



**Erasmus Mundus Joint Master's Degree in Work, Organizational and
Personnel Psychology**

Affective commitment and performance in work teams: the mediating role
of team learning

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Abstract

The positive effects of team affective commitment in team's results, namely its performance are reported in literature, which also suggests that it facilitates team processes, such as team learning. Moreover, several research studies have shown positive relationships between team learning and team performance. Considering these relationships, the present study aims to expand the literature on group functioning analyzing the direct and indirect relationships between team affective commitment and team performance, considering team learning as an intervening variable. Therefore, in a sample composed of 124 work teams from 82 portuguese organizations, using the data questionnaire survey to collect the data, a mediation model including group affective commitment as the input variable, team performance as the output variable and team learning as mediating variable was tested. The mediation regression analysis revealed a partial mediation of team learning in the relationship between team affective commitment and team performance. These results support the hypotheses formulated based on the IMOI model, presenting empirical evidence for the importance of team commitment and team learning on team performance, highlighting that team commitment is associated directly to team performance and also indirectly, via team learning. Therefore, our study contributes to the literature on group functioning and brings relevant practical implications regarding managing teams in organizations.

I - Introduction

In modern day organizations, work teams¹ are presented as the main base of the organizational structure (Paolucci et al., 2018). Working in groups offers different perspectives, more resources, and more expertise potentially outperforming individuals in high demanding decision making and problem solving tasks (Bouwman et al., 2017b). Organizations are shifting to a structure of work based on teams and workgroups to perform more rapidly, flexibly, and adaptively (Paolucci et al., 2017), as teams embody the empowerment of swift and adaptive responses to the technological, economic, and political pressures faced by modern organizations (Bell et al., 2012).

According to Sundstrom et al. (2000), work teams refers to a group of individuals who share responsibility for common outcomes inside an organization. In order to have a team we need some kind of shared goal and interdependence as a compulsory factor (Mathieu et al., 2013). It is through the interdependency and the assimilation of individual efforts in the achievement of a shared goal that teams shape the core structures of teamwork (Mathieu et al., 2017). Over the years, teams research has shown that the psychological attachment between team members is a predictor of work-related attitudes and behaviours (Ricketta & Van Dick, 2005). Indeed, team members spend the greater part of their organization involvement working with their team (Neininger, 2010), and tend to exhibit a stronger commitment towards their team in comparison to the organization, since teams demonstrate a more meaningful direct impact on their members (Ricketta & Van Dick, 2005).

At group level, according to Bishop and Scott (2000), commitment can be defined as the strength of a team member's identification and involvement with his/her team. Likewise,

¹ Following previous studies (e.g., Lourenço et al., 2014; Mathieu et al., 2017), the terms group and team will be used in an undifferentiated way throughout this paper.

commitment can be treated as an emergent state² and operate as an important factor among team and organizational predictors of success (Gilson et al., 2015). Team affective commitment indicates the psychological attachment team members experience in relation to the team (Pearce & Herbig, 2004). Various authors have been reporting affective commitment as the commitment dimension having the strongest and most consistent relation to positive team outcomes among the dimensions of commitment, (Allen & Meyer, 1990; Leung et al., 2008; Neining, 2010). In fact, group research has identified throughout the literature relationships between this dimension of commitment and positive effects in team results, such as team performance (e.g., Allen & Meyer, 1990; Neining, 2010).

Moreover, it is reported a positive relationship between group commitment and team learning processes, suggesting that through the contribution of knowledge sharing among team members, group commitment facilitates team learning, which can be defined as the process of team interaction activities through which individuals acquire, and share knowledge (Edmondson, 1999). Team learning is a process that has been analysed as a fundamental process through which teams develop their performance skills, readjust to change as a team, and sustain and reestablish their performance over time (Bell et al., 2012). Indeed, it is reported a positive relationship between team learning and team performance suggesting a vast potential for improving team performance through behaviors of reflective learning and sharing of knowledge, emphasizing its relationship to effective team management (Chan et al., 2003).

Although different meta-analyses (e.g., Mathieu & Zajac 1990, Nellen et al., 2019, Riketta, 2002), over the last decades, have been reporting associations between group affective commitment and team related outcomes, according to several authors (e.g., Neining, 2010; Nellen et al., 2019; Riketta & Van Dick, 2005), research focused on those associations are still

² According to Marks et al. (2001), emergent states “describe cognitive, motivational, and affective states of teams, as opposed to the nature of their member interaction” (p.357). These authors refer to emergent states as dynamic constructs that vary as a function of team contexts, inputs, processes, and results. They differ from group processes which refer to interactions between team members.

required, namely with the aim of identifying more robust links. Thus, this paper can be included in that research line since it focuses on affective commitment, analysing the direct and indirect relationship between team affective commitment and group performance, considering team learning as an intervening variable in that relationship.

This study adopted as a framework the Input Mediator Output (IMOI) model (Ilgen et al., 2005; Mathieu et al., 2008), which reflects the mediational influences of the variables (team processes and team emergent states) that are important to conceive teams as a dynamic and adaptative system (Ilgen et al., 2005). Based on the presented literature, this model was used to analyse the mediating role of team learning in the relationship between group affective commitment and group performance. Therefore, this research analyses the direct and indirect relationships (via team learning) of team affective commitment with team performance. In the proposed model, as illustrated in Figure 1, team affective commitment is presented as an input variable, team learning as a mediator variable and team performance as an output variable.

