author further adds that team learning behaviours are a process that occurs through members' interaction, rather than an outcome, focused on behaviours and activities that encourage and promote learning, rather than outputs regarding cognition.

The present study looks at team learning as a process, so it focuses team learning behaviours carried out with the objective of obtaining and processing data and transforming them into information (Edmondson, 1999). According to this author, team learning behaviours integrate five types of activities, particularly exploring and co-construction of meaning (i.e., communication between team members to share knowledge, opinions, perspectives and management of differences of opinion), collective reflection (i.e., to reflect together on past and future experiences regarding actions, work methods, objectives and strategies), error management (i.e., discuss collectively the mistakes and how to avoid them), feedback behaviour (i.e., seek internal and external feedback in order to gauge the effectiveness of the team's actions and draw conclusions on possible improvements/adaptations to be made), and experimenting (i.e., try different ways/processes to meet the team objectives, comparing and evaluating the results obtained).

As already stated, supportive behaviours can be understood as an antecedent of team learning behaviours. As follows, when team members commit to act with supportive behaviours, they can increase, in turn, team learning behaviours. In fact, according to several studies (Dougherty, 1992; Druskat & Kayes, 2000; Edmondson, 1999), team learning behaviours are a necessary and functional group process, but they do not emerge automatically (Edmondson, 2003). According to literature, a

number of factors that influence team learning behaviours, such as team climate (Edmondson, 1999), power differences and leadership behaviour (Edmondson, 2003), cooperative goals (De Dreu, 2007; Tjosvold, Tang, & West. 2004), team experience (Pisano, Bohmer, & Edmondson, 2001), characteristics of team members (Ellis et al., 2003), and also supportive behaviours between co-workers (Tannenbaum, 1997). When team members had supportive behaviours, shared goals, feelings of cohesiveness and cooperative attitudes, team learning behaviours, and consequently team learning, are enabled (Tjosvold et al., 2004).

Team learning behaviours and Team Effectiveness

Organisations rely on teams to adapt and learn continuously, but also to stay competitive and manage the complex and growing global economy (Shuffler, DiazGranados, & Salas, 2011).

Learning behaviours in work teams, carried out by team members, suggest knowledge utilisation, sharing, and creation (Babnik, Širca, & Dermol, 2014). Therefore, if learning behaviours promote the knowledge of the team, team learning behaviours may be directly linked to team effectiveness (Kayes & Burnett, 2006). A possible explanation might be that when team members work to understand and reconcile different ideas and methods used, each member gains a better understanding of the product and process by viewing it from various perspectives (Savelsbergh, van der Heijden, & Poell, 2009). As literature suggests, nowadays the work environment is characterised by its fast pace, and consequently, teams in organisations are required to engage in learning behaviours to make sense of situations and to act (Edmondson, 1999). Hence, in the long term, team learning behaviours contribute to teams' positive outcomes by enhancing a sense of adaptability and achievement of increased performance. And, in fact, previous findings were providing evidence of a positive correlation between team learning behaviours and team effectiveness (Órtega, Sánchez-Manzanares, Gil, & Rico, 2010).

Regarding team performance, it is positively related to team learning behaviours, as supported by several studies (Chan, Pearson, & Entrekin, 2003b; Edmondson, 1999; van Offenbeek, 2001, among others). However, team learning is related to other aspects of team effectiveness besides team performance. For example,

according to the findings of Aniceto (2016) and van den Bossche, Gijselaers, Segers, Woltjer, and Kirschner (2011), team learning behaviours are related positively to team viability.

Team members are connected to each other, sharing collective goals and developing a commitment to the team, enhancing the quality of the group experience. This happens as a result of team learning and the inherent learning behaviours (Chan, Lim, & Keasberry, 2003). For example, in the study of Zellmer-Bruhn and Gibson (2006), the authors observed that team learning increases the level of satisfaction among the members of multinational teams.

The individuals of a work team are exposed to everyday experiences and influence each other through mutual interactions (Kozlowski & Hattrup, 1992). Hence, based on these processes and according to Edmondson (1999), and Gibson and Vermeulen (2003), individual members' learning behaviours should exhibit greater similarity within and between teams as a whole (Walter & van der Vegt, 2013). If members engage in team learning behaviours, the team can better identify problems and challenges in its environment, develop higher quality ideas, and introduce new and creative procedures, processes and products (Drach-Zahavy & Somech, 2001), which contributes to team viability.

Learning plays a significant role in ensuring knowledge. This knowledge should regularly be update to allow an appropriate working behaviour that permits adaptation to changes in a competitive environment (Lemon & Sahota, 2004). In this way, the learning behaviours allow the development and application of knowledge and experience related to the current economy and business that require team processes improvement (Brockman & Morgan, 2003). That is, the domain of knowledge increases one's capacity for innovation, and that is why team learning behaviours continue being recognised as an essential resource for innovation (Lemon & Sahota, 2004). Considering that, work teams have a potential organisational advantage in the context of more complex tasks, such as the development innovation, Widmann, Messmann, and Mulder (2016) argue that team learning behaviours are necessary to perform effective teamwork and to activate the organisational advantage of teams. Hence, team learning behaviours enhance different behaviours related to accomplishing the requirements for innovation development by enabling an efficient distribution of responsibilities (Boon, Raes, Kyndt, & Dochy, 2013; Widmann et al.,

2016). For example, Bunderson and Sutcliffe (2002) found that survey measures of team learning orientation were associated with an observed process and product innovations. In the study of Walter and van der Vegt (2013), the results showed a positive association between team learning behaviours and team innovation.

Team learning behaviours have also received the attention of researchers due to their role as a mediating variable. For example, the literature shows that team learning behaviours can act as a mediator between other variables such as psychological safety and performance, (Edmondson, 1999). Mathieu, Maynard, Rapp, and Gilson (2008), in their meta-analysis, reinforced the mediation of team learning in the relationship between psychological safety and team performance. In the study developed by Aniceto (2016), the empirical evidence demonstrated that group learning behaviours mediate the relationship between transformational leadership and team effectiveness.

Given the mediating role that team learning behaviours assume in several relationships of team inputs and team outcomes, we are driven to pursue further investigation and examine whether team learning behaviours can act as a mediator in the relationship between the construct of supportive behaviours and team effectiveness.

The mediating role of Team Learning Behaviours in the relationship between Supportive Behaviours and Team Effectiveness

Teamwork does not occur in a vacuum, which emphasises the importance of interactions between inputs, processes and outputs (Ilgen et al., 2005). By highlighting the variables that influence group effectiveness, as well as the multiplicity of interrelations they establish, the Input-Process-Output (I-P-O) model are necessary for capturing the interactive dynamics of teamwork (Salas, Stagl, & Burke, 2004). However, given the advances in group research and the complexity and dynamism of the groups, the I-P-O model was criticised for several limitations it presents (Ilgen et al., 2005; Salas et al., 2004). To overcome these limitations, an alternative way of conceiving and representing the group efficacy system was suggested (Ilgen et al., 2005). Hence, to update the I-P-O structure, a new structure

was designated: the IMOI model (Kozlowski & Ilgen, 2006), which nowadays is used in research on team effectiveness (e.g., Ilgen et al., 2005).

