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# The mediating role of task conflict between subgroup perception and team effectiveness

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**Abstract**

Organizations face unprecedent challenges in the 21st century, making the importance of studying work team functioning cornerstone to WOP (Work, Organizational, and Personnel) Psychology in recent years. To address the current organizational research framework, the impact of team diversity and group identification in outcomes sights advancements. As individuals tend to shift towards others with similar characteristics, group fragmentation into subgroups and intragroup conflict may arise, which may in turn affect team effectiveness. The present research focuses on an IPO (Input-Process-Output) model aimed at unveiling the mediating role of task conflict, using subgroup perception as an input and team effectiveness as an output indicated by innovation, performance, and satisfaction. A cross-sectional empirical study was carried out, focusing on 124 teams from 83 Portuguese organizations in varying industries. Data collection consisted of a self-administered questionnaire survey method applied to team members and their respective leaders. Three mediation models were tested using PROCESS. The results revealed that task conflict fully mediates the relationship between the subgroups perception and the team effectiveness criteria. This study also bolsters how disagreements among team members about the content of the tasks being performed may negatively affect team effectiveness, namely innovation, performance, and satisfaction, and how subgroups and conflict are positively correlated.

*Keywords*: subgroups, task conflict, work teams, performance, innovation, satisfaction

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## Introduction

While individual human behavior can be determined by a plethora of variables, it is known that individuals organize their social world by classifying it into different social categories (Bezrukova et al., 2016; Tajfel, 1982). Teams[1] are an important social entity and directly influence the perceptions and behaviors of their members (Cohen & Bailey, 1997). It is, therefore, important to consider how an individual interacts within a group framework to further understand organizational group behavior (Wiley et al., 2019). Moreover, intragroup behavior (such as subgroup perception) may affect team effectiveness and organizational results (Jehn & Bezrukova, 2010; Meyer et al., 2014; Meyer & Kauffeld, 2016; Shen et al., 2008). Thus, in order to advance how the former informs the latter, it becomes central to situate intragroup conflict and understand its role on team outcomes (Ahmad & Lutters, 2015; van der Kamp et al., 2011). The purpose of the current research is to understand how intragroup conflict, specifically task conflict, mediates subgroup perception, and team effectiveness, namely through team performance, innovation, and satisfaction, within work teams.

A work team is an organizational group of individuals in varying size, scope, and composition, who collaborate on a shared objective with interdependent tasks towards given goals (Cohen & Bailey, 1997; Sundstrom et al., 1990). Team members work together to leverage the strengths and expertise of individual members (i.e., talent) to achieve their objectives (Sundstrom et al., 1990). In fact, team diversity may help leverage individual or group talent, thus bolstering its importance within a group setting (Bezrukova, 2016). Diversity within work teams alludes to the degree to which member differences allow access to different abilities, knowledge, and experiences (Rico et al., 2011; van Knippenberg & Schippers, 2007). Intragroup diversity may have broader consequences in group functioning (Bezrukova et al., 2016), for group member divergence is caused by differences in characteristics such as age, gender, ethnicity, religion, etc. (Guzzo & Dickson, 1996).

Diversity can lead to intragroup conflict as it may flourish differences in perspectives, values, and communication styles among group members, which may, in turn, create

[1] The terms group and team will be used in an undifferentiated way throughout this paper, according to previously developed papers (e.g., Cohen & Bailey, 1997; Lourenço, Dimas & Rebelo, 2014; Mathieu, Hollenbeck, van Knippenberg & Ilgen, 2017).

misunderstandings and disagreements over tasks and goals (Jackson & Ruderman, 1999; Jehn et al., 1999; Mannix et al., 1999). These differences may also cause individuals to feel threatened or uncomfortable, leading to conflict, which can further exacerbate intragroup tensions (de Witte & Stockman, 2017; Jackson & Ruderman, 1999). When group members perceive that they are not being treated fairly or equitably, they may feel threatened and respond with aggression or conflict (Aquino et al., 2001; de Witte & Stockman, 2017). This can be particularly salient when members of a minority sub-group perceive that they are being discriminated against or marginalized in a broader group (de Witte & Stockman, 2017; Jackson & Ruderman, 1999).

Conflict research dates back to Deutsch's (1973) early theory of cooperation and competition. Intragroup conflict may be defined as "the disagreement or difference of opinion within a group or team, over goals, tasks, processes, or interpersonal relations" (Jehn 1995, p. 258). While some level of conflict is considered natural and even beneficial for group performance, excessive or unresolved conflict can have negative impacts on both team members and the group as a unit (Jehn, 1995; Ronquillo et al., 2022). The impact of diversity on intragroup conflict may depend on the context, such as the level of diversity, task type, and the level of interdependence among group members (Jackson & Ruderman, 1999; Jehn & Bezrukova, 2010). When group members are highly interdependent on each other to accomplish tasks, differences in perspectives or communication styles may be particularly salient and contribute to conflict ( Jehn et al., 1999; Mannix et al., 1999).

Intragroup conflict may be subdivided into three types: task conflict, affective conflict, and process conflict[2] (O'Neill et al., 2013). Task conflict is also referred to as substantive or cognitive (Cohen & Bailey, 1997), and is defined as the "disagreements among team members about the content of the tasks being performed, including differences in viewpoints, ideas, and opinions" (Jehn, 1995, p. 258). Affective or relationship conflict is a type of personal conflict that develops over interpersonal disagreements and differences between individuals or groups (De Dreu & Weingart, 2003; Jehn & Mannix, 2001). Lastly, process conflict refers to how work is done, such as duty delegation (Jehn et al., 1999).

By definition, team task conflict is the aggregation of team members' task conflict perception at the team level (Korsgaard et al., 2008). In other words, task conflict, as a collective

[2] Even though intragroup conflict was originally undifferentiated between task, affective and process conflict (Cohen & Bailey, 1997), some scholars, such as Jehn (1995), started to separate and focus research efforts on each in the mid-90s.

construct (Jehn et al., 2010), results from individual members' conflict perception. Departing from the team-level definition of task conflict, individual task conflict may be defined as the individual-level perception reflecting a disagreement between a focal member and other members regarding how a team's work is being performed (Li et al., 2019).

Since intragroup differences can occur based on distinct characteristics, faultline theory was introduced by Lau and Murnighan (1998) in order to make better sense of group fragmentation and subgroup perception. Faultlines are defined as "hypothetical dividing lines that may split a group into relatively homogeneous subgroups based on one or more attributes" (Lau & Murnighan, p. 508). Taking a multitude of characteristics into account (such as personality), faultlines are formed based on the distribution of multiple attributes, including demographic (age, education, etc.) and non-demographic (such as religious affiliation) (Chen et al., 2017). As such, the impact of group diversity moderates the level of faultlines, which in turn may explain conflict phenomena at a group level (Bezrukova et al., 2016).

Faultlines can lead to the formation of subgroups within a larger group, as individuals align themselves with others who share similar attributes (Bezrukova et al., 2016). A subgroup may be defined as "a subset of a larger group that is formed based on shared characteristics or attributes" (Bezrukova et al., 2016, p. 256). The members of a subgroup may interact with each other differently than with members of other subgroups, such as having their own unique communication styles, social norms, and behaviors (Bezrukova et al., 2016). The presence of subgroups can have significant impacts on group dynamics and outcomes, as members of subgroups may be more likely to work together and cooperate with each other, potentially causing some level of disunity or friction within the larger group (Bezrukova et al., 2016). However, this fragmentation only occurs effectively when members perceive the existence of subgroups, and differences between their subgroup and the others (Jehn & Bezrukova, 2010; Oliveira & Scherbaum, 2015).

In terms of group processes and outcomes, the impact of subgroups can affect a team's effectiveness on a variety of factors, including the level of intergroup communication, the level of intergroup cooperation, and the level of intergroup competition (Carton & Cummings, 2012). Team effectiveness may be defined as the evaluation of a team's results against pre-defined criteria (Dimas et al., 2016; Salas et al., 2009;). Team performance, satisfaction, and innovation

are three criteria for assessing group effectiveness as pointed out in previous literature (Cohen & Bailey, 1997; De Dreu & Weingart, 2003; Hackman, 1987; Schippers et al., 2003; Shen et al., 2008).

To better assess team effectiveness, the present research is to divide the latter concept into a multidimensional approach, such that it is understood at a team level with team performance and innovation, and at an individual level by evaluating members' own satisfaction with their team. While team performance and innovation are concerned with regarding the team as a productive unit, therefore alluding to an economic dimension of team effectiveness, member satisfaction is rather concerned with the quality of experience for them, consequently referring to a social dimension of the output (Beaudin & Savoie, 1995). It is therefore important to bold out how team effectiveness as an output can have its outcomes affected based on team, and individual processes (Dimas & Lourenço, 2015).

In order to test out how task conflict serves as a mediator between subgroup perception and team effectiveness, an IPO model following Ilgen and colleagues' (2005) will be used. Subgroup perception is the mediation's input, and team effectiveness (innovation, performance, and satisfaction as indicators) its output. The present research aims to respond to the following research questions: (a) is subgroup perception positively correlated to task conflict?; (b) is task conflict negatively correlated to team effectiveness?; (c) may task conflict serve as a mediator between subgroup perception and team effectiveness? (namely relating to the previously noted indicators).