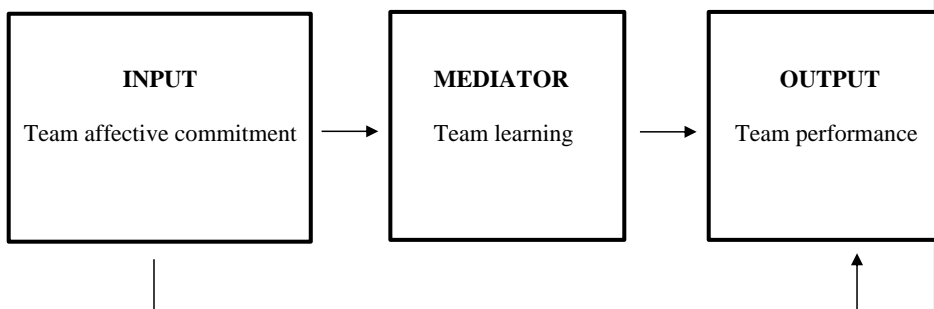


Figure 1. Model under analysis

To achieve these goals, first the state of art will be presented with the theoretical framework, conceptualizing the variables studied, going through the relationships between

Comentado [a1]: Houve algum motivo em especial para não incluir o ciclo de feedback contínuo?

Comentado [PRL2R1]: O seu estudo foi um estudo cross-sectional (e não longitudinal). Em vez de IMOI, poderia ter usado o modelo geral IPO. No entanto, embora o seu mediador seja um processo (e não um estado emergente) o modelo ao referir-se a Mediadores (e não a Processos, como o IPO) está mais de acordo com a literatura atual (que desde 2001, com o trabalho de Marks et al, distingue, entre os mediadores, Processos e Estados Emergentes), sendo também mais referido/citado na atual literatura da especialidade.

Comentado [a3]: Questão sobre as limitações deste modelo, e quais as implicações que podem ter nos resultados finais. Sendo que a fundamentação seria baseada nos argumentos apresentados nas limitações e na possibilidade de complementar estes resultados com outros modelos de investigação

Comentado [PRL4R3]: Não percebi esta sua dúvida. Mas, mais do que limitação do modelo IMOI, quando muito pode afirmar-se que o seu estudo, pelas características/design cross-sectional, não aproveita todo o potencial do modelo.

them and presenting the research hypotheses. Secondly, it will be presented the empiric study, explaining the methods and results. Finally, the discussion of the results, the main conclusions, limitations and suggestions for future studies will be presented.

II - State of art

1 - Team affective commitment and Team performance

The basics of organizational commitment have been frequently analysed as an essential variable throughout various studies in understanding the work behaviour of organizational members (Mowday et al., 1979). Over the past years, organizational commitment has been broadly studied, and associated with various organizational outcomes, such as turnover, absenteeism, and performance (Chandrahaas & Narasimhan, 2022). Affective commitment is defined by the affective attachment to an employee's role associated with the values and goals of a group aside from its instrumental worth (Mowday et al., 1979), and has shown to play a crucial role in the overall group managing process (Leung et al., 2008). In addition, research also indicates that affective dimension is the most frequently studied dimension of commitment, showing to have the strongest positive correlations with team related outcome measures (Allen & Meyer, 1990; Meyer & Herscovitch, 2001; Paolucci et al., 2018).

At a group level, affective commitment refers to the team's commitment dimension that indicates a strong emotional connection, high involvement and identification with the goals and values of the team, as well as the desire to continue being a part of it (Allen & Meyer, 1990). According to Paolucci et al. (2018) employees that affectively commit to their teams are more willing to engage in proactive behaviours seeking to improve the team in terms of products and processes. This behaviour supports and encourages the experience of positive social relationships between team members and promotes the collective responsibility for the team's performance and the commitment to the group (Bouwman et al., 2017b).

In fact, team affective commitment has shown to anticipate and influence team members' efforts in behaviours associated with enhanced team performance (Buvik & Tvedt, 2017). Many studies have evidenced the positive relationships between team affective commitment and team outcomes such as a decrease in the tendency to turnover and an increase in the team's performance (e.g., Allen & Meyer, 1990; Bouwmans et al., 2017b; Leung et al., 2008; Neining, 2010; Paolucci et al. 2018). It is expected that employees with strong affective commitment will remain a part of the team because they want to (Allen & Meyer, 1990). In the same way, the members with high identification with the goals and values of the team will remain in the team with the purpose that one may contribute to the team's goals (Neining, 2010).

Furthermore, it is reported throughout the literature an increase in the number of research focusing on the relevance of adjustments to team processes and emergent states in their relationship with team outcomes such as team performance (Abrantes et al., 2018). Mohammed and Nadkarni (2014), state that emergent states do not represent a unitary concept and are characterized by a dynamic nature that encompasses overlapping and differentiated knowledge that can predict team processes and performance through a multidimensional approach. As team effectiveness advocates a multilevel, multi constituencies framework, there is a need to understand how these constituencies can be representative of changes in team processes and outcomes, to integrate work attitudes and emergent states in the gauging of the group level performance (Mathieu, et al, 2017). According to Devine and Philips (2010), team performance can be overall defined as the extent to which a team accomplishes its goal or mission. When teams are committed to achieving common goals, they tend to push their members to set up and preserve positive relations inside the team, satisfying rather than frustrating their individual needs (Omar & Ahmad, 2014). This active thinking and communicating between team members about team's results has been supported by previous

research to have a positive influence in the team performance (Schippers et al., 2013). When team members are identified with the team and/or team work plans they are expected to perceive themselves as responsible for the overall team outcomes in addition to their own performance (Buvik & Tvedt, 2017). Thus, affective attachment determines positive contributions to team performance, as it is expected to positively affect intrinsic satisfaction, and promote positive relationships with other team members in order to contribute to shared goals (Omar & Ahmad, 2014). In this way, the expected positive relationship between team affective commitment and team performance were conceptually formulated in the first hypothesis, proposing that:

H1: Team affective commitment is positively related to team performance.