The IMOI model considers teams in a multilevel system (individual, team and organisational). This model is oriented to relevant and evolutionary processes to and from the task over time so that both processes and team effectiveness are emerging phenomena – patterns resulting from the regular and repeated interaction of their members (Rico, Hera, & Tabernero, 2011). In this model, the inputs refer to the composition of the team and the set of individual characteristics, team characteristics, resources at multiple levels (Kozlowski & Ilgen, 2006) and concern for the welfare of others. Mediators, in turn, concern the set of psychosocial mechanisms available to achieve the team's goal and can be distinguished between processes and emerging states (Rico et al., 2011). In respect to the outcomes, these are the results obtained by the team and can be operationalized through multiple criteria and dimensions (Kozlowski & Ilgen, 2006). The extra "I" at the end of the model explicitly invokes the notion of cyclical causal feedback. This means that an output can lead to a new input (Mathieu et al., 2008).

As aforesaid, previous research points to some existing links involving the constructs we include in our research. In this way, and taking into account the IMOI model (Kozlowski & Ilgen, 2006) to further analyse the nature of their relationships we tested in our study the mediating role of team learning behaviours (Figure 1). Team learning behaviours are considered group processes rather than emerging states (Ilgen et al., 2005). Specifically, team learning can be seen as a mechanism through which supportive behaviours influence team effectiveness.

In the dynamic process of team learning, according to Sessa and London (2008), the learning processes, the conditions that support them and team behaviours change as the team learn. Thus, team learning can be considered a process, directly associated with behaviours (Edmondson, 1999) and/or a result of interactions of team members, building shared knowledge (Edmondson, Dillon, & Roloff, 2007). According to previous studies already presented (Edmondson, 1999; Mathieu et al., 2008; Aniceto, 2016) team learning behaviours have been shown their potential as a mediator. As we have also seen throughout the literature review, supportive behaviours can be viewed as inputs that enhance team learning behaviours. Also, team learning behaviours predict the four criteria of team effectiveness under study, namely

team performance, team viability, quality of group experience and team processes improvement. In this way, team learning behaviours are expected to act as mediator in the relationship between supportive behaviours (input) and team effectiveness criteria (outcomes). In accordance, this research aims to test the following hypotheses:

H₁: *Team learning behaviours* (TLB*) mediate the relationship between Supportive Behaviours and Team Effectiveness:*

- *H₁ₐ: TLB mediate the relationship between Supportive Behaviours and performance;*
- *H₁ʙ: TLB mediate the relationship between Supportive Behaviours and viability;*
- *H₁𝒸: TLB mediate the relationship between Supportive Behaviours and quality of team experience;*
- *H₁ᴅ: TLB mediate the relationship between Supportive Behaviours and team processes improvement.*

Figure 1. Mediation model under analysis

- Team performance
- Team viability
- Quality of group experience
- Team process improvement
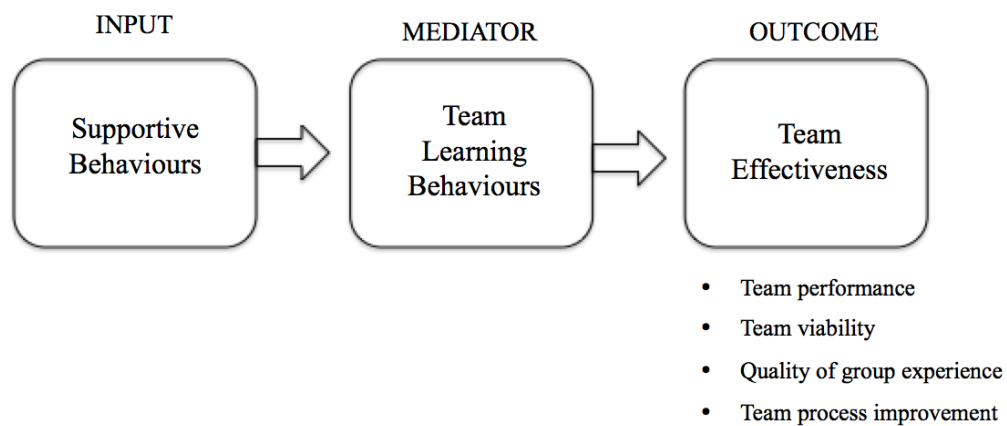
Methodology

Type of study

This research is non-experimental, cross-sectional and adopts a group level analysis (Kerlinger, 1986).

Sample

The sample is made up of 535 Portuguese participants (445 team members and 90 leaders), from 90 teams, working in 40 Portuguese organisations from different sectors and areas of activity. Criteria for considering and selecting teams for this study were: a minimum of three members per team; interdependence between them; the existence of common objectives; and, frequent interaction for their achievement (Cohen & Bailey, 1997). The selection process was by convenience, within a personal network of formal and/or informal contacts.

Analysing the socio-demographic data of the team members, 50.8% are female (4% did not answer to gender), and the average of age is 35.49 years old (min = 18; max = 67; SD = 10.03). The majority of the members have academic qualifications centred in high school (36.2%), and 23.4% have a university degree (1.1% did not answer). Teams are composed with 3 to 27 members, with an average of approximately 7 members per team (M = 6.66, SD = 5.16). These team members have been working for the organisations for 8.79 years (min = .5; max = 43; SD = 8.46), and the average of face-to-face daily interactions with other members are 5.17 hours (SD = 2.82). They work mostly in sectors of production (12.6%), technical areas (11.9%), or related to sales (11.2%). Teams have been formed in a average of 9.22 years ago (min = .5; max = 26; SD = 6.78), but their present configuration is working together for 7.94 years (SD = 6.96), and each team has an average of 6.66 members (min = 3; max = 27; SD = 5.16).

Regarding team leaders' socio-demographic data, 61.1% of team members are male (7.8% did not answer to gender), and the average age is 39.38 years old (min = 18; max = 67; SD = 9.91). The majority of the leaders have academic qualifications centred in high school (44.4%), and 27.8% have a university degree (8.9% did not answer). About the leader's functions, 23.3% are in charge to supervision, 14.4% are department directors, and 13.3% are managers (7.8% did not answer). They have been working for their organisations for 13.71 years (min = .7; max = 34; SD = 7.76), and

leading their teams for 7.94 years (min = .5; max = 34; *SD* = 6.96) (7 of them did not answer).

The majority of organisations are medium-sized (42.2%), followed for small size and big-sized organisations (16.7% each), and micro-sized are the least represented (14.4%)[2]. Despite nine team leaders (10%) did not answer for their organisation size, the average number of workers is 287.93 (min = 4; max = 8000; *SD* = 943.38).

Data collection procedures

Firstly, companies were contacted personally, by phone and/or by email, when an explanation about the study is provided. Secondly, the institutional letter and the informed consent were supplied. Using both paper and online surveys, data related to three criteria of team effectiveness namely performance, viability, and team process improvement, is collected from team leaders, while data related to supportive behaviours, team learning, and quality of group experience were obtained from team members in hard copy. The application of the questionnaire followed the ethical procedures of psychological research, with informed consent, confidentiality and anonymity assured. The research team[3] collected data between 2014-2016.

Measures

The variables under study are *supportive behaviours*, *team learning behaviours,* and *team effectiveness* criteria (performance, viability, quality group experience, and processes improvement). Therefore, the corresponding instruments are the adapted Portuguese versions, which will be succinctly explained in this section. Demographic data was also collected, such as: age, gender, academic level,

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[2] According to Portuguese Labor Law number 7/2009, from February 12, Article 100th (INCM, s.d.), the type of organizations is dependent of employees' number. Thus, micro-sized organisations consist of less than 10 employees; small-sized organisations consist between 10 to less than 50 employees; medium-sized organisations consist of 50 to less than 250 employees; and, larged-sized organisations consist of more than 250 employees.