The current thesis dissertation is thus divided into five main sections. The first (literature review) aims to analyze and hypothesize the prevalent literature on the perception of subgroups, task conflict, team effectiveness, and the mediating role of task conflict between the former and the latter. The second part relates to the research method (sample characterization, data collection procedures, measurement instruments used, and data analysis procedures), while the third part is concerned with the results obtained, and discussed in the fourth. Lastly, the last section aims to provide intelligence on the study's main conclusions and reflect on research and intervention contributions, limitations and suggestions for future investigations.

This study contributes to research by exploring the mediating role of task conflict in the relationship between subgroup perception and team effectiveness, focusing on team innovation, performance, and satisfaction. The findings have practical implications at both the research and intervention levels. At the research level, the study advances our understanding of how subgroup perception and task conflict are interconnected and influence team effectiveness. At the intervention level, the study provides valuable insights for organizations and team leaders to enhance team management strategies. It highlights the importance of promoting resolution and management of task conflict and raises awareness of the potential positive correlation between subgroup perception and task conflict, ultimately impacting the team's effectiveness in achieving organizational goals.

## Literature Review

### Subgroup perception

According to Byrne (1971), group members tend to work and display more positive attitudes towards individuals that closely resemble attributes of themselves (ingroup). Contrastingly, those who attest to differentiating characteristics (outgroup) are often presented with a negative attitudinal framework. This may give insight as to how individuals simplify the social world and to generalize their existing knowledge about certain groups and new individuals (Bezrukova et al., 2016; Byrne, 1971; Tajfel, 1982). However, there is still much left to comprehend about the effects caused by inter-member differences within a group (van Knippenberg & Schippers, 2007).

In the context of group dynamics, subgroup perception and group fragmentation are two related but distinct concepts. While subgroup perception refers to the way individuals perceive and categorize members within a larger group into smaller subgroups based on their group membership or characteristics (Brewer, 1999; Tajfel & Turner, 2001), group fragmentation refers to the process by which a cohesive group becomes divided or fragmented into smaller, less cohesive subgroups (Chen et al., 2023; Bezrukova et al., 2015). Subgroup perception and group fragmentation are, therefore, interconnected phenomena.

Measures of diversity/similarity that purely focus on one functional or demographic characteristic at a time seem to conceptualize a rather skewed analysis of group dynamics (van Peteghem et al., 2017). It is therefore important to analyze a multitude of characteristics that better assess subgroup formation – thus, making use of faultline theory. Bezrukova and colleagues (2016) characterize faultlines in subgroup formation, such that "the strength of a group faultline increases the more attributes there are in alignment that define a subgroup." (Bezrukova et al., 2016, p. 2).

Faultlines can be at the forefront of intragroup conflict, for members of different subgroups do not always adopt strategies of compatible behavior, overall deteriorating general work effectiveness (van Peteghem et al., 2017). Faultlines may include national culture[3], organizational culture, and personality characteristics (van der Kamp et al., 2011), and may be activated or deactivated on a group level. According to Jehn and Bezrukova (2010), faultline activation "is the process by which an objective demographic alignment (a potential, or dormant faultline) is actually perceived by group members as the division of the group into separate subgroups based on demographic alignment (an activated faultline)." (p. 24). Faultline deactivation is contrastingly defined as the process of reducing or eliminating the negative impacts of demographic faultlines (i.e., age, gender, ethnicity, or nationality) on team dynamics and performance" (Jimmieson et al., 2011).

According to cross-categorization faultline models, one similar characteristic across subgroups is enough to act as a bridge between intergroup-subgroup dissimilarities (Thatcher & Patel, 2012). Faultline activation and deactivation may serve as moderators towards intragroup conflict (van der Kamp et al., 2011). High or low levels of faultlines perform worse due to the lack of connecting bridges between subgroups or team members (Chen et al., 2017). However, moderate faultlines that seem not to display extremes prove to be beneficial for the team's performance (Chen et al., 2017), and reduce divergence between subgroups (Thatcher & Patel, 2012).

Using multilevel modeling, literature demonstrates that conflict can affect group activities as a contextual factor (Bezrukova et al., 2015). Indeed, van Knippenberg and Schippers (2007) identified several antecedents and moderators of subgroup emergence, including team size, task

[3] Even though the majority of literature on the topic of faultlines and subgroup formation has been conducted in western societies, it should be noted that the global workforce has been more progressively diverse in terms of age, industrial experience, educational specialization, and level of education (Chen et al., 2017).

complexity, and team member diversity. Activated faultlines are then likely to lead to coalitional activity and conflict, decreasing group performance and member satisfaction (Jehn & Bezrukova, 2010). Thus, when there is a weak sense of group identity, activated faultlines can lead to conflict and coalitions (Burke et al., 2009; Jehn & Bezrukova, 2010). Research points to a systemic association between faultline activation and team conflict, which lead to subgroup perception, and while activated faultlines lead to higher levels of team conflict, faultline deactivation may result in lower levels of conflict (van der Kamp et al., 2011).

**Task conflict**

Communication and information sharing difficulties may arise across subgroups, leading to loss of trust and respect, increased tension, and conflicts in-between (Lau & Murnighan, 1998; Murnighan & Lau, 2017; Oliveira & Scherbaum, 2015; Stanciu, 2015). Team member diversity can be classified as either non-task nature (e.g., race and age) or task nature (e.g., work function and education) (Lankau et al., 2007; Milliken & Martins, 1996); Pelled et al., 1999). When subgroups form based on demographic characteristics, they may have different perspectives or approaches to the task, which can lead to task conflict (Jehn & Northcraft, 1999). Teams with diverse subgroups may be more likely to experience task conflict than teams without subgroups or with homogeneous subgroups (Jehn & Northcraft, 1999). Subgroup identity may also influence the level of task conflict, especially in multicultural teams (Ely & Thomas, 2001).

Task conflict has complex patterns at both the individual and group levels (Behfar et al., 2008; Li et al., 2019). As such, literature argues positive correlations between subgroup perception and task conflict both at the individual and group level when controlling for the effects of team size, diversity, and task interdependence (Behfar et al., 2008). Specifically, individual-level subgroup perception was positively related to individual-level task conflict, while group-level subgroup perception was positively related to group-level task conflict (Behfar et al., 2008). Mediation analyses revealed that task conflict fully mediates the relationship between perceived subgroups and emotional exhaustion (Schulte et al., 2020). It may also pose as a challenge stressor, which may promote growth, learning, and motivation, but also lead to over-commitment and burnout over time (Schulte et al., 2020).

Early and stable subgroups may have a positive effect on task conflict, as these subgroups provide a structure for team members to express their opinions and preferences, leading to more constructive conflict and better task outcomes (van Knippenberg & Schippers, 2007). In contrast, late and unstable subgroups may have a negative effect on task conflict, as they reflect underlying tensions and power struggles that have hindered team communication and coordination (Workman & Wageman, 2011). While there has been a significant amount of research on the effects of diversity on group processes and outcomes, the findings are not consistent (van Knippenberg et al., 2004; Shore et al., 2009). The studies cited have found different results, implying that there is still uncertainty regarding the impact of diversity on groups.

The existing literature presents dichotomic results in what concerns the impact of task conflict on team effectiveness. Some studies point to task conflict having a linear negative effect on group performance (Foo, 2009; Jehn et al., 2010; Puck & Pregernig, 2014; Todorova et al., 2020). Others point to a moderate degree of individual task conflict yielding highest levels of individual creativity (Li et al., 2019). In terms of innovation, both positive (Chen, 2006), and negative (Lovelace et al., 2001) correlations have been presented in regards to task conflict. Mild task conflict may increase job satisfaction (Todorova et al., 2014), which may affect overall team performance. Further, Foo (2009) mentions how task conflict affects inter-member ratings less than affective conflict. Lastly, affective conflict often does not present itself as a predictor towards certain effectiveness criteria, such as team performance (Dimas & Lourenço, 2015; Jehn, 1995; Passos & Caetano, 2005). Such may be in part, due to the fact that it is rather crucial to maintain a certain equilibrium with an organizational setting for teams (Dimas & Lourenço, 2015).

The present research focuses on task conflict, and not affective nor process conflict, due to the aforementioned dichotomic results, and since it embodies the least amount of research on both subgroup perception and team effectiveness, especially as a mediator. Task conflict is associated with increased subgroup identification when team identification is low, and decreased subgroup identification when the latter is high (Jehn & Mannix, 2001). A first research hypothesis is therefore drawn, such that higher levels of subgroup perception show a positive correlation to task conflict. The direction in which this hypothesis is showcased below, much like the next three, follows how findings are presented in the aforementioned body of literature.