2 - The mediating role of team learning in the relationship between affective commitment and team performance

Team learning has been recognized as an important variable in explaining how teams learn to work together effectively and how they operate in the dynamic and flexible nature of the modern organizational environment (Decuyper et al., 2010). Learning at a group level consists of a continuous process of reflection and action, characterized by asking questions, seeking feedback, experimenting, reflecting on results and discussing errors or unexpected action results (Edmonson, 1999). As today's organizational environment is increasingly becoming more dynamic and complex, these demands create the need for learning to go beyond the capability of an individual, shifting organizations to become progressively more reliant on teams, and on the ability to learn as competitive advantage in today's competitive business world (Wiese et al., 2021). Therefore, since in the modern organizational environment, teams are the leading learning unit, team learning is fundamental in present day organizations (Decuyper et al., 2010).

It is important to notice that all team members both influence and are influenced by the team learning process of other teammates (Bell et al., 2012). Team learning is a process of building shared knowledge on adjustments made to the team work plans by sharing information and ideas with team members and questioning, discussing, and concretizing this shared information (Bouwman et al., 2017a). This is a complex and interactive process about changing shared mental models and analysing potential behaviour changes among the group (Bell et al., 2012; Decuyper et al., 2010). Teams shape the individual learning process through the process of sharing, exchanging, and transmitting individually acquired knowledge, collectively throughout team processes (Bell et al., 2012). To identify inconsistencies in the team processes and to make changes according to group objectives and strategies, team members need to evaluate assumptions and openly discuss differences of opinion within the team, in opposition to dealing with these issues privately or outside the group (Edmondson, 1999).

Over the years, many studies have been reporting positive effects of team learning on team performance (e.g., Bouwman et al., 2017a; Chan et al., 2003; Ellis et al., 2003; Van der Vegt & Bunderson, 2005; Rebelo et al., 2018; Wiese et al., 2021). Since team learning is a process that results from interactions and outcome related activities such as the sharing of knowledge, skills, and performance capabilities, teams need to be motivated and susceptible to discussion and questioning team work plans, in order to efficiently work towards team goals and solve problems in real time to find better solutions as a team (Rebelo et al., 2018).

Regarding the relationships between team learning and team affective commitment, some studies analysed team affective commitment as a mediator or as moderator in the relationships between team learning and team performance (e.g., Buvik & Tvedt, 2017; Dayan, 2010). However, we can also find literature describing team affective commitment as an antecedent of team learning which, in turn, is related to team performance (e.g., Allen & Meyer,

1990; Atak, 2011; Bouwmans et al., 2017a; Meyer & Allen, 1991; Schippers et al., 2012). Indeed, by its nature, team members that are committed to their team goals and values, are expected to engage in more beneficial behaviours to the team (Pearce & Herbik, 2004), such as team learning behaviours. In this regard, Nellen et al. (2019), in their meta-analysis refer that team learning behaviors and emergent states (such as team affective commitment) interacts and reinforces each other over time. These authors also refer that organizations can influence emergent states to support team learning. Indeed, team oriented attitudes related to affective commitment have been positively associated with more engagement in team learning throughout various researches (Allen & Meyer, 1990; Allen & Meyer, 1991; Bouwmans et al., 2017b; Neining et al., 2010;). When team members experience positive affective states in team related activities and interactions, they express predisposition to make extra efforts into improving their team. Thus, individuals shown to demonstrate higher commitment to the team are expected to exhibit more engagement in team learning activities (Bouwmans et al, 2017b).

Atak (2011) states that it is through members' commitment that teams manage continuous learning. Team learning can be perceived as a knowledge integrator through the evaluation and integration of portions of individual knowledge inside the group (Zhang & Min, 2019). Indeed, teams become a learning unit on behalf of their members and their member's knowledge, involvement, and propensity for work (Atak, 2011). According to Dayan (2010), the psychological feeling of ownership to the team that makes team members attached to shared goals is heightened among highly committed members, as highly committed team members are more willing to individually contribute to their team. Thus, to become a learning unit, teams require committed individuals who combine their emotional, intellectual, and physical energy for the achievement of common goals, as without commitment, teams cannot engage in team learning activities (Atak, 2011).

In this way, team affective commitment can be analysed as an antecedent of team learning. Since, as aforementioned, team learning is an antecedent of team performance, we can expect that team learning plays a mediator role between team affective commitment and team performance. Following this theoretical rationale, and based on the previous literature presented on the relationships between these variables, the following hypotheses are proposed:

H2: Team affective commitment is positively related to team learning.

H3: Team learning is positively related to team performance.

H4: Team Learning positively mediates the relationship between Team affective commitment and team performance.

III - Method

1 - Sample

Sample data was collected by our research team between 2017 and 2020 through the convenience sample method, based on the use of a network of formal or informal relationships of the researchers (Hill & Hill, 2012). All teams are formal groups, from organizations operating in Portugal from different sectors of activity, namely industrial (15.8%), associative (21.7%), commercial and services (62.5%), being that small organizations (up to 10 collaborators) are the most represented in this sample (30.6%). The process of selecting teams to include in the sample had as criterion the group definition adopted by our research team. In other words, the teams selected had to be constituted by a minimum of three individuals, which are perceived by themselves and are perceived by others as a team, and who interact regularly and in an interdependent way to accomplish a common goal (Lourenço et al., 2014).