[3](Albuquerque, 2016; Aniceto, 2016; Bader, 2016; Maia, 2016; Martins, 2016; Paolucci, 2016; Pessoa, 2016; van Beveren, 2015)

number of workers in the organisation, size of the organisation, market sector, main activity, timeline questions (e.g., "for how many months have you worked in this organisation?"), and how many elements each team is made up of.

Supportive Behaviours

Supportive behaviours are measured by the *Supportive Behaviours Scale*, developed by Aubé and Rousseau (2005) and adapted and validated for a Portuguese sample (Pessoa, 2016). This scale contains five items that analyse the two forms of support, the instrumental support and emotional support. Using a five-point Likert scale, the items (e.g., "We encourage each other to do a good job") ranging from "Almost not apply" (1) to "Almost totally apply" (5). Pessoa (2016) evaluated the psychometric qualities of the scale, through exploratory factor analysis (EFA) and confirmatory factor analysis (CFA). Respectively to EFA, the results of the adequacy analysis of the sample support the use of factorial analysis in this matrix [KMO = .86, χ^2 (10) = 1325.06, $p < .001$], which allowed an EFA. The solution obtained was very satisfactory, suggesting the retention of a single factor that explains 76.72% of the total variance. All items have factor loadings greater than .82 and commonalities equal to or greater than .67. The CFA model was tested in the second half of the sample. Adjustment indexes used to assess the suitability of the model as a whole revealed an inadequate fit between the data and the hypothetical model and a poor model approximation to population [χ^2 (5, N = 326) = 51.36, $p < .001$; CFI = .96; RMSEA = .17], with a 90% confidence interval between .13 and .21, statistically significant. The modification indexes (MI) provided by the AMOS software indicate the existence of a high modification index for covariation of the error of item 1 ("We help one another when someone is behind in their work") with the error of Item 2 ("We cooperate with each other to accomplish the tasks") (MI = 28.02). The CFA of the factorial structure of the initial model conducted with the free estimation of the parameter relative to the covariation of the measurement errors e1 and e2, allowed to obtain a significant improvement in the quality of the adjustment indices [χ^2 (4, N = 326) = 15.83, $p = .003$; $\Delta \chi^2$ (1) = 35.53, $p < .001$; CFI = .99; RMSEA = .095, with a 90% confidence interval between .05 to .15, statistically significant). The Cronbach's alpha ($\alpha = .93$) shows a good internal consistency of the scale.

Team learning behaviours

The Portuguese version of the *Team Learning Behaviors' Instrument* (originally developed by Savelsbergh et al., 2009) has strong theoretical anchorage and satisfactory psychometric indices (Dimas, Alves, Lourenço, & Rebelo, 2016b). Its goal is to evaluate team learning behaviours through team members, using a five-point Likert scale, ranging from 1 (almost never apply) to 5 (almost totally apply), (e.g., "Team members listen to each other carefully" or "If something is not clear, we ask each other"), and measures the five types of behaviours described by Edmondson (1999). In the exploratory factor analysis, a five-factor solution has emerged, with all items loaded above .50 along with the factor, and explained 77.47% of the total variance and with commonalities greater than .60. Cronbach's alphas for each of the scale dimensions, ranging from $\alpha = .73$ and $\alpha = .95$, have shown good internal consistency (Dimas et al., 2016b). A CFA based on this penta-dimensional structure was carried out by Aniceto (2016). She found a chi-square test of χ^2 (265) = 1218.45, $p < .001$, a ratio of χ^2/gl. of 4.60, a CFI of .94 and an RMSEA of .08. However, Aniceto (2016) found that the correlations between the five dimensions were of high magnitude (from .63 to .84), so a CFA with a second-order factor (team learning behaviours) considering the five-team learning behaviours as first-order factors was tested. The adjustment indexes values were similar and satisfactory [χ^2 (270) = 1334.50, $p < .001$, χ^2/gl. = 4.94, CFI = .93, RMSEA = .08], all first-order factor loadings on the second-order factor were located above .79, each one of the five first-order factors alpha values were ranging from .88 to .95. Thus, for testing our hypothesis, we will consider the overall score of all five team learning behaviours as a variable. The Cronbach's alpha ($\alpha = .97$) was the same as found by Aniceto (2016), showing good internal consistency.

Team Effectiveness criteria

Team Effectiveness criteria consists of a questionnaire answered by the team leaders (originally developed by Aubé and Rousseau (2005), and Rousseau and Aubé, (2010)), involving the Portuguese versions of three scales (team performance scale, team viability scale, and team processes improvement scale) and the scale of quality of group experience, all validated in a Portuguese sample (Albuquerque, 2016).

The team performance scale contains five items related to objective achievement, productivity, quality of work and fulfilment of deadlines and costs through team leaders. Team leaders evaluate team performance of their respective team on a five-point Likert scale, ranging from "Totally disagree" (1) to "Totally agree" (5) (e.g., "Please evaluate your team regarding their productivity"). The psychometric properties for the Portuguese version of the scale were firstly tested through EFA with a sample of 76 leaders. The factorial solution obtained showed a single 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). This model was tested later by a CFA with a sample of 122 leaders, which showed a low level of adjustment between data and the hypothesized model [χ^2 (5, N = 122) = 34.93, p < .001; CFI = .87; RMSEA = .22, interval of confidence 90% between .16 and .30, statistically significant]. 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 [χ^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) (Bader, 2016; Maia, 2016; Paolucci, 2016; Pessoa, 2016). The Cronbach's alpha (α = .83) shows a good internal consistency of the scale.

The team viability scale contains four items related to the ability of the team to adapt to changes, to solve problems, to integrate new members and to remain together in the future through team leaders, using a five-point Likert scale, ranging from 1 (almost never applicable) to 5 (almost totally applicable) (e.g., "Team members adapt themselves to changes in the workplace"). 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 single 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 through the EFA was tested later by a CFA with a sample of 122, which showed an adequate adjustment between data and the hypothesized model [χ^2 (2, N = 122) = 1.88, p = .392; CFI = 1.00; RMSEA = .00, intervals of confidence 90% between .00 and .18, statistically significant] (Bader, 2016; Maia, 2016; Paolucci, 2016; Pessoa, 2016). The Cronbach's alpha was .72.

Quality of group experience scale contains three items and uses a five-point Likert scale, ranging from 1 (totally disagree) to 5 (totally agree) (e.g., "In our team, relationships are harmonious", or "In our team, we get along with each other"). In the EFA made by Albuquerque (2016), all items saturated above .94 along with the factor, explaining 90.82% of the total variance. The commonalities are greater than .88. The Cronbach's alpha ($\alpha = .95$) shows a good internal consistency.

The processes improvement scale contains five items and evaluates the benefits of changes that occur within the teams through team leaders, using a five-point Likert scale, ranging from 1 (almost never apply) to 5 (almost totally apply) (e.g., "Members of this team have successfully implemented new work processes in order to produce high-quality results"). 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 single 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 [χ^2 (5, $N = 122$) = 18.26, $p = .003$; CFI = .95; RMSEA = 0.15, intervals of confidence 90% between .08 and .22, statistically significant]. After some adjustments (namely, free estimation of the parameter relative to the variation of measure errors e1 and e4, relative to items 1 and items 4) the values for the adequacy of the model achieved acceptable values [χ^2 (3, $N = 122$) = 6.43, $p = .169$; $\Delta \chi^2$ (1) = 11.83, $p < .001$; CFI = .99; RMSEA = 0.07, intervals of confidence 90% between .00 a .17, statistically significant) (Bader, 2016; Maia, 2016; Paolucci, 2016; Pessoa, 2016). The Cronbach's alpha was .86.