**H1**: Subgroup perception is positively correlated to task conflict.

**Team effectiveness**

The IPO model, originally developed by McGrath (1964) furthers team effectiveness's contextualization and understanding by enveloping a team's composition, structure, and processes. The effectiveness of a team is influenced by distinct inputs, which refer to various internal and external factors that facilitate or hinder team member interactions and can be categorized into three groups (McGrath, 1964). These are: (a) member characteristics (such as their competencies and personalities); (b) team-level factors (structure of the tasks assigned to the team and how the team functions together, such as team cohesion and communication); (c) and organizational and contextual factors (external factors that impact the team's effectiveness, such as the complexity of the environment they work in) (Foo, 2011; Ishak et al., 2019; Mathieu et al., 2008; McGrath, 1964).

According to the IPO model, effectiveness is an output that consists of multiple dimensions and cannot be measured by a stand-alone metric (Gil et al., 2008; Guzzo & Dickson, 1996; Hackman, 1987; Sundstrom et al., 1990). Due to the latter, effectiveness may be subdivided into different criteria: (a) quantity and quality-focused outputs based on performance effectiveness (such as innovation); (b) attitudinal measures (such as employee satisfaction); and (c) behavioral outcomes (such as turnover) (Cohen & Bailey, 1997).

Some literature points to task conflict enhancing team effectiveness ratings by increasing the amount of information that the team considers (Bantel & Jackson, 1989; Pelled et al., 1999). Subgroup perception may have impacts even at the leadership level, such that team effectiveness and overall collaboration can be affected by leaders' perceptions of their member diversity in both co-located and virtual teams (Gibbs et al., 2016; van Peteghem et al., 2017). Leadership is thus an important factor of team effectiveness (Foo, 2011). Leaders in organizations tend to emphasize positive outcomes of diversity for innovation and performance, while field studies of student teams tend to focus more on negative outcomes and interpersonal conflicts (Gibbs et al., 2016). Thus, information from group members perceived as belonging to their leaders' ingroup may be more influential in decision-making than those perceived as their outgroups (Thatcher & Patel, 2012).

**Team innovation**

Social interactions within work teams are liable to lead to divergent perspectives (Bledow et al., 2009). Consequently, the management of these unavoidable differences between team members may entail the regulation of low-level conflicts and ultimately lead to innovative solutions towards organizational goals (Bledow et al., 2009). According to Cohen and Bailey, (1997), team innovation is an indicator of team effectiveness. Team innovation may be defined as a collective effort of generating and implementing new and creative ideas to meet customer needs or team and organizational goals (Gong et al., 2009). Although it is perhaps counterintuitive at first sight, conflict may be beneficial for innovation (Jehn, 1995; Pelled, 1996).

There are several key individual factors that influence team innovation and creativity in teams and organizations, such as domain-relevant skills and knowledge, cognitive style, motivation, and personality, but also, contextual factors, such as organizational culture, leadership, resources, and work design (Anderson et al., 2014). However, trust within the team may not be a determining factor for team innovation (Bastos et al., 2019). The creative process in innovation is important for the team and follows five different stages, such as problem identification, preparation, incubation, insight, and verification (Anderson et al., 2014). Moreover, there are several outcomes of innovation and creativity for organizations, such as financial performance, market share, and strategic positioning (Anderson et al., 2014).

Literature points to inconsistent arguments and findings towards task conflict and team innovation, having found both positive (Chen, 2006) and negative (Lovelace et al., 2001) correlations for these variables. Before the 1990s, team-level innovation literature was even recalled as a "jungle of inconsistent findings" (West & Farr, 1989, p.17). However, since the 1990s research seems to shape team innovation by pointing to functional diversity being positively correlated to external communication, which in turn was positively related to leaders' ratings of team innovation (Ancona & Caldwell, 1992). Task conflict is furthered as a potentially positive force that may stimulate innovation (Mumford & Hunter, 2005; Pelled, 1996) that can trigger information exchange via opposition opinions' exchange, status quo reevaluation, and

carefully examine the task at hand (Mumford & Hunter, 2005). This may promote new ideas and solutions towards improving problem solving (Shalley & Gilson, 2004; Tjosvold, 1997).

According to Bledow and colleagues (2009), conflict is an inherent and necessary aspect of innovation, and effectively managing these opposing viewpoints is key to successfully implementing innovation in the workplace. This argument is supported by research on decision-making, which shows that dissent within groups leads to greater consideration of diverse perspectives and better decision quality (Brodbeck et al., 2002). Additionally, minority dissent, which is conceptually related to task conflict, has been found to reduce conformity and consensus-seeking and enhance cognitive complexity and divergent thinking, ultimately promoting innovation (De Dreu & West, 2001). At a leadership level, top management teams (TMT) diversity is also found to be positively related to innovation.

The current literature on task conflict and team innovation is, however, conflicted (Li et al., 2019; Ma et al., 2018; Zhou & Pan, 2013). At lower levels of individual task conflict, there may be an indirect positive relationship between individual task conflict and individual creativity, via employee information elaboration (Li et al., 2019). However, at a group level, teams may demonstrate lower levels of creativity when functioning at lower levels of task conflict (Zhou & Pan, 2013). In contrast, at higher levels of individual task conflict, there is an indirect negative relationship between individual task conflict and individual creativity, via employee information elaboration (Li et al., 2019). Further, when task conflict is high but not managed constructively, teams may demonstrate lower levels of creativity at the group level (Zhou & Pan, 2013). A second research hypothesis is hereby showcased, for when higher levels of task conflict are present within a group, lower levels of team innovation are displayed.

**H2a**: Task conflict is negatively correlated to team innovation.

**Team performance**

Team performance can be overall defined as the extent to which a team accomplishes its goal or mission (Devine & Philips, 2001). Performance engenders achieving pre-established and idealized results in order to contribute to organizational success - the closer the achieved results are to their objectives, the better the performance is ultimately considered (Aubé & Rousseau, 2005; Rousseau & Aubé, 2010). Team performance is used as one of these most recurrent criteria

of team effectiveness in organizational studies (Bommer et al., 1995; Cohen & Bailey, 1997; Ilgen, 1999), as it ties in with a team's central role to develop a good or a service (Ilgen, 1999).

Team performance criteria, commonly known in work teams as key performance indicators (KPIs), depend on the following: (a) team function; (b) task content; (c) subdividing an overall, stand-alone performance outcome into constituent parts; and (d) adhering performance appraisals to a combination algorithm, such as the balanced scorecard technique (a management framework used to track an organization's progress towards strategic objectives, such as financial and non-financial indicators) (Mathieu et al., 2008; Kaplan & Norton, 1992).

Cognitive diversity within a group environment improves its performance by stimulating discussion, creativity, the exchange of ideas, and problem solving (van Peteghem et al., 2017). However, individuals who perceive higher levels of task conflict than their group members have lower expectations for group performance, which in turn may lead to worsened group performance (Jehn et al., 2015). The negative impact of task conflict asymmetry may be more pronounced when it occurs within subgroups, rather than between subgroups (Jehn et al., 2015).

On the topic of subgroup fragmentation, Bezrukova and colleagues (2015) found through the emergence principle (bottom-up effects), that individual-level faultlines become relevant on the group level as a significant antecedent of group performance. According to the authors, internal conflict within teams exacerbates the harmful effects on performance, but conflict with outsiders has the opposite effect, breaking the relationship between group splits and performance.

There is currently an existing plethora of research allocating a negative correlation between task conflict and team performance (De Debreu & Weingart, 2003; Dimas & Lourenço, 2015; Jehn et al., 2010; Liu et al., 2009; Lovelace et al., 2001; Passos & Caetano, 2005; Puck & Pregernig, 2014; Thatcher et al., 2003; Todorova et al., 2020; van Woerkom & Sanders, 2010). Literature points to the level of task conflict may mediate the relationship between informational diversity and team performance (Jehn & Northcraft, 1999). Within virtual teams, for example, perceived faultlines have a positive correlation with task conflict, which negatively affecting team performance (Ahmad & Lutters, 2015). However, some literature points to the relationship between individual-level task conflict and individual performance not being linear and negative (Li et al., 2019; Schulte et al., 2020). A third research hypothesis is in order, for when higher

levels of task conflict are present within a group, lower levels of team performance are displayed.

**H2b**: Task conflict is negatively correlated to team performance.

### Team satisfaction

In 1996, Cohen and his colleagues provided intelligence on how performance norms of a group had a significant and positive relationship with both the team's evaluation of their performance and their satisfaction with their work. Team satisfaction is another team effectiveness criterion (Cohen & Bailey, 1997), and may be defined as an emotional response of members towards their group (Witteman, 1991). Team satisfaction can be influenced by both task-related factors as well as personal or interpersonal relationships (Dimas et al., 2016; Witteman, 1991). Pinto and colleagues (1993) found cooperation to be a positive predictor of member satisfaction. It is then understood how subgroup perception may have a double negative impact on knowledge coordination, and subsequently on team performance and member satisfaction (Shen et al., 2018). Although mild task conflict may increase job satisfaction (Todorova et al., 2014), task conflict may also present a negative correlation with the latter, meaning that the more conflict there is around task-related issues, the less satisfied team members are with their work (Alaniz et al., 2015; Dimas & Lourenço, 2015; Gong et al., 2009; Shen et al., 2018).