As an additional criterion, the leader of those teams had to be formally recognized.

The sample is composed by 124 work teams, and questionnaires were administered to 124 leaders and 554 members from 83 organizations. These teams are from different areas of

activity: services (38.3%); commercial (18.3%); project (8.3%); administrative (5.8%); production (3.3%); management (3.3%) and still others without specification (22.5%). Teams size ranged from 3 to 22 elements, with an average of 6 elements per team ($SD = 3.96$).

The average of team tenure varies between 3 months and 46 years and 3 months, with an average of approximately 8 years ($SD = 8.81$). Team leaders aged between 18 and 67 years ($M = 42.37$; $SD = 11.38$), being mostly male (58.3%). Regarding education level, most leaders had a university degree (58.7%). The leadership tenure of the team leaders in their teams ranges between 1 month and 27 years, and on average they assumed a leadership role in their teams for approximately 6 years ($SD = 6.66$). Team members aged between 17 and 67 years ($M = 35.83$; $SD = 11.61$), being mostly females (59.9%). Regarding educational level, the highest percentage of members had a university degree 41.6%. The members team tenure varies from 1 month to 43 years and 5 months with an average of 5.23 years ($SD = 6.42$), and the team members tenure in the organization ranges approximately between 1 month and 50 years ($M = 9.30$; $SD = 10.02$).

2 - Procedure

The data collection technique used was the questionnaire survey. In order to collect the data, the first contact was established, in person and/or via e-mail, with the representatives of the organizations that corresponded to the needed requirements to be an integral part of the present study. Further, for the organizations that agreed to collaborate on the research project, its main objectives and the team responsible for carrying out the studies were presented. The role of the organization and participants, as well as of the team research, including rights and obligations were also presented. Furthermore, the team research explained the variables under analysis, the collecting method of information and the expected time required for fulfillment of the questionnaires.

Data were collected using both paper and online surveys. The questionnaires answered in person were prioritized and assigned with the presence of a member of the research team to clarify any possible questions or doubts. However, when these conditions were not possible, questionnaires were answered through their online version. In these cases, the team leader was asked to distribute and collect the questionnaires filled out by the members of the respective group.

All ethical procedures of psychological research were assured in both cases, namely by the informed consent from all the participants, along with the assurance of anonymity and confidentiality. Furthermore, it should be noted that all the data obtained were analysed at the group level, and therefore no individual results were used in this study.

3 - Measures

Different kinds of questionnaires were administered to the members of working groups and their respective leaders. Leaders provided the information related to team learning and team performance (cf. Appendix 1). Team members provided the information regarding team affective commitment (cf. Appendix 2).

Questionnaires also include a part regarding demographic data, such as age, gender, education level, seniority in the team and in the organization, team size, and organization and team sector of activity. In addition, it should be noted that all scales have been applied in their Portuguese version.

1) Team affective commitment: In order to measure this variable, we used the four item scale proposed by Batarseh et al. (2017), based on the work of Hand and Harms, who adapted to the group level the instrument of Allen and Meyer's (1990) affective commitment scale. As for the reliability, the internal consistency analysis presented a Cronbach alpha value of .90.

The Portuguese version was developed by our research team (cf. Bastos, 2018; Campelo, 2018), and it is composed by the following items: "Members have a strong feeling of belonging to the team"; "The members feel the problems of the team as their own"; "Members feel emotionally attached to the team" and "The team members feel like being part of the same family". Each item was scored by team members on a 5-point Likert-type scale (from 1 - Totally disagree to 5 - Totally agree). The adaptation studies regarding the dimensionality and the reliability of the scale pointed to good psychometric qualities. Further, in terms of dimensionality, in these studies, based on an Exploratory Factor Analysis using the Principal Axis Factorization (PAF) method, emerged a one-dimensional structure, explaining 59.41% of the variance. As for the internal consistency, the internal consistency analysis pointed to a Cronbach alpha value of .85.

2) Team learning: This variable was measured through the portuguese version of the Team Learning Behaviours scale by Edmondson (1999) and adapted to the Portuguese language by Rebelo et al. (2018). This version consists of a seven items scale scored by team leaders on a 5 point Likert-type scale, ranging from 1 - Almost never happens to 5 - Almost always happens. A sample item is: This team [...] "actively monitors its progress and performance". In the portuguese adaptation, Rebelo et al. (2018) in order to study the dimensionality of the scale, conducted a Principal Component Analysis (PCA), pointing to an explanatory one-dimensional solution explaining 52.33% of total variance, with four of the seven original items. Reliability was tested with a Cronbach's alpha of .69.

3) Team performance: This construct was measured by the team performance evaluation scale - II by Dimas and Lourenço (2015). This scale is used to measure the quality and quantity of work developed by work teams based on the leader's perspective. The scale is composed of ten items referring to various aspects related to a team's performance, such as: "Capacity to approach problems adequately" and "Strategy definition considering the reach of

established goals”. The scale is scored on a 10 point Likert-type scale ranging from 1 - poor to 10 - excellent. Regarding the research done by Dimas and Lourenço (2015), the dimensionality was studied through a Principal Component Analysis (PCA) method, pointing to a one-dimensional structure, explaining 54.6% of the total variance. As for the internal consistency, Dimas and Lourenço (2015) obtained a Cronbach’s alpha of .88, revealing that the scale has adequate reliability.

4) Since several studies show that team size affects group emergent processes/states and team outcomes (e.g., Hülsheger et al., 2009; Rebelo et al., 2018), team size was included as a control variable. Team size was obtained by asking team leaders about the number of members in their teams.