Control variable

The team size is included in this study as a control variable. Several studies demonstrated that the number of team members affected team processes and outcomes (e.g., Barrick, Stewart, Neubert, & Mount, 1998; Mohammed & Angell, 2004). To obtain this information, team leaders had to indicate the number of members per team in their questionnaire.

Statistical procedures

The first step was to look at missing values and studied their distribution pattern. According to Graham and Hofer (2000), in cases that have more than 5% of non-answers, the items should be eliminated. In our case, the percentage of missing values in team members' database was less than the cut-off (1.1%), so no cases were discarded. The team leaders' database was zero missing values. To analyse the distribution pattern of non-answers, we used Little's MCAR test. The replacement of the missing values is done by the average of the respective item when the correspondent is random. In cases that the distribution is not random, the Expectation Maximization algorithm (EM) should be used. In our team members' database, missing values for supportive behaviours, team learning behaviours, and quality of group experience, had non-random distributions. Thus, the replacement was made by the EM method.

Taking into account that validation studies of the measures used samples with characteristics very similar to ours, only the calculation of Cronbach' alphas was done.

To examine whether the data justified aggregation of constructs at the group level, the Average Deviation Index (AD), developed by Burke, Finkelstein and Dusig (1999), was used. The average AD_M values obtained for supportive behaviours (M = .482; *SD* = 0.263, Min = .00, Max = 1.35;), team learning behaviours (M = .513; Min = .10, Max = 1.20; *SD* = 0.196), and quality of group Experience (M = .410; Min = .00, Max = 1.33; *SD* = 0.287) were all below the cut-off criterion of 0.83 suggested by (Burke et al., 1999). These results revealed that the level of agreement within teams was sufficient to aggregate team members' scores with confidence to the team level. Further, we calculate Intraclass Correlation Coefficients (ICC_1 and ICC_2), to check if aggregation was justified (Bliese, 2000). The ICC_1 value for supportive behaviours was .228; the ICC_1 value for team learning behaviours was .241; and, ICC_1 value for quality of group experience was .226. The ICC_2 value for team learning behaviours and quality of group experience, were .613 and .594, respectively[4]. Overall, the values were in line with the acceptable values considered in the literature (Klein & Kozlowski, 2000), providing support to data aggregation at the team level. Finally, we

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[4] The Intraclass Correlation Coefficients can range from [-1, +1] (Bliese, 2000). Considering this, the ICC2 value for supportive behaviours was below this interval, thus the value was not reported.

also carried out a one-way analysis of variance (ANOVA) to ascertain whether there was statistically significant between-team discrimination in supportive behaviours, team learning behaviours and quality of group Experience. The observed F value to supportive behaviours was as follows: F (89, 355) = 2.479, $p < .01$. The observed F value to team learning behaviours was as follows: F (89, 355) = 2.590, $p < .01$. The observed F value to Quality Group Experience was as follows: F (89, 354) = 2.468, $p < .01$. These results showed an adequate between-team discrimination of the three scales, and they supported the validity of the aggregated measure (Chan, 1998).

For data analysis, mediation test using regression techniques with PROCESS macro for SPSS (Hayes, 2013) was mainly used. This technique of mediation analysis implements the mediation, combining an integrated conditional process model, and generates direct and indirect effects (Hayes, 2013). According to this author, meditation analysis is used when we seek to test hypotheses about, or better understand, how an effect of *A* (predictor or independent variable) on *B* (criterion or dependent variable) operates. For that, we introduce a *mediator variable M*, and this effect transmits *A* effect to *B* through the effect of *M* on *B*. Thus, a mediation model is a set of two (or more) events chained together in a sequence of the form $A \rightarrow M \rightarrow B$. Hence, by definition, mediator variable *M* must be located between *A* and *B*. It must be affected by *A*, and in turn must affect *B*. In this study, a simple mediation was used, so the indirect effect was calculated as the product of coefficients from the predictor to the mediator, and after from the mediator to the criterion. The indirect effect is statistically significant when zero is not included between lower and upper bound of the 95% bias-corrected bootstrap confidence interval generated (Hayes, 2013).

Results

Descriptive statistics, correlations among the team-level variables, as well as measures' reliabilities coefficients are reported in Table 1. As can be observed, all measures of team effectiveness criteria were significantly correlated with supportive behaviours and with team learning behaviours. Supportive behaviours are also significantly correlated with team learning behaviours.

Table 1. Descriptive statistics, reliabilities and Pearson correlation coefficient between variables

	M	SD	α	1.	2.	3.	4.	5.	6.	7.
1. SB	3.94	.588	.926	-						
2.TLB	3.54	.524	.974	.739**						
3.Performance	4.05	.581	.835	.500**	.490**					
4.Viability	4.05	.569	.747	.419**	.452**	.609**				
5.QGE	4.06	.557	.936	.848**	.671**	.372	.347**			
6.TPI	3.88	.631	.848	.465**	.460**	.664**	.558**	.393**		
7.Team Size	6.46	5.00	-	-.239*	-.330**	-.055	-.076	-.319**	-.131	-

Note: $^*p < .05$; $^{**}p < .01$; N = 90 teams; SB = Supportive Behaviours. TLB = Team Learning Behaviours. QGE = Quality of Group Experience. TPI = Team Processes Improvement.

The team size effect was controlled for quality of group experience criterion because it was negatively related to them. However, team size was neither significantly related to performance, viability, nor team processes improvement, so this control variable was dropped from those respective analyses.

Results for the bootstrap analysis to the first mediation regression are shown in Table 2. *Supportive behaviours* had an indirect effect on *performance* via *team learning behaviours*, and it was significantly different from zero (*ab* = .194; boot *SE* = .082; CI 95% = [.050; .374]). Also, the direct effect of *supportive behaviours* on *performance* was statistically significant (*c'* = .301 effect, p < .05). Therefore, Hypothesis 1_A was supported, since a partial mediation effect of team learning behaviours emerged.

Table 2. Mediation regression analyses: Hypothesis 1_A

Criterion/ *Predictor*	B	SE	LLCI 95%	ULCI 95%	R^2
TLB					.547**
Supportive Behaviours	.658**	.064	.531	.785	
Performance					.282**
TLB	.294	.150	-.004	.592	
Supportive Behaviours	.301*	.133	.036	.566	
Indirect Effect	.194*	.082	.050	.374	

Note: *p < .05, two-tailed. **p < .01, two-tailed. B = non-standardized regression coefficient. SE = standard error. LLCI = lower limit confidence interval. ULCI = upper limit confidence interval. TLB = Team Learning Behaviours. Indirect Effect = mediated regression effect

As we can see reported in Table 3, the indirect effect of *supportive behaviours* on *viability* was significant (*ab* = .224; boot *SE* = .115; CI 95% = [.020; .468]). However, the direct effect was not significantly different from zero (*c'* = .182 effect, p > .05). Therefore, we have a total mediation, and Hypothesis 1_B was supported.

Table 3. Mediation regression analyses: Hypothesis 1_B

Criterion/ *Predictor*	B	SE	LLCI 95%	ULCI 95%	R^2
TLB					.547**
Supportive Behaviours	.658**	.064	.531	.785	
Viability					.220**
TLB	.340	.153	.036	.644	
Supportive Behaviours	.182	.136	-.088	.453	
Indirect Effect	.224*	.115	.020	.468	

Note: *p < .05, two-tailed. **p < .01, two-tailed. B = non-standardized regression coefficient. SE = standard error. LLCI = lower limit confidence interval. ULCI = upper limit confidence interval. TLB = Team Learning Behaviours. Indirect Effect = mediated regression effect

As we can see in Table 4 for Hypothesis 1_c, the bootstrap analysis showed that the indirect effect of supportive behaviours on quality of group experience (QGE) via team learning behaviours was not significantly different from zero (ab = .038; boot SE = .097; CI 95% = [-.140; .227]). However, the direct effect of supportive behaviours on QGE was significantly different from zero (c' = .074 effect, p < .05) Therefore, we only have a direct effect without mediation, and Hypothesis 1_c was not supported.