Task conflict in literature seems to have a double negative effect on both team performance and satisfaction, which may be associated (Gong et al., 2009; Shen et al., 2018). Further, task conflict may have a negative effect on team satisfaction, but this effect may be mitigated by high levels of intra-group trust (Jehn & Mannix, 2001), and weaker when task conflict is managed constructively (Zhou & Gibson, 2003). In other words, when team members trusted each other, they were more likely to overcome task conflict and still maintain high levels of satisfaction. Lastly, when trust was low, task conflict had a stronger negative effect on team satisfaction. A fourth research hypothesis follows, for when higher levels of task conflict are present within a group, lower levels of team satisfaction are in effect.

**H2c**: Task conflict is negatively correlated to team satisfaction.

**The mediating role of task conflict in subgroup perception and team effectiveness**

The close relationship and interdependence between team members may infer that working as a team increases the chances of conflict (Tjosvold, 1997). Member behavior may produce either conflict or a harmonious situation depending on the environmental forces and individuals present (Pettersen & Jacob, 1992). It would be expected that intragroup conflict serves as a mediating role for team effectiveness (Bantel & Jackson, 1989; Pelled et al., 1999; Yun et al., 2020), depending on how team members handle the former for all three criteria (e.g., the contingency theory of task conflict and performance) (De Debreu and Weingart, 2003). Task conflict has mediated the relationship between subgrouping and team effectiveness in both Chinese and Western teams (Yun et al., 2020). Medina and colleagues (2013) further on this by extending research to Spain, in which it is suggested that task conflict can improve team effectiveness. However, strong levels of task conflict can be detrimental to team effectiveness, and cognitive flexibility is necessary to ensure that conflict is managed effectively (Medina et al., 2013). As previously mentioned, the present research hypothesizes that subgroup perception increases task conflict, which in turn has a negative correlation with team effectiveness. Thus, task conflict mediates the relationship between subgroups and team effectiveness. Lastly, the last three research hypotheses seek to illustrate how task conflict mediates subgroup perception and team effectiveness in all of its three indicators.

**H3a**: Task conflict mediates the relationship between subgroup perception and team innovation.

**H3b**: Task conflict mediates the relationship between subgroup perception and team performance.

**H3c**: Task conflict mediates the relationship between subgroup perception and team satisfaction.

**Model under analysis**

McGrath (1964) furthered on the IPO model in order to grasp hold of team effectiveness. As such, the author made use of a given team's demographic distribution, its structure and processes and its main antecedents for their effectiveness. Thus, cyclical inputs facilitate

processes which lead to outputs (Ilgen et al., 2005), such that inputs affect the latter by group members' interactions (Hackman, 1987). To sum up, the model that this study aims to analyze is depicted in Figure 1. The perception of subgroups within a team may be expected to positively affect the emergence of conflicts in the team. When a greater number of task conflict situations emerge, it may directly lead to a loss of team effectiveness, namely in terms of performance, innovation and member satisfaction.

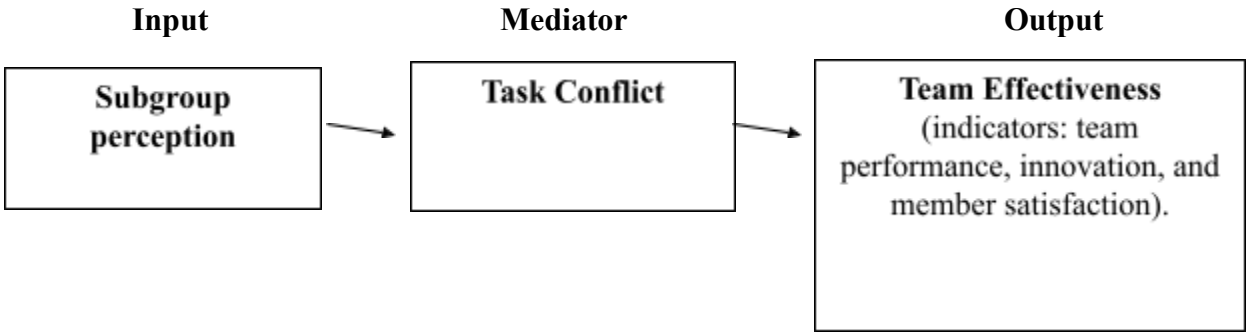


**Figure 1:** *IPO model under analysis*

## Method

### Sample

The sample for the present research consisted of work teams from Portuguese organizations belonging to different sectors of activity (e.g., industrial, commerce, etc.). Team selection had to be made up of a minimum of three members, which would be perceived by themselves and 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 also had to be formally recognized. The sample was made of 124 teams, with a corresponding number of leaders, amounting to a total of 554 members in 83 organizations. The organizations participating in this study belonged to different sectors of activity, namely industrial (15.8%), associative (non-governmental organizations) (21.7%), commerce and services (62.5%), the latter being the most representative. Small organizations constituting up to 10 employees are the most represented in this sample (30.6%).

Concerning the teams considered in the sample, they also belonged to different areas of activity: services (38.3%); commercial (18.3%); project (8.3%); administrative (5.8%); production (3.3%); management (3.3%); and others not specified (22.5%). Sample team size varied between three and 22 members, with an average of approximately six members per team (*SD* = 3.96). Its seniority, in turn, varied between three months and 46 years and three months, with an average of approximately nine years (*SD* = 8.81). Team members were aged between 17 and 67 years old (*M* = 35.83; *SD* = 11.61), most of them female (59.9%). Most had a college degree (41.6%), with the majority (56%) having had training in teamwork. The corresponding seniority of each member varied between approximately one month and 43 years and five months (*M* = 5.23; *SD* = 6.42), with seniority in the organization varying approximately between one month and 50 years (*M* = 9.30 years; *SD* = 10.02).

The sampled leaders were aged between 18 and 67 years old (*M* = 42.37; *SD* = 11.38), being the majority male (58.3%). Most had a college degree (58.7%) and were in practice between one month and 27 years, approximately. On average, they have performed their role for approximately seven years (*SD* = 6.66). Their seniority in the organization varied between approximately three months and 45 years and two months (*M* = 14.00; *SD* = 10.68).

**Data collection**

A convenience sample was selected, based on a formal and informal research relationship network (Jager, 2017). The sample data was collected between 2017 through 2020, between the academic years of 2017/18, 2018/19, and 2019/20 from October to December, through the distribution of two questionnaire surveys. For each team, one questionnaire was given to the team leader, and another to the team members. Leaders provided information regarding group innovation and performance, while information about the group's subgroup perception, task conflict, and satisfaction was collected from the members of each team. The questionnaires also included demographic data collection (such as age, gender, education level, seniority in the team and in the organization, team size, and organization/team sector of activity). All questionnaires were applied in the Portuguese language. Lastly, the estimated time for members to complete the questionnaires was 20 minutes, while it took approximately seven minutes for leaders to fill them out.

Moreover, team members had to recognize each other and be known as a team with interdependent interactions for a common objective (Cohen & Bailey, 1997). Inclusion criteria included communication between members being mediated to some extent by electronic technology (e.g., computer, phone, etc.) and the formal recognition of a team leader. The representatives of organizations responsible for the teams that met the inclusion criteria were contacted personally and/or electronically by each researcher involved in the VITEM research project[4], through a presentation letter of the research project (cf. appendix A, B). Subsequently, teams that met all participation criteria and showed interest and availability to participate were presented with a more detailed explanation of the VITEM project. Questionnaires were responded to either in person or online, but whenever feasible, a member of the research team was present to explain any questions or doubts. In cases where this was not possible, the team leader was asked to distribute and collect the questionnaires filled out by members of their respective group.

Ethical research norms were ensured throughout the questionnaires (i.e., informed consent, confidentiality, and anonymity). Therefore, a unique identification code was assigned to each team, and only the initials of participants' names were required. Lastly, the current research has bolstered individual participants' right to privacy in analyzing the study data at a group level only. Lastly, the VITEM project was approved by the Ethical and Deontological Research Commission from the Faculty of Psychology and Educational Sciences of the University of Coimbra.

## Measures

### Subgroup perception

[4] This dissertation is part of a larger project named VITEM. It is an international project that involves researchers from various Portuguese universities (University of Coimbra, University of Aveiro, and University of Beira Interior) and Spanish universities (University of Valencia, and University of Seville). The main goal of the VITEM project is to understand how constructs related to group functioning are related to each other and to the effectiveness of hybrid and virtual teams. The research team also includes two colleagues who conducted their master's dissertations in the academic year of 2019/20: Mariana Assunção and Marta Gomes. In addition to these, students from the academic years of 2017/18 (Clara Campelo, Daniela Lopes, Inês Carvalho, Liliana Bastos, Lúcia Silva, Mariana Sousa, and Susana Santos) and 2018/19 (Adriana Moreira, Ana Rita Bravo, Catarina Gouveia, Catarina Senra, Helena Baptista, Joana Dinis, and Sara Liliana Silva) who participated in data collection are also included in the research team.