4 - Data analysis procedures

First, the psychometric qualities of the scales were evaluated³. Since the three scales used in the present research have previous studies showing evidence of validity in similar samples, presenting good psychometric qualities, we only analysed the reliability through Cronbach’s alpha estimation.

Secondly, since this research is at the group level, the data of team affective commitment was aggregated for the team level because it has been collected at individual level. As a way to justify the aggregation, the values of rwg were calculated (James, Demaree & Wolf, 1984), as well as the values of Intraclass Correlation Coefficients ICC (1) and ICC (2) (Bliese, 2000). In order to perform these indicators, the Excel 2007 Tool for Computing Interrater Agreement (IRA) & Interrater Reliability (IRR) Estimates for Consensus Composition Constructs, prepared by Biemann and Cole in 2014 and designed to complement the work published by Biemann et al. (2012) was used.

³ The analysis of the psychometric qualities of the instruments, as well as the assumptions of the regression analysis were made using IBM SPSS (version 25.0).

Regarding the applications of interrater agreement indices for team affective commitment, it was used the uniform null distribution, as no response biases are expected (Smith-Crowie et al., 2014), and no theory or other data are suggesting another null distribution (Cohen et al., 2009). The mean value for rwg was .89 ($SD = .15$) suggesting that the members' responses can be aggregated at group level, as the mean rwg value exceeds the .70 recommended value in the literature (e.g., Biemann et al., 2012). The values of Intraclass Correlation Coefficients obtained for team affective commitment were .33 for ICC (1), and .69 for ICC (2) which also were following the recommended conditions proposed by Bliese (2000).

In the following step of our analyses, the hypotheses H1, H2 and H3, were tested through a correlation analysis among the studied variables (team affective commitment, team learning and team performance). In the correlation analysis, the team size control variable was also included.

In the next phase, the test of the assumptions of the regression analysis technique, namely the absence of uni and multivariate outliers, absence of multicollinearity, normality, linearity, and homoscedasticity of residuals reported adequate results considering the recommendations of Tabachnick and Fidell (2007). Following these results, all cases and variables were included in the regression analysis.

Then, to test H4, a simple mediation using PROCESS (version 2.16.3) was carried out. PROCESS is a tool which allows the use of the bootstrapping method to construct 95% confidence intervals for the indirect effects (to this end, 5000 bootstrap estimates were used to construct the intervals). In simple mediation, the indirect effect is calculated as the product of coefficients from the independent variable to the mediator and from the mediator to the dependent variable. The indirect effect is statistically significant when zero is not included between the lower and upper bound of the 95% confidence intervals (Hayes, 2013).

IV - Results

1 - Psychometric qualities of measuring instruments

Regarding psychometric properties of the scales (team affective commitment, team learning and team performance), the reliability studies, namely the analysis of the internal consistency was conducted through the Cronbach's alpha estimation.

The team affective commitment scale obtained a Cronbach alpha value of .90, the scale of team learning a Cronbach alpha value of .67, and the team performance scale a Cronbach alpha value of .89. All the values pointed to adequate levels of internal consistency for all scales, according to the classification proposed by DeVellis (2017)

2 - Hypotheses testing

To test the hypotheses H1, H2 and H3, the correlations between team affective commitment, team learning, and the team performance were analyzed.

Table 1 reports the results of the correlation analysis and also the means and standard deviations of the variables under study. These results support Hypothesis 1, with team affective commitment presenting a significant positive correlation with team performance ($r = .41, p < .001$), supports Hypotheses 2, with team affective commitment presenting a significant, positive correlation with team learning ($r = .22, p = .016$), and supports Hypotheses 3, with team learning presenting a significant, positive correlation with team performance ($r = .40, p < .001$). The correlations of the variables under study present a magnitude between small and medium according to Cohen's (1988) specifications of effect size. The control variable was not correlated with the mediator (team learning) and with the criterion variable (team performance). Therefore, following Becker's (2005) recommendations, team size was dropped from the subsequent analysis regarding the H4 test.

Comentado [a5]: Questão relacionada com a possível integração dos resultados macro do process, já fundamentada no Retório final

Comentado [PRL6R5]: Esta já respondeu. Por isso, se voltarem a questionar, deve manter integralmente a sua resposta.

Table 1. Correlations, Means, and Standard Deviations of the variables under study

Variable	M	SD	1	2	3	4
1. Team affective commitment	3.83	0.55	-			
2. Team performance	7.67	0.99	.41***	-		
3. Team learning	3.66	0.64	.22*	.40***	-	
4. Team size	6.16	3.96	-.18*	-.17	-.02	-

Note. $N = 124$. * $p < .05$; *** $p < .001$

Hypothesis 4 stated that team learning would mediate the relationship between team affective commitment and team performance. This hypothesis was tested using the PROCESS macro in IBM SPSS (version 25), Model 4.

As we can observe in Table 2 Team affective commitment was significantly related to team learning ($a = .25$, $SE = .10$, $p = .016$), and explained 5% of the variance ($R^2 = .05$, $F(1, 122) = 6.025$, $p = .016$). Together team affective commitment and team learning explained 27% of the variance of team performance ($R^2 = .27$, $F(2, 121) = 22.267$, $p < .001$), and the relationship between team learning and team performance was significant after controlling for the effect of team commitment ($b = .51$, $SE = .12$, $p < .001$). Team affective commitment also revealed a statistically significant positive direct effect on team performance ($c' = .61$, $SE = .14$, $p < .001$) after controlling for team learning.