Table 4. Mediation regression analyses: Hypothesis 1_c

Criterion/ *Predictor*	B	SE	LLCI 95%	ULCI 95%	R^2
TLB					.572**
Supportive Behaviours	.624**	.064	.496	.752	
Team Size	-.017*	.008	-.032	-.002	
QGE					.735**
TLB	.062	.090	-.118	.241	
Supportive Behaviours	.737**	.078	.582	.892	
Team Size	-.013	.007	-.026	.001	
Indirect Effect	.038	.097	-.140	.227	

Note: *p < .05, two-tailed. **p < .01, two-tailed. B = non-standardized regression coefficient. SE = standard error. LLCI = lower limit confidence interval. ULCI = upper limit confidence interval. TLB = Team Learning Behaviours. QGE = Quality of Group Experience. Indirect Effect = mediated regression effect

Finally, the bootstrap analysis for Hypothesis 1_D showed that indirect effect of supportive behaviours on team processes improvement via team learning behaviours was not significantly different from zero (ab = .203; boot SE = .127; CI 95% = [-.049; .458]). The direct effect of supportive behaviours on team processes improvement was significantly different from zero (c' = .296 effect, p < .05).

Therefore, we only have a direct effect without mediation, and Hypothesis 1_D was not supported (Table 5).

Table 5. Mediation regression analyses: Hypothesis 1_D

Criterion/ *Predictor*	B	SE	LLCI 95%	ULCI 95%	R^2
TLB					.547**
Supportive Behaviours	.658**	.064	.531	.785	
TPI					.246**
TLB	.308	.167	-.023	.639	
Supportive Behaviours	.296*	.148	.002	.591	
Indirect Effect	.203	.127	-.049	.458	

Note: *p < .05, two-tailed. **p < .01, two-tailed. B = non-standardized regression coefficient. SE = standard error. LLCI = lower limit confidence interval. ULCI = upper limit confidence interval. TLB = Team Learning Behaviours. TPI = Team Processes Improvement. Indirect Effect = mediated regression effect

Discussion

In the present study, it was our central objective to investigate the relationship between supportive behaviours and the four criteria of team effectiveness, considering the mediating effect of team learning behaviours.

Contributing to filling in some gaps of scientific literature on team members' supportive behaviours, our results supported that those behaviours would be able to generate positive results (with direct and/or indirect effect) on team performance, viability, the quality of group experience, and processes improvement. These results support previous literature, which entails those positive relationships (e.g., Campion et al., 1993; Heaney et al., 1995; Janz et al., 1997). They also suggest that learning behaviours existing in a team increase the effectiveness criteria, evidencing positive relationships as approached in the theoretical framework (e.g., Amara et al., 2008; Chan et al., 2003b; Chan et al., 2003; Aniceto, 2016).

As referred before, the main objective, in this research, is to study the effect of members' supportive behaviours on team effectiveness criteria, when they are shaped by team learning behaviours. According to our findings, the hypotheses that team learning behaviours play a mediating role in the relationship of supportive behaviours within team performance (H1$_A$) and team viability (H1$_B$) had been supported. These results highlight the importance of learning behaviours as a mediator, linking supportive behaviours within performance and viability.

Besides that, results of a significant direct effect of supportive behaviours on team performance, producing a partial mediation of team learning behaviours, is according to literature (e.g., Campion et al., 1993). This result along with the significant direct effects of supportive behaviours on the quality of group experience and on team process improvement reinforces the importance that peers' supportive behaviours has on team effectiveness. Moreover, the indirect effect of supportive behaviours on team viability that emerge in our research is, at some extent, in line with Heaney et al. (1995) which report that mutual support among team members contributes to increasing team viability. Thus, in our opinion, all in all, our findings reinforce the relevance that peer's supportive behaviours have on team effectiveness. In others words, they highlight that voluntary support among team members during task development allows for increasing: team results (Rousseau & Aubé, 2010); the ability of team members to deal with problems that may affect their stability (Barrick et al., 1998); the enhancement of the quality of the intra-social climate (Aubé & Rousseau, 2005); and the development of new work practices in the execution of tasks (Rousseau & Aubé, 2010).

Even though supportive behaviours have a crucial role in fostering team effectiveness (Campion et al, 1993; Podsakoff & MacKenzie, 1997), when members acquire insight from their team learning experiences, team outcomes such as performance and viability tend to increase. In fact, results indicate that team learning behaviours partially mediate the relationship between supportive behaviours and team performance, suggesting that those behaviours have, in addition to a direct effect on team accomplished given tasks, an indirect effect through team learning. Similarly, the results indicate that learning behaviours fully mediate the relationship between supportive behaviours and team viability, suggesting that supporting behaviours only

have an indirect effect on team members' capacity to adapt to the changes and work together over time through learning behaviours.

In contrast with our expectations, the findings do not support the hypotheses concerning the mediating effect of learning behaviours between supportive behaviours and the quality of group experience, as well as between supportive behaviours and team processes improvement. This can mean that those supportive behaviours may indeed have a direct effect significant on team satisfaction (Heaney et al., 1995) and on a set of changes that can occur inside work teams (Axtell et al., 2000), and that this might not be affected by the capability to the continuous process of reflection and action of learning behaviours in teams. Hence, several considerations need to be made. First, further research is needed to check if such effects are consistent in other studies. Then, other kinds of teams and mediators should be tested as well. Considering that our sample was made up of teams formally constituted within work organisations, teams which have been working together for an average of 5 years, already, it might be that their capability to keep working together as a whole in the future is shaped by other variables that go beyond their learning behaviours with the team (for example, team commitment (Paolucci, 2016), resilience (Pessoa, 2016), group cohesiveness (Dias, 2017), group trust (Pinho, 2017), among others).

Although the main objective of this study is the aforementioned mediation of team learning behaviours, we can highlight other important results. First of all, our results corroborate the effects of supportive behaviours on team learning behaviours, as predicted in literature. (Tjosvold et al., 2004). Hence, those supportive behaviours are good predictors of team learning behaviours, and learning can emerge through cooperative social interactions and feelings of cohesiveness. Therefore, the support of team members has a preponderant role in the development of team learning behaviours.

We can also observe that the relationships between team learning behaviours and team effectiveness were partially supported. On one hand, team learning behaviours had a positive impact on team viability, being a consistent result with studies of Aniceto (2016) and van den Bossche et al. (2011). On the other hand, in contrast to what would be expected and supported by the literature, team learning behaviours did not reveal statistically significant results in relation to performance,

quality of group experience and team process improvement. This is possibly due to some limitations of our study, which will be addressed in the next section.

Finally, for team size, a negative correlation with supportive behaviours and learning behaviours was emerged, which means that when team size increases the other two tend to decrease. Furthermore, team size showed a negative correlation with the quality of group experience, which is in line with studies carried out by Barrick et al. (1998).

Conclusions, Implications, Limitation and Further Research

In recent years, teams have become considered as a focal point of organisational functioning (Rico et al., 2011). Hence, a team is more than a group of people in the same space, which means that teamwork does not occur in a vacuum (van den Bossche et al., 2006).