To assess group fragmentation, a single item was used to capture members' perception of the existence of subgroups when working together on a task, using a 7-point Likert scale ranging from 1 = *strongly disagree* to 7 = *strongly agree* (cf. Appendix B). The item states the following: "When we are working together on a task, subgroups are formed". The use of a single item to measure this construct was due to the redundancy of the items found in the literature's scales, a factor noted by the participants of the pilot test conducted within the scope of the VITEM project, to evaluate the face validity of the scales. This item was developed based on the scales of Shen and colleagues (2008), and Earley and Mosakowski (2000).

Lastly, single-item scales, being shorter, more flexible and easier to administer (Pomeroy et al., 2001) have several advantages, such as less time and less monotony when filling them out, and also a reduction in the number of responses sent (Drolet & Morrison, 2001). If carefully constructed, they may contain more and/or better information than multiple items, which end up inappropriately overlapping with each other, the result of a construction with pressure on redundancy (Fuchs & Diamantopoulos, 2009). On the other hand, facial validation may benefit from the use of a single item, since it will lead to the respondent not seeing the instrument as too repetitive, and its purpose is also easier to understand (Fuchs & Diamantopoulos, 2009).

**Task conflict**

In order to assess task conflict, the *Evaluation Scale of Intragroup Conflict* (EACI) advanced by Dimas (2007; Dimas et al., 2016)[5] was used. The EACI is subdivided into two distinct sub-scales (task and affective conflict), and are composed of nine items altogether (five for task conflict, and four for affective conflict). For the present research, only five items were used (2, 5, 6, 7, and 8), which corresponded to task conflict measurement, in order to understand the frequency by which task conflict situations occur within a group (1 = *never happens*; 7 = *always happens*) (Dimas, 2007). An example of an EACI task conflict subscale item is item 7: "Different ideas concerning rules and team goals" (cf. Appendix D). The scale has shown high internal consistency (Cronbach's alpha = .87) (Dimas, 2007).

**Team Performance**

[5] This scale was based on already existing literature (Cox, 1998; De Dreu & van Vianen, 2001; Jehn, 1994).

The current study made use of the *Evaluation Scale of Team Performance* (EADG) (cf. Appendix C) in order to measure team performance levels. The instrument was originally developed by Dimas (2007), and is composed of 10 different items, measured on a Likert-type scale (1 = *bad* to 10 = *excellent*). EADG provides insight into how team members perceive their team onto the following: the ability to properly address problems, the team's decision-making plan in order to achieve set goals, quality of work produced, task efficiency, amount of work produced, quality of new ideas/suggestions, ability to implement new ideas, compliance with the established deadlines, number of new ideas/suggestions, and the ability to deal with uncertainty and unpredictable events (Dimas et al., 2016). The first item, for example, goes as follows: "Ability to approach problems appropriately".

A study conducted by Dimas and Lourenço (2015) analyzed the EADG scale using principal component analysis. The results showed that the scale had one dimension that explained 54.6% of the total variance, and all the items had high factor loadings above .60. The scale also demonstrated high internal consistency, as indicated by a Cronbach's alpha coefficient of .88.

**Team Satisfaction**

The *Satisfaction Scale with the Working Group* (ESAGT) was used to assess perceived team satisfaction (cf. Appendix D). The instrument was developed by Dimas et al. (2018). It is composed of seven items regarding the following dimensions: performance, how the team works, how the leader organizes and coordinates team activities, relationships among team members, relationships between team members and the leader, the role played by each team member, and team environment. Participants used a Likert-type scale (1 = *totally dissatisfied* to 7 = *totally satisfied*), in which the first item is hereby presented: "1. Existing climate in the work team".

Dimas and colleagues (2018) examined the dimensionality of the ESAGT scale using both exploratory and confirmatory factor analyses. The results showed that a single factor was responsible for 59.64% of the variance. The items on the scale presented high factor loadings (.60) and communalities (.40), indicating that they were strongly associated with the underlying factor. Additionally, the scale demonstrated excellent internal consistency, as evidenced by a Cronbach's alpha above .90.

### Team Innovation

To measure team innovation, a three-item Portuguese version of Batarseh and colleagues (2017) adapted from Vera and Crossan (2005) (cf. Appendix C). The latter is based on Roth's innovation scale (1993). The original scale demonstrated high internal consistency, as evidenced by a Cronbach's alpha superior than .73. The items state: (a) "The team is highly innovative"; (b) "The team is fast in adopting new and innovative solutions"; and (c) "The team often introduces new and innovative solutions". Each item is rated using a 7-point Likert scale from 1 (*totally disagree*) to 7 (*totally agree*).

### Control variables

#### Team size

Team size is an important factor to consider when studying group processes, as studies have found it to have a significant influence on team outcomes (e.g., De Dreu & van Vianen, 2001; Jehn, 1995). In this particular study, the team size was used as a control variable and was measured by asking the leaders to indicate the number of team members, excluding themselves. This information was used to help ensure that the results were accurately attributed to the variables being studied and not influenced by the size of the team. Team size data was collected on the leaders' questionnaire (cf. Appendix C).

#### Team tenure

Team tenure in the present research corresponds to the amount of time any given team member has been a part of their team. This variable may have a significant impact on team processes and outcomes, such that literature has previously shown it to be a control variable for team processes and outcomes (e.g., Zang & Barthol, 2010). Team tenure was collected by asking how members had formed part of the team (cf. Appendix D).

#### Virtuality degree

The amount of technology-dependent communication was also taken into consideration as a control variable (cf. Appendix D), as suggested by previous literature (e.g., Schweitzer & Duxbury, 2010). The sampled team members were asked to split a total of 100% across nine

communication channels, indicating their team's usage of each, in order to calculate the degree of virtuality using the equation proposed by De Jong et al. (2008). This way, the team's virtuality degree can be cross-referenced by those proposed by Baltes et al. (2002).

**Statistical analysis**

First, the psychometric properties of the scales were evaluated. Second, the data regarding subgroups, task conflict and satisfaction was aggregated for the team level, since this research is focused on the group level and the data has been collected at the individual level. As a way to justify the aggregation, the values of $r_{wg}$ were calculated (James et al., 1984), as well as the values of Intraclass Correlation Coefficients ICC (1) and ICC (2) (Bliese, 2000).

The team satisfaction measurements yielded values of .92 for $r_{wg}$, .28 for ICC (1), and .63 for ICC (2), all of which align with the recommended literature values (cf. Brown & Hauenstein, 2005; Bliese, 2000; Klein & Kozlowski, 2000). In terms of task conflict, a value of .86 for $r_{wg}$ was found, .27 for ICC (1), and .63 for ICC (2), which seem congruent to existing literature. On the other hand, the value of .51 for $r_{wg}$ in relation to subgroup perception was deemed unacceptable by Brown and Hauenstein (2005), but the ICC (1) and ICC (2) values of .32 and .68, respectively, fell within the recommended literature values (cf. Bliese, 2000; Klein & Kozlowski, 2000). To ensure data aggregation for this measure, the study also utilized the $r_{wg}$ index, a computationally simpler and more generalizable alternative to $r_{wg}$ proposed by Lindell et al. (1999), which resulted in an adequate value of .75.

Hayes' (2022) SPSS PROCESS macro was employed to test hypotheses of mediation (4.2 beta version), including its indirect effect. By utilizing bootstrapping, Model 4 of this macro enables the creation of a 95% confidence interval to evaluate a linear mediation. The interval was constructed using a sample of 5000 bootstraps. The indirect effect in this simple mediation is determined by multiplying the predictor coefficient on the mediator with the mediator coefficient on the criterion. If the value of zero is not encompassed within the upper and lower limits of the 95% confidence interval generated by the PROCESS, the effect is considered statistically significant. As the present study analyzed three criterion variables (team innovation,

performance, and satisfaction), separate analyses were performed for each criterion variable (Hayes, 2022).

## Results

### Psychometric qualities of measuring instruments

#### Task Conflict

Subgroup perception granted no psychometric attention for the present research, due to its scale only containing one item. For task conflict, however, using the principal axis factor extraction method, a one-dimensional structure made up of five items that explains 65.44% of the total variance was obtained, as expected. The communalities ranged from .52 to .78 and the loadings from .72 to .88, indicating adequate values (Hair, 2018). With regard to internal consistency, the task conflict scale showed a Cronbach's alpha of .90, which can be considered a very good value of internal consistency according to the notation of DeVellis (2003).

#### Team Innovation

For team innovation, also using the principal axis factor extraction method, a one-dimensional structure made up of three items that explains 73.23% of the total variance was obtained. The communalities ranged from .67 to .77 and the loadings from .82 to .98, indicating adequate values (Hair, 2018). With regard to internal consistency, the team innovation scale showed a Cronbach's alpha of .89.