Furthermore, the bootstrapping method showed a bootstrap confidence interval that did not include the zero value, which pointed to a statistically significant indirect effect of team affective commitment on team performance via team learning ($a*b = .13$, $boot SE = 0.06$, 95% IC [.03, .28]). Considering the direct and the indirect effects (via team learning) of team affective commitment on team performance, the results pointed to a partial mediation of team

Comentado [a7]: Questão sobre a magnitude deste valor, que até poderia ser considerado como uma limitação.

Sendo que a sua fundamentação seria pelo racional lógico que é utilizado para justificar a mediação parcial

Comentado [PRL8R7]: Não tenho a certeza se o que está a dizer está adequado, mas se tem a certeza, ok. De qualquer modo, julgo que ninguém lhe vai perguntar isso.

learning in the relationships between team affective commitment and team performance. Therefore, the results support Hypothesis 4.

Table 2. Mediation regression analysis for model 4 PROCESS (Hypothesis 4)

Dependent Variable / Predictor	<i>b</i>	SE	95% CI		R ²
			LL	UL	
Team learning					.05*
<i>Team affective commitment</i>	.25*	.10	.05	.46	
Team performance					.27***
<i>Team learning</i>	.51***	.12	.27	.76	
<i>Team affective commitment</i>	.61***	.14	.32	.89	
Mediation regression effect	.13	.06	.03	.28	

Note. *N* = 124. *b* = non standardized regression. *SE* = standard error. CI = confidence intervals.

LL = lower limit. UL = upper limit

p* < .05 *; *p* < .001

V - Discussion

With the increasing emphasis of teams as the main base of organizational structure, this study aim was to expand the understanding of group functioning namely regarding the relationships between team affective commitment, team learning and team performance.

Affective commitment has been consistently highlighted throughout various studies as an essential variable in understanding the work behaviours of teams, being frequently associated with positive effects in team related outcomes (e.g., Allen & Meyer, 1990; Bouwmans et al., 2017a; Leung et al., 2008; Paolucci et al. 2018; Rapp et al., 2021).

Following previous research at group level on the relationships between emergent states, processes, and outcomes (e.g., Bouwmans et al., 2017a; Nellen et al., 2019; Neiningger, 2010), this study purpose was to test a simple mediation model to analyse the mediating role of team learning in the relationship between team affective commitment and team performance.

Our results support hypothesis 1 which states that team affective commitment is positively related to team performance. These results are in line with previous studies (e.g., Bouwmans et al., 2017a; Leung et al., 2008; Neiningger, 2010), which contribute to emphasize the relevance of group affective commitment in explaining changes in significant outcome variables of work teams such as team performance and reinforce the literature supporting the links between team emergent states and team outcomes. Indeed, research has been showing that team performance is generally improved when employees are affectively committed to their work groups (Leung et al, 2008). According to Neiningger (2010), not only team affective commitment has shown significant positive relationships with team performance, it has also shown to support the prediction of team-related processes and outcomes, as it promotes members identification with team goals and reduces turnover intentions. In this way, following Pearce and Herbick (2004) findings, if team members are committed to the goals of the group and show a high identification with the team, they are expected to engage in behaviours that would be valuable to the group.

Hypothesis 2 was also supported which means that, in our study, team affective commitment is positively related to team learning. As for H1, these results are in line with previous literature (e.g., Atak, 2011; Nellen et al., 2019; Schippers et al., 2012) and contributes to support the relationship between team affective commitment and team learning with empirical evidence which is still rather scarce in this field of research (Atak, 2011; Nellen, 2019). However, according to Nellen et al., 2019, in order to conceptualize which inputs are

effective at fostering team learning, we need to consider the effects that all inputs and mediators can have on team learning. We should take into consideration that effective team learning is not self-evident (Edmunson, 1999), team learning is treated as a multi-level phenomenon and is threatened by diversified barriers (Zhang & Min, 2019). As teams operate and learn in the context bounded by these inputs, this heightens the importance to identify which drivers, such as team affective commitment, enables individuals to create conditions for their teams to engage in team learning behaviours, and may have the potential to amplify team learning inside the group (Nellen et al., 2019). According to Atak (2011), it is through this affective commitment that teams become a learning unit, and in order to sustain continuous learning, they require individuals to combine their whole emotional and intellectual capacities towards the success of the team. Following this line of research, our results suggest that emergent states, namely affective emergent states, as team affective commitment, can be significant resources for teams to engage in team learning activities, contributing to a better understanding of team learning. Regarding the relationships between group affective commitment and team learning, Bouwmans et al. (2017a) state that affective emergent states foreshadow information processing, and that team members affectively committed to their group are more willing to share information with other team members. Thus, in line with previous literature, our results reinforce the relevance of team affective commitment for groups to engage in team learning activities, and for work teams to manage continuous learning.

Regarding the hypothesis 3, the positive effects of team learning in team performance has been vastly reported throughout the studies we can find in the literature (e.g., Chan et al., 2003; Ellis et al., 2003; Rebelo et al., 2018; Van der Vegt & Bunderson, 2005). According to Chan et al. (2003), continual inquiries into work process and sharing of knowledge among work teams enhances the potential for improving team performance. Our results also converge with these findings showing a significant association between team learning and team

performance, thus supporting Hypothesis 3. These results support the positive influence of team learning mechanisms for teams to develop their performance capabilities (Bell et al., 2010). Hence, team learning can be seen as a fundamental iterative process to sustain the achievement of team goals (Edmunson, 1999), and therefore we can expect that these processes facilitate groups to improve and maintain their performance.