Due to the growing number of teams in organizations, they should find ways to improve their effectiveness. Therefore, our study attempts to provide new information on how to improve team effectiveness in organisational teams. We also highlight the recognition of different aspects of team effectiveness as a multidimensional concept. In the past years, often team effectiveness was evaluated as mere performance (Mathieu et al. 2008), while teams are much more than that, providing knowledge diversity, attitudes, skills, and experience (Rico et al., 2011).

Also adding empirical evidence in the area of team support behaviours, this study focuses on the importance of these behaviours on team effectiveness. In concrete terms, the results suggest that team support action is fundamental in promoting and developing learning behaviours in order to improve team effectiveness, adding value for the organizational development and teamwork. Thus, an organizational synergy can be created to promote effective working ways as a team through bottom-up and top-down approaches.

The increasing of integrations between inputs, processes and outputs (Ilgen et al., 2005), and also the role of mediators (Rico et al., 2011), has developed the knowledge between and within the teams. Hence, it is worth to mention that we

choose to frame this research in the IMOI model, which is in line with more current literature (Ilgen et al., 2005).

In the scope of this framework, our different findings seem to show that teams need supportive behaviours (input) to reach good outcomes on several levels of team effectiveness, but, in some of them, it seems that the positive influence of supportive behaviours occurs through their positive influence on the enhancement of team learning behaviours, which, in turns, promote team effectiveness. Consequently, this study shows that supportive behaviours can improve two key team effectiveness criteria, namely, performance and viability, through its relationship with this important behavioural process.

Even though more research is still needed to further study the benefits of supportive behaviours and their effects on the behaviours and processes of there teams, to better understand advantages and disadvantages that might bring to organisational teams.

As mentioned throughout the study, the current research arises from the examination of the mediating role of team learning behaviours in the relationship between the supportive behaviours and team effectiveness criteria – something that to the best of our knowledge was not been tested yet. For that, this study was based on a sample of team members and its leaders - that were asked about their perceptions of team members. In this way, this research contributes to the broadening of this topic, as it focuses more on team members' behaviours instead of leaders behaviours.

Another strength of the current study is the large sample size collected from forty organisations, which enhanced the reliability of the results. However, this study presents some limitations, such as the fact that the sample is only made up of Portuguese organisations, therefore, this study cannot be generalised. Another obvious limitation is that surveys used do not allow open-ended questions in order to obtain more information. Besides that, some methodological considerations trigger discussion. The Common Method Variance (CMV), i.e., "variance that is attributable to the measurement method rather than to the constructs the measures represent" might have influenced the results (Podsakoff, MacKenzie, Lee, & Podsakoff, 2003, p. 879). Taking into account that supportive behaviours and team learning behaviours had their information provided by team members, CMV might have influenced the

result regarding its relationship. Moreover, the design of the study (cross-sectional) is understood as a limitation. Thus, conclusions about causality cannot be made, and future research would benefit from employing longitudinal methods in order to get more conclusive directions of causality.

Lastly, for further research, we suggest the importance of the study of effectiveness effect on team learning behaviours, for testing the bilaterality of this relationship; "the time that members work together" as a control variable and test if supportive behaviours could be, in the same level, like learning behaviours; in surveys, use diverse sources of information; and, the study of political dimension of team effectiveness, neglected in the present research, to have a more complete picture of how peers' supportive behaviours contribute to the success of a team.

References

Albuquerque, L. (2016). *Team resilience and Team Effectiveness: the adaptation of measuring instruments* (Unpublished master's thesis). Faculdade de Psicologia e Ciências da Educação, Coimbra, Portugal.

Aniceto, D. F. C. (2016). *Liderança Transformacional e Eficácia Grupal: o papel mediador dos Comportamentos de Aprendizagem* (Unpublished master's thesis). Faculdade de Psicologia e Ciências da Educação, Coimbra, Portugal.

Aubé, C., & Rousseau, V. (2005). Team goal commitment and Team Effectiveness: the role of task interdependence and supportive behaviors. *Group Dynamics: Theory, Research, and Practice*, *9*(3), 189-204. DOI: 10.1037/1089-2699.9.3.189

Aubé, C., & Rousseau, V. (2011). Interpersonal aggression and Team Effectiveness: the mediating role of team goal commitment. *Journal of Occupational and Organisational Psychology*, *84*(3), 565-580. DOI: 10.1348/096317910X492568

Axtell, C., Holman, D., Unsworth, K., Wall, T., & Waterson, P. (2000). Shopfloor innovation: facilitating the suggestion and implementation of ideas. *Journal of Occupational and Organisational Psychology*, *73*(3), 265-285. DOI: 10.1348/096317900167029

Babnik, K., Širca, N., & Dermol, V. (2014). Individuals learning in work teams: Support to knowledge management initiatives and an important source of organisational learning. *Procedia – Social and Behavioral Sciences*, *124*, 178-185. DOI: 10.1016/j.sbspro.2014.02.475

Bader, J. (2016). *Team autonomy and Team Effectiveness in an organisational context: the mediating role of Team Learning Behaviours* (Unpublished master's thesis). Faculdade de Psicologia e de Ciências da Educação, Coimbra, Portugal.

Barrick, M., Stewart, G., Neubert, M., & Mount, M. (1998). Relating member ability and personality to work-team processes and Team Effectiveness. *Journal of Applied Psychology*, *83*(3), 377-391. DOI: 10.1037/0021-9010.83.3.377

Beaudin, G., & Savoie, A. (1995). L'efficacité des equipes de travail: definition, composantes et mesures. *Revue Québécoise de Psychologie*, *16*(1), 185-201.

Bell, S., & Marentette, B. (2011). Team viability for long-term and ongoing organisational teams. *Organisational Psychology Review*, *1*(4), 275-292. DOI: 10.1177/2041386611405876

Bliese, P. D. (2000). Within-group agreement, non-independence, and reliability: Implications for data aggregation and analysis. In K. Klein, & S. Kozlowski (Eds.), *Multilevel theory, research, and methods in organisations* (p. 349–381). San Francisco: Jossey-Bass.

Boon, A., Raes, E., Kyndt, E., & Dochy, F. (2013). Team learning beliefs and behaviours in response teams. *European Journal of Training and Development*, *37*(4), 357-379. DOI: 10.1108/03090591311319771

Brockman, B., & Morgan, R. (2003). The role of existing knowledge in new product innovativeness and performance. *Decision Sciences*, *34*(2), 385-419. DOI: 10.1111/1540-5915.02326

Bunderson, J., & Sutcliffe, K. (2002). Comparing alternative conceptualizations of functional diversity in management teams: process and performance effects. *Academy of Management Journal*, *45*, 875-893. DOI: 10.5465/3069319

Burke, M., Finkelstein, L., & Dusig, M. (1999). On average deviation indices for estimating interrater agreement. *Organisational Research Methods*, *2*(1), 49–68. DOI: 10.1177/109442819921004

Campion, M., Medsker, G., & Higgs, A. (1993). Relations between work group characteristics and effectiveness: Implications for designing effective work groups. *Personnel Psychology*, *46*(4), 823-847. DOI: 10.1111/j.1744-6570.1993.tb01571.x

Chan, C., Lim, L., & Keasberry, S. (2003). Examining the linkages between Team Learning Behaviors and Team Performance. *The Learning Organisations*, *10*(4), 228-236. DOI: 10.1108/09696470310476990

Chan, C., Pearson, C. & Entrekin, L. (2003b). Examining the effects of internal and external team learning on team performance. *Team Performance Management*, *9* (7/8), 174-181. DOI: 10.1108/13527590310507426

Cohen, S., & Bailey, D. (1997). What makes teams work: group effectiveness research from the shop floor to the executive suite. *Journal of Management*, *23*(3), 239-290. DOI: 10.1177/014920639702300303

De Dreu, C. (2007). Cooperative outcome interdependence, task reflexivity, and Team Effectiveness: A motivated information processing perspective. *Journal of Applied Psychology, 92*(3), 628-638. DOI: 10.1037/0021-9010.92.3.628

Dias, A., I., T. (2017). *Liderança transformacional e Eficácia grupal: o papel mediador da Coesão grupal* (Unpublished master's thesis). Faculdade de Psicologia e de Ciências da Educação, Universidade de Coimbra, Portugal.