#### Team Performance

When evaluating performance, at first, a two-dimensional structure was obtained using the principal axis factor extraction method, explaining 59.31% of the total variance (47.61% and 11.70%). However, since the scale utilized possesses a one-dimensional structure and the second factor only explains a small percentage of the variance with none of the items strongly correlating with it, a forced one-factor solution was used instead, explaining 46.41% of the total variance. Communalities of the 10 items from .30 to .65, indicating that the minimum value was

lower than desired, but there was no justification for eliminating any items (Costello & Osborne, 2005). Loadings were adequate, ranging from .55 to .81 (Hair, 2018). A Cronbach's alpha of .89 was obtained in the analysis of internal consistency.

**Team Satisfaction**

For team satisfaction, also using the principal axis factor extraction method, a one-dimensional structure with seven items that explains 61.96% of the total variance was obtained, as expected. The communalities ranged from .48 to .72 and the loadings from .69 to .85, indicating adequate values (Hair, 2018). With regard to internal consistency, the team satisfaction scale showed a Cronbach's alpha of .92.

**Hypotheses testing**

As previously mentioned, team size was considered a control variable for the present research. Table 1 shows that this was the only control variable presenting a significant positive correlation with task conflict ($r$ = .21, $p$ = .02) compared to team tenure ($r$ = .03; $p$ = .8), and team virtuality ($r$ = .11, $p$ = .23), as well as with team innovation. Therefore, following Becker's (2005) recommendations, only team size was included as a control variable in the following analyses. Since conflict is the mediator, team size will be inherently included when analyzing all other variables (subgroup perception, and all three indicators of team effectiveness).

A positive association between subgroup perception and task conflict was found ($r$ = .43, $p$ < .001), thus supporting $H_1$. Task conflict was found to be negatively correlated to team effectiveness and its three corresponding indicators: (a) innovation ($r$ = -.22, $p$ = .02), supporting H2a; (b) performance ($r$ = -.27, $p$ < .01), supporting H2b; and (c) satisfaction ($r$ = -.39, $p$ < .01), supporting H2c. This indicates that H1, H2a, H2b, and H2c were all supported (see Table 1).

**Table 1**

*Means, standard deviations and correlations of the variables under study*

| Variables | *M* | *SD* | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 |
|---|---|---|---|---|---|---|---|---|---|---|
| 1. Team tenure | 8.07 | 8.81 | - | | | | | | | |
| 2. Team size | 6.16 | 3.96 | .19* | - | | | | | | |
| 3. Virtuality | 35.7 | 17.1 | -.09 | .08 | - | | | | | |
| 4. Subgroup perception | 3.47 | 1.37 | .11 | .21* | .19* | - | | | | |
| 5. Task conflict | 3.29 | .800 | .03 | .21* | .11 | .43** | - | | | |
| 6. Performance | 7.67 | .993 | .06 | -.17 | -.06 | -.10 | -.27** | - | | |
| 7. Innovation | 5.07 | 1.04 | .03 | -.24** | -.07 | -.09 | -.22* | .69** | - | |
| 8. Satisfaction | 5.51 | .670 | -.11 | -.12 | -.06 | -.23** | -39** | .37** | .30** | - |

*Note.* $N = 124$.

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

As shown in Table 2, results indicated that the indirect coefficient was significant, as zero is not included between the maximum and minimum limits of the 95% confidence interval generated by PROCESS ($B = -0.06$; $SE = 0.03$, 95%; $CI = [-0.13, -0.05]$. Since the direct effect was not significant ($B = 0.03$, $SE = 0.07$, $p = .733$), the task conflict mediation identified is a full mediation between team innovation and subgroup perception. Therefore, H3a was supported.

Still on Table 2, results illustrate that the indirect coefficient was significant, as zero is not included between the maximum and minimum limits of the 95% confidence interval generated by PROCESS ($B = -0.07$; $SE = 0.03$, 95%; $CI = [-0.15, -0.02]$. Since the direct effect was not significant ($B = 0.03$, $SE = 0.07$, $p = .719$), the task conflict mediation identified is a full mediation between team performance and subgroup perception. Consequently, H3b was supported.

Lastly, results pointed to the indirect coefficient being significant, as demonstrated in Table 2, as zero is not included between the maximum and minimum limits of the 95% confidence interval generated by PROCESS ($B = -0.07$; $SE = 0.03$, 95%; $CI = [-0.13, -0.02]$. Since the direct effect was not significant ($B = -0.04$, $SE = 0.05$, $p = .425$), the task conflict

mediation identified is a full mediation between team satisfaction and subgroup perception. Thus, H3c was supported.

**Table 2**

*Mediation regression analysis between task conflict, subgroup perception, and team effectiveness (innovation - H3a, performance - H3b, and satisfaction - H3c)*

| | | | 95% CI | | |
|---|---|---|---|---|---|
| ***DV/Predictor*** | ***B*** | ***SE*** | ***LL*** | ***UL*** | ***R2*** |
| ***Task Conflict*** | | | | | *.20*** |
| ***Subgroup perception*** | *0.23**** | *0.05* | *0.14* | *0.33* | |
| ***Innovation*** | | | | | *.09** |
| ***Subgroup perception*** | *0.03* | *0.07* | *-0.12* | *0.17* | |
| ***Task Conflict*** | *-0.24* | *0.13* | *-0.49* | *0.01* | |
| ***Team size*** | *-0.05* | *0.02* | *-0.10* | *-0.01* | |
| ***Indirect effect*** | *-0.06* | *0.03* | *-0.13* | *-0.05* | |
| ***Performance*** | | | | | *.09** |
| ***Subgroup perception*** | *0.03* | *0.07* | *-0.11* | *0.17* | |
| ***Task Conflict*** | *-0.32** | *0.12* | *-0.56* | *-0.08* | |
| ***Team Size*** | *-0.03* | *0.02* | *-0.08* | *0.01* | |
| ***Indirect effect*** | *-0.07* | *0.03* | *-0.15* | *-0.02* | |

| | | | | | |
|---|---|---|---|---|---|
| ***Satisfaction*** | | | | | *.16**** |
| ***Subgroup perception*** | *-0.04* | *0.05* | *-0.13* | *0.05* | |
| ***Task Conflict*** | *-0.30**** | *0.08* | *-0.45* | *-0.14* | |
| ***Team Size*** | *-0.01* | *0.01* | *-0.03* | *0.02* | |
| ***Indirect effect*** | *-0.07* | *0.03* | *-0.13* | *-0.02* | |

*Note.* $N$ = 124. *DV* = dependent variable. *B* = non-standardized regression coefficient. *SE* = standard error. *CI* = confidence intervals. *LL* = lower limit. *UL* = upper limit. Interaction = mediated regression effect.

***$p < .001$, two-tailed. *$p < .05$, two-tailed.

## Discussion

Groups have increasingly been considered as a structuring element of organizations. Driven by economic competitiveness and globalization, organizations have tried to enhance team effectiveness to attain organizational goals. As a group phenomenon, conflict has been, in recent years, one of the main poles of interest of sciences dedicated to the study of organizations (Kreitner & Kinicki, 2010). The present study aimed to investigate how task conflict poses as a mediator between the perception of subgroups and team effectiveness at the group level. It was hypothesized that subgroup perception is positively correlated to task conflict (H1), task conflict is in turn negatively correlated to team effectiveness on three different indicators accounting for team innovation, performance, and satisfaction (respectively, H2a, H2b, and H2c), and that task conflict mediates the relationship between the latter three and subgroup perception (respectively, H3a, H3b, and H3c). In order to fulfill that objective, a set of hypotheses were formulated based on the literature and mediation models were tested. Based on the findings, the study supported all hypotheses related to the research questions.

Task conflict was found to be negatively correlated with team effectiveness and its three corresponding indicators, which supported H2a, H2b, and H2c. The literature suggests that communication and information sharing difficulties may arise in diverse teams, leading to conflicts and tensions among subgroups (Murnighan & Lau, 2017; Oliveira & Scherbaum, 2015; Stanciu, 2015). This aligns with the finding that subgroup perception is positively associated with task conflict, indicating that when subgroups form based on demographic characteristics, they may have different perspectives or approaches to the task, resulting in conflict.

In terms of team effectiveness, the study's findings are consistent with the literature, which presents dichotomous results regarding the impact of task conflict. Some studies indicate a negative linear effect of task conflict on group performance (Foo, 2009; Jehn et al., 2010; Puck & Pregernig, 2014; Todorova et al., 2020). The study's findings support the negative correlation between task conflict and team innovation, performance, and satisfaction, indicating that higher levels of task conflict are associated with lower levels of these effectiveness indicators.

The mediation analyses conducted in the study provide additional insights. The results show that task conflict fully mediates the relationship between subgroup perception and team innovation, performance, and satisfaction. The significant indirect coefficients and the lack of significance in the direct effects indicate that task conflict fully mediates the relationships between subgroup perception and team innovation, performance, and satisfaction (H3a, H3b, and H3c, respectively). This aligns with previous research that has demonstrated the mediating role of task conflict in the relationship between subgrouping and team effectiveness (Yun et al., 2020).

Literature is conflicting on the effects of task conflict on team innovation (Li et al., 2019; Ma et al., 2018; Zhou & Pan, 2013). Some studies point to a positive correlation between both variables at the group level (Lovelace et al., 2001), depending on the level of task conflict (Zhou & Pan, 2013). A multiple regression analysis was conducted to examine the relationship between subgroup perception, task conflict on team innovation. The indirect effect of task conflict on team innovation was negative (i.e. higher levels of task conflict were associated with lower levels of team innovation). Nonetheless, the empirical data gives support to H3a.