Furthermore, the results from the relationships studied show that there is statistical evidence to support that team affective commitment is related to team performance, both directly and indirectly (via team learning), supporting hypothesis 4. Team members' affective emergent states implies that members establish an emotional attachment with the team, identify with it, and value their team participation (Bouwman et al, 2017b). In the same way this result emphasizes the role played by team learning (as a mediator) in the relationship between team affective commitment and team performance. Based on previous research in the field of team research (e.g., Bouwman et al., 2017a; Chan et al., 2003; Leung et al., 2008; Neininger, 2010; Nellen et al., 2019), our findings support that highly committed groups are willing to participate more in team learning processes, which, in turn, is related to team performance. However, since we found a partial mediation, it is important to notice that our results also suggest that higher levels of team affective commitment are also directly related to team performance, reinforcing the importance of team affective commitment in predicting significant variables of work teams, not only team related processes, such as team learning, but also meaningful team related outcomes, such as team performance.

To sum up, our study pointed to the fact that team affective commitment is an emergent state which is directly relevant for team performance, but also indirectly through its relationship with team learning.

VI - Conclusions, Limitations, and Suggestions for Future Research

With the increasing emphasis of teams as the main base of organizational structure, this study aimed to expand the understanding of group functioning and the relationships between emergent states, team processes, and team outcomes. Supported by previous literature, this study explored the direct and indirect relationships between team affective commitment and team performance, considering team learning as an intervening variable. To this end, based on the IMOI model (Ilgen et al., 2005; Mathieu et al., 2008), the mediating role of team learning in the relationships between team affective commitment and team performance were analysed.

At a research level, this study reinforces the literature who suggests the positive relationships between group affective commitment and the performance of work groups, and the importance of team members to engage in team learning activities. Indeed, team learning is a process that results from the engagement of team members in team learning activities, that is expected to positively influence teams to efficiently work towards team goals and to better adapt to their team work plans as a group (Rebelo et al., 2018). Previous research suggests that team affective commitment has a positive influence on team performance by promoting the engagement of the group in team learning activities (e.g., Bell et al., 2010; Bouwmans et al., 2017a; Chan et al., 2003; Wiese et al., 2021), justifying the rationale of the model analysed in this research. Supporting all hypotheses tested in this study, our results provided empirical evidence for the positive relationship between team affective commitment and team performance, directly, and indirectly through team learning, contributing to the knowledge in the field of team research about the associations between team affective commitment, team learning and team performance. Also, despite reinforcing the relationships between these variables, it is worth mentioning that this study analyses the relationships between these

variables in a model that hasn't been tested before with team affective commitment, team learning and team performance in the same study.

At an intervention level, considering the empirical contributions of our findings to the understanding of group functioning, this study produces some relevant insights to the team's management process. According to Leung et al. (2008), managers seeking to promote their team's performance need to incorporate strategies involving more cooperation in decision making processes, and to ensure the emotional participation of their employees in team projects, in order to reinforce the individual's identity inside the group. Therefore, in line with previous research, this study can have implications for organizations and human resources managers to better manage their teams and adapt their strategies, in order to guide leaders in the promotion of team affective commitment to increase team learning towards the achievement of team goals. Team leaders should contribute to high involvement of team members in the group activities and goals and, also communicate and share learning values (Nellen et al., 2019). Focusing on authentic aspects and orientations towards the promotion of team behaviours that are expected to be valuable to the team, supporting groups to be more involved in team learning activities may be positive strategies to produce high levels of team performance (Pearce & Herbick, 2004). Thus, following our results, organizational interventions, such as performance management, an intervention that is characterized by setting goals, by implementing a systematic evaluation of the employees' performance, and by the implementation of reward systems (Cummings & Workley, 2014), can be beneficial to align team members behaviors at work with team learning activities, and with team related outcomes.

Though this study provides further information on the understanding of group functioning to the literature, there are some limitations and recommendations that need to be addressed. First, it is important to point out that our research is limited to cross-sectional data. Although many studies involving mediation have been reporting to use cross-sectional data

(Mitchell & Maxwell, 2013), the cross-sectional design of our research only allowed us to perform one measurement of each variable making unviable to infer empirical causality between the studied variables. Considering these limitation, future research should benefit from studying these relations adopting a longitudinal design, as it would be suitable to recognize the role of change and time in the mediation and analyse the causal effects among the variables.

Another limitation that we should consider, is the use of the convenience sample method with only portuguese teams/organizations, which prevents the generalization of our results to other cultures or populations. As follows, further research should consider replicating this study using data from different cultures and populations other than portuguese teams/organizations. Moreover, although we used psychometric valid instruments, all variables were measured through the method of self-administered questionnaires based on team leaders and team members perceptions, which may have led to answers affected by social desirability bias, as participants may have given responses expressing what they perceived to be expected for them. However, is important to note that since the responses were measured at the group level, it reduces this limitation (Podsakoff et al., 2012). The use of only self-administered measures also may have produced the problem of common method variance. However, it is worth mentioning that our sample was focused on two different sources of information (team leaders and team members), which can have reduced that problem (Lindell & Whitney, 2001; Podsakoff et al. 2012).

Future studies analysing these relationships should take into consideration the use of multi-method approach of data collection, and the use of objective measures which, in case of convergent results with this study, will reinforce our findings. Also, since we found a partial mediation, this study provides new opportunities for future studies to further analyse the role of other variables (team processes and team emergent states) in the relationship between team affective commitment and team performance.