Dimas, I., Rocha, H., Rebelo, T., & Lourenço, P. R. (2016). A Nonlinear Multicriteria Model for Team Effectiveness. In O. Gervasi, B. Murgante, S. Misra, A. M. Rocha, C. M. Torre, D. Taniar, B. O. Apduhan, E. Stankova, & S. Wang (Eds.), *Computational Science and Its Applications - ICCSA 2016, Part IV* (pp. 595-609). Cham, Switzerland: Springer. DOI: 10.1007/978-3-319-42089-9

Dimas, I., Alves, M., Lourenço, P.R., & Rebelo, T. (2016b). *Equipas de trabalho – instrumentos de avaliação*. Lisboa: Edições Sílabo.

Dougherty, D. (1992). Interpretive barriers to successful product innovation in large firms. *Organisation Science, 3*, 179-202. DOI: 10.1287/orsc.3.2.179

Drach-Zahavy, A., & Somech, A. (2001). Understanding team innovation: The role of team processes and structures. *Group Dynamics: Theory, Research, and Practice*, *5*, 111–123. DOI: 10.1037/1089-2699.5.2.111

Druskat, V., & Kayes, D. (2000). Learning versus performance in short-term project teams. *Small Group Research, 31*(3), 328-353. DOI: 10.1177/104649640003100304

Edmondson, A. (1999). Psychological safety and learning behavior in work team. *Administrative Science Quarterly*, *44*(2), 350-383. DOI: 10.2307/2666999

Edmondson, A. (2003). Speaking up in the operating room: How team leaders promote learning in interdisciplinary action teams. *Journal of Management Studies, 40*(6), 1419-1452. DOI: 10.1111/1467-6486.00386

Edmondson, A., Dillon, J., & Roloff, K. (2007). Three perspectives on team learning: Outcome improvement, task mastery and group process. In A. P. Brief & J. P. Walsh (Eds.), *The Academy of Management Annals* (pp. 269-314). Hillsdale, NJ: Psychology Press.

Ellis, A., Hollenbeck, J., Ilgen, D., Porter, C., West, B., & Moon, H. (2003). Team learning: Collectively connecting the dots. *Journal of Applied Psychology, 88*(5), 821-835. DOI: 10.1037/0021-9010.88.5.821

George, J.M., & Bettenhausen, K. (1990). Understanding prosocial behaviour, sales performance, and turnover: a group-level analysis in a service context. *Journal of Applied Psychology*, *75*(6), 698-709. DOI: 10.1037/0021-9010.75.6.698

Gibson, C., & Vermeulen, F. (2003). A healthy divide: subgroups as a stimulus for team learning behavior. *Administrative Science Quarterly*, *48*(2), 202-239. DOI: 10.2307/3556657

Graham, J., & Hofer, S. (2000). Multiple imputation in multivariate research. In T. Little, K. Schnabel, & J. Baumert, (Eds.), *Modeling longitudinal and multilevel data: Practical issues, applied approaches, and specific examples* (pp. 201-218). Mahwah, NJ: Lawrence Erlbaum.

Hackman. J. R. (1987). The design of work teams. In Lorsch, J. W. (Ed.), *Handbook of organisational behavior.* Englewood Cliffs, NJ: Prentice-Hall.

Hayes, A.F. (2013). *Introduction to mediation, moderation, and conditional process analysis: A regression-based approach* (1st Edition). New York: Guilford Press.

Heaney, C., Price, R., & Rafferty, J. (1995). Increasing coping resources at work: A field experiment to increase social support, improve work team functioning, and enhance employee mental health. *Journal of Organisational Behavior, 16*(4), 335-352. DOI: 10.1002/job.4030160405

INCM. (n.d.). Lei 7/2009, 2009-02-12. Retrieved from https://dre.pt/web/guest/pesquisa/-/search/602073/details/maximized

Ilgen, D. (1999). Teams embedded in organisations. *American Psychological Association*, *24*(2), 129-139. DOI: 10.1037/0003-066X.54.2.129

Ilgen, D., Hollenbeck, J., Johnson, M., & Jundt, D. (2005). Teams in organisations: From input-process-output models to IMOI models. *Annual Review of Psychology*, *56*, 517-543. DOI: 10.1146/annurev.psych.56.091103.070250

Jacobs, D., & Singell, L. (1993). Leadership and organizational performance: isolating links between managers and collective success. *Social Science Research*, *22*(2), 165-189. DOI: 10.1006/ssre.1993.1008

Janz, B., Colquitt, J., & Noe, R. (1997). Knowledge worker Team Effectiveness: the role of autonomy, interdependence, team development, and contextual support variables. *Personnel Psychology*, *50*, 877-904. DOI: 10.1111/j.1744-6570.1997.tb01486.x

Kayes, D., & Burnett, G. (2006, March). *Team learning in organisations: A review and integration*. Paper presented at the OLKC 2006 Conference, University of Warwick, UK.

Kerlinger, F. N. (1986). *Foundations of behavioural research* (3rd ed.). New York: Holt, Rinehart & Winston.

Klein, H., & Mulvey, P. (1995). Two investigations of the relationships among group goals, goal commitment, cohesion and performance. *Organisational Behavior and Human Decision Processes, 61*(1), 44-53. DOI: 10.1006/obhd.1995.1004

Klein, K., & Kozlowski, S. (2000). *Multilevel theory, research, and methods in organisations: Foundations, extensions, and new directions.* San Francisco: Jossey-Bass.

Koning, L., & van Kleef, G. (2015). How leaders' emotional displays shape followers' organisational citizenship behavior. *The Leadership Quarterly, 26*(4), 489-501. DOI: 10.1016/j.leaqua.2015.03.001

Kozlowski, S., & Bell, B. (2003). Work groups and teams in organisations. In W. Borman D. Ilgen, & R. Klimoski (Eds), *Handbook of psychology (Vol. 12): Industrial and Organisational Psychology* (pp. 333-375). New York: Wiley.

Kozlowski, S., & Hattrup, K. (1992). A disagreement about within-group agreement: Disentangling issues of consistency versus consensus. *Journal of Applied Psychology*, *77*, 161–167. DOI: 10.1037/0021-9010.77.2.161

Kozlowski, S., & Ilgen, D. (2006). Enhancing the effectiveness of work groups and teams. *Psychological Science in the Public Interest*, *7*(3), 77-124. DOI: 10.1111/j.1529-1006.2006.00030.x

Lemon, M., & Sahota, P. (2004). Organisational culture as a knowledge repository for increased innovative capacity. *Technovation*, *24*(6), 483-498. DOI: 10.1016/S0166-4972(02)00102-5

MacKenzie, S., Podsakoff, P., & Fetter, R. (1993). The impact of organisational citizenship behavior on evaluations of salesperson performance. *Journal of Marketing*, *57*(1), 70-80. DOI: 10.2307/1252058

Maia, P. (2016). *Organisational climate and Team Effectiveness: the mediating role of team learning behaviors*.(Unpublished master's thesis). Faculdade de Psicologia e de Ciências da Educação, Coimbra, Portugal.