The study is consistent with previous research that has shown both positive and negative correlations between task conflict and team innovation (Chen, 2006; Lovelace et al., 2001), since it suggests that while some level of conflict can be beneficial for innovation, excessive or

unmanaged conflict may hinder creativity and collaborative outcomes (Zhou & Pan, 2013). Thus, task conflict can trigger information exchange, promote new ideas and solutions, and improve problem-solving (Shalley & Gilson, 2004; Tjosvold, 1997).

The results reported also show the mediation analysis between task conflict, subgroup perception, and team performance. The results suggest that task conflict has a negative effect on team performance. However, neither the perception of subgroups nor team size had a significant effect on team performance. Since there was no direct statistically significant relationship between the perception of subgroups and team performance, total mediation was supported. Therefore, the data provide empirical support for hypothesis H3b, which suggests that task conflict mediates the relationship between the perception of subgroups and team performance. Research allocates a negative correlation between task conflict and team performance (De Debreu & Weingart, 2003; Dimas & Lourenço, 2015; Jehn et al., 2010; Liu et al., 2009; Lovelace et al., 2001; Passos & Caetano, 2005; Puck & Pregernig, 2014; Thatcher et al., 2003; Todorova et al., 2020; van Woerkom & Sanders, 2010), and how the level of task conflict may mediate the relationship between subgroup diversity and team performance (Jehn & Northcraft, 1999).

Cohen et al. (1996) and Cohen and Bailey (1997) demonstrated that performance norms of a group have a positive association with both the team's evaluation of their performance and their satisfaction with their work. This suggests that when teams have high-performance norms, it positively influences their satisfaction levels. The findings of the present study support this relationship, as team satisfaction was negatively correlated with task conflict, indicating that increased conflict around task-related issues led to lower satisfaction levels among team members.

The literature suggests a double negative effect of task conflict on team performance and satisfaction (Gong et al., 2009; Shen et al., 2018). The present study's results support this notion, as task conflict was found to be negatively correlated with both team performance and satisfaction. Higher levels of task conflict were associated with lower performance and satisfaction levels. Perception of subgroups had a negative standardized coefficient, but this effect was not statistically significant. Although mild task conflict may increase job satisfaction (Todorova et al., 2014), task conflict may also present a negative correlation with the latter, meaning that the more conflict there is around task-related issues, the less satisfied team

members are with their work (Alaniz et al., 2015; Dimas & Lourenço, 2015; Gong et al., 2009; Shen et al., 2018).

The findings highlight the importance of managing conflict effectively within teams to promote positive outcomes, and they emphasize the need for cognitive flexibility to ensure that task conflict is handled constructively (Medina et al., 2013). The study's results are in line with previous research, strengthening the understanding of the dynamics within teams and their impact on team effectiveness.

**Limitations**

There are some limitations to the present study. First, to better serve the community's goals and pursuits in group and team research, the present study is geographically limited by Portuguese culture. The latter might limit the study's applicability to countries with stark cultural differences, as the cultural background of a society and its individuals may affect organizational and team culture (Dimas & Lourenço, 2015). For instance, avoiding conflict and perceiving it as final and negative may be compliant to collectivist societies. Chinese teams have reported lower levels of task conflict compared to Western teams, which may reflect cultural differences in conflict management (Ting-Toomey, 2005; Yun et al., 2020).

Second, according to Argote and McGrath (1993), groups are dynamic systems that need to be studied over time. Also, the cross-sectional design of the present research may pose an obstacle to the inference of empirical causality among the variables. Thus, one limitation and future recommendation may be to incorporate a longitudinal design in order to better grasp how task conflict mediates subgroup perception and team effectiveness over time.

Third, the utilization of self-administered questionnaires may have resulted in social desirability or contamination effects, as data was collected from members based on their perceptions of the group. Consequently, their responses may have been influenced by a desire to present a favorable image of the team. Nonetheless, it is noteworthy that conducting the analysis at the group and leader-level may have minimized bias due to common method variance (Conway, 2002).

Fourth, using a single item to assess the variable "subgroup fragmentation" can compromise the reliability of the data or make its estimation rather difficult. Even though there

are indeed advantages of using single-item scales, future studies may benefit from psychometric indications, such that strength is provided to this decision (e.g., reliability estimation through test-retest).

Lastly, the sole stakeholders involved in data collection at an organization level were the sampled team members and leaders. However, groups are adaptive systems in constant exchange between differences involving contexts and team members (Argote & McGrath, 1993; Salas et al., 2007). In order to provide better reasoning about group outcomes and behavior, other stakeholders could be involved, such as senior leadership and other groups that might have contact and work with the sampled teams. Reflecting about the characteristics of another group, goals and milestones, and understanding the team's dynamics could be beneficial for conflict management (Van der Kamp et al., 2011).

**Future Research**

There are open research questions in many areas of the mediating role of task conflict, including different measurements, and empirical results. For example, the level of intensity in how conflict is expressed is an essential aspect of task conflict that has not received enough attention in previous research, and could further inform how task conflict informs team effectiveness. Further research could also make use of other indicators for team effectiveness, such as group viability (Aubé & Rousseau, 2005).

Future studies could make use of potential moderators that may mitigate the negative effects of subgroup perception and task conflict on team effectiveness. A first example could be organizational culture (Lourenço et al., 2014). A positive and inclusive organizational culture that values collaboration, respect, and open communication might mitigate the negative effects of subgroup perception and task conflict. A second example could be organizational climate (Homan et al., 2010). A supportive and cooperative climate, where conflicts are addressed constructively and differences are respected, can help teams manage subgroup perception and task conflict more effectively. Thirdly, group cultural norms could also be useful for future study directions. Establishing group norms that promote inclusivity, cooperation, and shared goals might encourage collaboration and reduce the impact of conflicts arising from subgroup differences.

Literature suggests that the negative effect of task conflict on team satisfaction can be mitigated by high levels of intra-group trust (Jehn & Mannix, 2001). Trust among team members allows them to overcome task conflict and maintain satisfaction levels. Conversely, low levels of trust can amplify the negative effect of task conflict on satisfaction. Furthermore, trust within the team may not be a determining factor for team innovation (Bastos et al., 2019). Although organizational trust was not directly measured in the present study, it would be worth considering it in future research to gain a deeper understanding of the dynamics between trust, task conflict, subgroup perception, and team effectiveness.

Future studies concerning team effectiveness could emphasize not only the internal processes of the team, but the external processes that contribute to effectiveness, such as context-specific variables (Salas et al., 2007). Additionally, since the study focused on task conflict, future research could also cluster and compare task, affective, and process conflict relating to both subgroup formation and team effectiveness, in order to contrast if there is one type of conflict that would offer different results.

Lastly, following the COVID-19 pandemic and the progressive shift to remote work, following the global pandemic crisis and the progressive shift to remote work experienced in the wake of SARS-CoV-2, the effect of teleworking on groups should also be further studied, such that more studies are carried out in this field, especially on the how task conflict, and other different types of intragroup conflict, manifest through virtual teams and how it may differ from co-located teams. Further studies could also study hybrid teams that encompass both co-located and remote team members.

## Conclusion

The demanding modern environment multiplies the possibilities of potential conflicts in organizations and teams (Pettersen & Jacob, 1992). The current empirical study reinforces the relevance of task conflict at a group level, and highlights the importance of subgroup perception in organizational teams. The study is relevant at a research level, for it specifically furthers on the mediating role of task conflict in the relationship between subgroup perception and team effectiveness (name team innovation, performance, and satisfaction), through the IPO model. A strength of this study is the analysis of more than 100 teams in a wide array of industries.

However, task conflict management literature is inconsistent and contradictory. Thus, the results obtained may contribute to a better understanding of task conflict mediation and therefore to add knowledge to literature pertaining to its effect on subgroup perception and team effectiveness.

All hypotheses were supported for the present research, meaning that task conflict can indeed be presented as a mediator between subgroup perception and team effectiveness. Firstly, subgroup perception is positively correlated to task conflict which goes in accordance with previous literature on the topic (van Knippenberg & Schippers, 2007; Behfar et al., 2008; Behfar et al., 2008). Secondly, task conflict is negatively correlated to team effectiveness, namely at innovation, performance, and satisfaction. This seems in congruence with some of the existing body of literature for the three team effectiveness indicators. Since the literature is consistent, the present study contributes to the understanding of some existing literature. For team innovation (Li et al., 2019; Zhou & Pan, 2013) performance (Todorova et al., 2020; Foo, 2009; Jehn et al., 2010; Puck & Pregernig, 2014), and satisfaction (Jehn, 1995; Ronquillo et al., 2022). Thirdly, the findings indicate full mediation for task conflict between subgroup perfection and team effectiveness. The results are also in agreement with existing literature (Yun et al., 2020; Medina et al., 2013).