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Appendixes

Appendix 1

Team Leader's Questionnaire

Cód. Organização:

Cód. Equipa:

Cód. Equipa:

O presente questionário insere-se num estudo sobre os processos e os resultados dos grupos de trabalho em contexto organizacional. As questões que se seguem têm como objetivo conhecer a forma como avalia a sua equipa de trabalho, em função de um conjunto de critérios.

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

Leia com atenção as instruções que lhe são dadas, certificando-se de que compreendeu corretamente o modo como deverá responder. Certifique-se que respondeu a todas as questões.

Declaração de consentimento informado (Participante)

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

Confirmo

_____, ____ de _____ 2018

[Tempo estimado de preenchimento: cerca de 7 minutos]

PARTE 1

(Dados demográficos - para fins exclusivamente estatísticos)

Idade: _____ Sexo: M F

Habilitações literárias: _____

Há quanto tempo trabalha nesta organização? Indique, por favor, o número de anos e meses ou de meses e semanas (por exemplo: 1 ano e 3 meses). _____

Informação relativa à organização:

Nº. de trabalhadores da organização: Até 10 11- 49 50 – 249 250 ou mais

Sector de atividade da organização: _____

Informação relativa à equipa:

Há quanto tempo se formou a sua equipa? Indique, por favor, o número de anos e meses ou de meses e semanas (por exemplo: 1 ano e 3 meses). _____

Há quanto tempo lidera esta equipa? Indique, por favor, o número de anos e meses ou de meses e semanas (por exemplo: 1 ano e 3 meses). _____

Nº de elementos da sua equipa (considere somente os elementos da equipa, não se incluindo a si próprio): _____

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

- Produção Comercial Serviços Projeto
 Administrativa Gestão Outra. Qual? _____

Tendo em conta que este estudo prevê dois momentos de recolha de dados, insira, por favor, **as iniciais do seu nome completo**, de forma a podermos efetuar a correspondência da informação recolhida nos dois momentos (reforçamos que este dado será exclusivamente utilizado para fins de investigação).

Iniciais do seu nome completo: _____

PARTE 2

Desempenho grupal

Avalie a sua equipa de trabalho em cada um dos parâmetros apresentados em seguida, utilizando uma escala de 1 (mau) a 10 (excelente):

Mau			Médio/a				Excelente		
1	2	3	4	5	6	7	8	9	10

	1	2	3	4	5	6	7	8	9	10
1. Capacidade de abordar os problemas adequadamente.										
2. Definição de estratégias tendo em vista o alcance dos objectivos estabelecidos.										
3. Qualidade do trabalho produzido.										
4. Eficiência no desenvolvimento das tarefas.										
5. Quantidade de trabalho produzido.										
6. Qualidade das novas ideias/sugestões introduzidas.										
7. Capacidade de implementar novas ideias.										
8. Cumprimento dos prazos estabelecidos.										
9. Número de novas ideias/sugestões introduzidas.										
10. Capacidade de lidar com a incerteza e com acontecimentos imprevisíveis.										

Aprendizagem grupal

Solicitamos-lhe, agora, que nos indique em que medida as afirmações seguintes acontecem na 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 nunca acontece	Acontece poucas vezes	Acontece algumas vezes	Acontece muitas vezes	Acontece quase sempre

Esta equipa...

	1	2	3	4	5
1. ... pede aos seus clientes internos (os que usufruem ou recebem os seus serviços) feedback sobre o seu desempenho.					
2. ... trabalha com informações ou ideias atualizadas.					
3. ... monitoriza ativamente o seu progresso e desempenho.					
4. ... faz o seu trabalho sem ter em consideração toda a informação que os membros da equipa dispõem.					
5. ... dedica regularmente tempo para pensar em formas de melhorar o seu desempenho no trabalho.					
6. ... ignora o feedback de outros membros da organização.					
1. ... pede ajuda a outros elementos da organização quando existe algo com que os membros da equipa não sabem lidar.					

Appendix 2

Team Member's Questionnaire

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

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

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

Muito obrigado pela colaboração!

Declaração de consentimento informado (Participante)

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

Confirmo

_____, ____ de _____ 2018

[Tempo estimado de preenchimento: cerca de 20 minutos]

PARTE 1

(Dados demográficos - para fins exclusivamente estatísticos)

Idade: _____ Sexo: M F

Habilitações literárias: _____

Já teve formação em trabalho de equipa? Sim Não

Há quanto tempo trabalha nesta organização? Indique, por favor, o número de anos e meses ou de meses e semanas (por exemplo: 1 ano e 3 meses). _____

Há quanto tempo trabalha nesta equipa? Indique, por favor, o número de anos e meses ou de meses e semanas (por exemplo: 1 ano e 3 meses). _____

Tendo em conta que este estudo prevê dois momentos de recolha de dados, insira, por favor, **as iniciais do seu nome completo** de forma a podermos efetuar a correspondência da informação recolhida nos dois momentos (reforçamos que este dado será exclusivamente utilizado para fins de investigação)

Iniciais do seu nome completo: _____

PARTE 2

De forma a garantir uma maior validade dos dados recolhidos, pedimos que responda a todos os itens apresentados abaixo pensando na sua **equipa formal como um todo**.

Comprometimento com a Equipa

O conjunto das seguintes afirmações tem como objetivo continuar a **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
Discordo fortemente	Discordo	Não concordo nem discordo	Concordo	Concordo fortemente

1. Os membros têm um forte sentimento de pertença à equipa.					
2. Os membros sentem os problemas da equipa como sendo seus.					
3. Os membros sentem-se emocionalmente ligados à equipa.					
4. Os membros da equipa sentem-se como fazendo parte da “mesma família”.					