Martin, J. (2005). *Organisational behaviour and management*. London: Thomson Learning.

Martins, A. (2016). *Liderança transformacional e eficácia grupal: o papel mediador da autonomia grupal* (Unpublished master's thesis). Faculdade de Psicologia e de Ciências da Educação, Coimbra, Portugal.

Mathieu, J., Maynard, M., Rapp, T., & Gilson, L. (2008). Team Effectiveness 1997-2007: a review of recent advancements and a glimpse into the future. *Journal of Management, 34*(3), 410-476. DOI: 10.1177/0149206308316061

Mohammed, S., & Angell, L. (2004). Surface-and-deep-level diversity in workgroups: examining the moderating effects of team orientation and team process on relationship conflict. *Journal of Organisational Behavior, 25*(8), 1015-1039. DOI: 10.1002/job.293

Órtega, A., Sánchez-Manzanares, M., Gil, F., & Rico, R. (2010). The role of beliefs about interpersonal context. *The Spanish Journal of Psychology, 13*(1), 267-276. DOI: 10.1111/j.1365-2648.2012.05996.x

Paolucci, N. (2016). *Transformational leadership and Team Effectiveness: the mediation role of effective team commitment* (Unpublished master's thesis). Faculdade de Psicologia e de Ciências da Educação, Universidade de Coimbra, Portugal.

Pessoa, C. (2016). *Liderança transformacional e eficácia grupal: o papel mediador da resiliência e dos comportamentos de suporte* (Unpublished master's thesis). Faculdade de Psicologia e Ciências da Educação, Coimbra, Portugal.

Pinho, D. F. R. (2017). *Conflitos grupais e Eficácia grupal: o papel mediador da Confiança grupal* (Unpublished master's thesis). Faculdade de Psicologia e de Ciências da Educação, Universidade de Coimbra, Portugal.

Pisano, G., Bohmer, R., & Edmondson, A. (2001). Organisational differences in rates of learning: Evidence from the adoption of minimally invasive cardiac surgery. *Management Science, 47*(6), 752-768. DOI: 10.1287/mnsc.47.6.752.9811

Podsakoff, P., & MacKenzie, S. (1997). Impact of organisational citizenship behavior on organisational performance: a review and suggestions for future research. *Human Performance, 10*(2), 133-151. DOI: 10.1207/S15327043hup1002_5

Podsakoff, P., MacKenzie, S., Lee, J., Podsakoff, N. (2003). Common method biases in behavioural research: a critical review of the literature and recommended remedies. *Journal of Applied Psuchology, 88*(5), 879-903. DOI: 10.1037/0021-9010.88.5.879

Raes, E., Boon, A., Kyndt, E., & Dochy, F. (2015). Measuring Team Learning Behaviours through observing verbal team interaction. *Journal of Workplace Learning, 27*(7), 476-500. DOI: 10.1108/JWL-01-2015-0006

Rico, R., Hera, C., & Tabernero, C. (2011). Work Team Effectiveness, a review of research from the last decade (1999-2009). *Psychology in Spain, 15*(1), 57-79.

Rousseau, V., & Aubé, C. (2010). Team self-managing behaviors and Team Effectiveness: The moderating effect of task routineness. *Group & Organisation Management, 35*(6), 751-781. DOI: 10.1177/1059601110390835

Rousseau, V., Aubé, C., & Savoie, A. (2006). Teamwork behaviors: a review and an integration of frameworks. *Small Group Research*, *37*(5), 540-570. DOI: 10.1177/1046496406293125

Rousseau, V., Aubé, C., & Tremblay, S. (2013). Team coaching and innovation in work teams: An examination of the motivational and behavioral intervening mechanisms. *Leadership & Organisation Development Journal, 34*(4), 344-364. DOI: 10.1108/LODJ-08-2011-0073

Salas, E., Stagl, K., & Burke, S. (2004). 25 years of Team Effectiveness in organisations: research themes & emerging needs. In C. Cooper & I. Robertson (Eds.), *International Review of Industrial and Organisational Psychology*: *Vol. 19* (pp. 47-91). Chichester: John Wiley & Sons.

Savelsbergh, C., van der Heijden, B., & Poell, R. (2009). The development and empirical validation of a multidimensional measurement instrument for team learning behaviors. *Small Group Research*, *40*(5), 578-607. DOI: 10.1177/1046496409340055

Savoie, A., Larivière, C., & Brunet, L. (2006). Équipes de travail en milieu de santé et efficacité. *Objectif Prévention*, *29*(1), 20-21.

Shuffler, M., DiazGranados, D., & Salas, E. (2011). There's a science for that: team development interventions in organisations. *Current Directions in Psychological Science*, *20*(6), 365-372. DOI: 10.1177/0963721411422054

Sundin, L., Hochwälder, J., Bildt, C., & Lisspers, J. (2007). The relationship between different work-related sources of social support and burnout among registered and assistant nurses in Sweden: A questionnaire survey. *International Journal of Nursing Studies, 44*(5), 758-769. DOI: 10.1016/j.ijnurstu.2006.01.004

Tannenbaum, S. (1997). Enhancing continuous learning: Diagnostic findings from multiple companies. *Human Resource Management, 36*(4), 437-452.

Tardy, C. (1985). Social support measurement. *American Journal of Community Psychology*, *13*(2), 187-202. DOI: 10.1007/BF00905728

Tjosvold, D., Tang, M., & West, M. (2004). Reflexivity for team innovation in china - the contribution of goal interdependence. *Group & Organisation Management, 29*(5), 540-559. DOI: 10.1177/1059601103254911

van Beveren, P. Q. F. (2015). *Liderança transformacional e autonomia grupal: adaptação de instrumentos de medida* (Unpublished master's thesis). Faculdade de Psicologia e de Ciências da Educação, Universidade de Coimbra, Portugal.

van den Bossche, P., Gijselaers, W., Segers, M., & Kirschner P. (2006). Social and cognitive factors driving teamwork in collaborative learning environments. *Small Group Research. 37*(5)*,* 490-521. DOI: 10.1177/1046496406292938

van den Bossche, P., Gijselaers, W., Segers, M., Woltjer, G., & Kirschner P. (2011). Team learning: building shared mental models. *Instructional Science*, *39*(3), 283-301. DOI: 10.1007/s11251-010-9128-3

van Offenbeek, M. (2001). Processes and outcomes of team learning. *European Journal of Work and Organisational Psychology*, *10*(3), 303-317. DOI: 10.1080/13594320143000690

Walter, F., & van der Vegt, G. (2013). Harnessing members' positive mood for team-directed learning behaviour and team innovation: the moderating role of perceived team feedback. *European Journal of Work and Organisational Psychology*, *22*(2), 235-248. DOI: 10.1080/1359432X.2012.660748

Widmann, A., Messmann, G., & Mulder, R. (2016). The impact of team learning behaviors on team innovative work behaviour: a systematic review. *Human Resource Development Review*, *15*(4), 429-458. DOI: 10.1177/1534484316673713

Wong, S.S. (2004). Distal and local group learning: Performance trade-offs and tensions. *Organisation Science*, *15*(6), 645-656. DOI: 10.1287/orsc.1040.0080