The findings highlight the importance of managing subgroup dynamics and addressing task conflict within teams to enhance overall team effectiveness. Efforts should be directed towards promoting effective communication and collaboration among subgroups, fostering a shared understanding of goals and tasks, and developing strategies for constructive conflict management. By doing so, organizations can create an environment that maximizes team innovation, performance, and satisfaction when facing task conflict and subgroup perception.

Finally, at the intervention level, this study may aid organizations and team leaders to better manage their teams, rethink their strategies in order to promote task conflict resolution and management practices, and be made aware of how subgroup perception may positively correlate with task conflict, and how the latter is negatively correlated to team effectiveness. This also includes its mediating effect on subgroup perception and team effectiveness. As such, task conflict intervention measures may be taken by team leaders in order to optimize team outcomes, ultimately impacting the team's success in achieving organizational goals. These intervention measures can include: (a) establishing a common goal (van der Vegt, 1998); (b) encouraging open communication (Bezrukova et al., 2016; Jehn et al., 1999); (c) foster inclusive behavior

(Chatman & O'Reilly, 2004; Shore et al., 2011); (d) provide diversity and inclusion training (Cox, 1993); (e) implement cross-functional teams (Ancona & Caldwell, 1992); and (f) monitor team dynamics (Jehn & Bezrukova, 2010).

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## Appendices

**Appendix A**: Cover letter to Portuguese organizations

**Appendix B**: VITEM Research Project

**Appendix C**: Leaders' questionnaire

**Appendix D**: Team members' questionnaire

**Appendix E**: Position Paper Improvement Suggestions

# Appendix A

## Cover Letter to Portuguese Organizations

**(*Carta de Apresentação às organizações Portuguesas*)**

· U C · FPCEUC FACULDADE DE PSICOLOGIA E DE CIÊNCIAS DA EDUCAÇÃO UNIVERSIDADE DE COIMBRA

Coimbra, ___ de _____ de 201_

Exmo/a. Senhor/a Doutor/a _____

Dirigimo-nos a V. Exa. na qualidade de estudantes de mestrado da Universidade de Coimbra.

No âmbito dos projetos de investigação de mestrado que estamos a realizar na área de Psicologia do Trabalho e das Organizações, sob a orientação da Prof.ª Doutora Isabel Dórdio Dimas (Univ. Aveiro), Prof. Doutor Paulo Renato Lourenço (Univ. Coimbra) e Prof.ª Doutora Teresa Rebelo (Univ. Coimbra), na Faculdade de Psicologia e de Ciências da Educação da Universidade de Coimbra, propomo-nos estudar alguns processos de funcionamento dos grupos/equipas de trabalho virtuais ou com algum grau de virtualidade.

Para levar a cabo esta investigação pretendemos aplicar, em diferentes organizações e em dois momentos distintos, um questionário a vários grupos/equipas de trabalho e aos respetivos líderes. O primeiro momento decorrerá entre os meses de outubro e novembro de 2018 e o segundo durante os meses de dezembro de 2018 e janeiro de 2019. O tempo estimado para o preenchimento de cada questionário ronda os 20 minutos para os membros e os 7 minutos para os líderes.

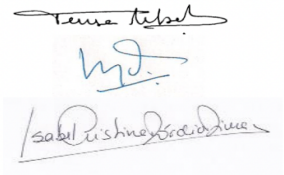
Às organizações participantes nesta investigação fica garantido o direito ao anonimato e à confidencialidade dos dados, bem como a entrega, após a conclusão dos mestrados, de uma cópia das teses. Caso manifestem o desejo de obter informação sobre os resultados referentes à vossa organização em particular,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

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

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

melhores cumprimentos,

(P'la equipa de investigação)



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# Appendix B

## VITEM Research Project


**Projeto de Colaboração em Investigação**

Projeto VITEM - A incidência de subgrupos e de competências emocionais no bem-estar e desempenho de equipas virtuais

**1. Introdução e Objetivos**

Fruto da globalização e avanço das tecnologias, é cada vez mais comum a presença e utilização de grupos/equipas com algum grau de virtualidade nas organizações. Embora a investigação sobre grupos em contexto organizacional seja já bastante extensa e diversificada, torna-se imprescindível aprofundar o conhecimento acerca do referido tipo de grupos. É neste contexto que se insere o Projeto VITEM - A incidência de subgrupos e de competências emocionais no bem-estar e desempenho de equipas virtuais. Trata-se de um Projeto internacional que envolve investigadores de diversas Universidades de Portugal (Universidade de Coimbra, Universidade de Aveiro e Universidade da Beira Interior) e de Espanha (Universidade de Valência e Universidade de Sevilha) e visa compreender como, em equipas com algum grau de virtualidade, alguns construtos relativos ao funcionamento grupal (cf. 3. "Variáveis em estudo") se relacionam entre si e com a eficácia das equipas de trabalho, nomeadamente no que diz respeito ao desempenho grupal, à inovação e à capacidade da equipa para se adaptar à mudança e continuar a trabalhar como tal no futuro (viabilidade grupal).

A realização do Projeto permitirá contribuir para o aumento do conhecimento acerca de equipas de trabalho com algum grau de virtualidade e, consequentemente, possibilitar a formulação e utilização de práticas capazes de promover um melhor funcionamento dessas equipas.

Em Portugal, a investigação do Projeto VITEM é coordenada por Paulo Renato Lourenço (Univ. Coimbra), Teresa Rebelo (Univ Coimbra), Isabel Dimas (Univ. Aveiro) e Marta Alves (Univ. da Beira Interior) e inclui a realização de diversos estudos. Alguns dos estudos serão realizados por estudantes

do último ano do Mestrado Integrado em Psicologia, da Faculdade de Psicologia e de Ciências da Educação da Universidade de Coimbra e do Mestrado em Psicologia Clínica e da Saúde da Universidade da Beira Interior, no âmbito das suas dissertações de mestrado, sob
supervisão científica dos Doutores Paulo Renato Lourenço, Teresa Rebelo, Isabel Dimas e Marta Alves.

**2. Equipa responsável pela realização dos estudos**

Estudantes do 2.º ano do Mestrado Integrado em Psicologia, da área de especialização de Psicologia das Organizações e do Trabalho, da Faculdade de Psicologia e de Ciências da Educação da Universidade de Coimbra:

- Adriana Moreira
- Ana Rita Bravo
- Catarina Gouveia
- Catarina Senra
- Joana Dinis
- Sara Liliana Silva

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

Estudante do 2º ano do Mestrado em Psicologia Clínica e da Saúde da Universidade da Beira Interior:

- Helena Baptista

Orientação:
- Prof.ª Doutora Marta Pereira Alves

**3. Variáveis em estudo:**

• Aprendizagem grupal – processo contínuo de reflexão e ação, voltado para a obtenção e processamento de informação, com o objetivo de detetar, compreender e adaptar melhor a equipa às mudanças do meio ambiente, melhorando a sua eficácia;

• Bem-estar afetivo individual – sentimentos/emoções vivenciados por uma pessoa;

• Capacidade de expressão de emoções – capacidade de os indivíduos, numa relação, expressarem,

mais as suas emoções, quer as positivas quer as negativas, de uma forma construtiva;

• Capital psicológico das equipas – estado psicológico positivo caracterizado por atributos como a autoeficácia, o otimismo, a esperança e a resiliência;

• Comprometimento afetivo com a equipa – caracteriza-se pela forte convicção e aceitação dos objetivos e valores da equipa à qual se pertence, vontade de exercer esforços consideráveis em nome desta e pelo forte desejo de continuar a ser seu membro;

• Confiança grupal – capacidade de os membros de uma equipa confiarem uns nos outros, existindo assim cooperação e partilha de ideias;

• Conflito intragrupal – divergência de perspetivas no seio do grupo, percebida como geradora de tensão por pelo menos uma das partes envolvidas numa determinada interação

• Envolvimento no trabalho em equipa – envolvimento dos colaboradores com o trabalho de equipa. É composto por três componentes: vigor, dedicação e absorção;

• *Faultlines*/Presença de subgrupos – linhas hipotéticas de divisão que podem repartir um grupo em subgrupos com base num ou mais atributos, gerando subgrupos relativamente homogéneos;

• Gestão do trabalho de equipa – grau em que os membros da equipa estruturam a realização do seu trabalho, através do planeamento, de maneira a que consigam organizar e facilitar a implementação de novas práticas na equipa, bem como acompanhar a realização do trabalho.

• Grau de Virtualidade – refere-se à medida em que a interação de uma equipa se encontra dependente das tecnologias de comunicação, sendo esta virtualidade compreendida como um continuum que vai desde um polo "nada virtual" (referente a equipas que interagem exclusivamente cara-a-cara) para um polo "totalmente virtual" (correspondente a equipas virtuais, cujos membros não se encontram num mesmo local);

• Reflexividade da equipa sobre a tarefa – medida em que os membros da equipa refletem e adaptam coletivamente os objetivos, estratégias e processos da equipa;

• Regulação emocional – conjunto de processos através dos quais o indivíduo influencia as emoções que experiencia, o momento da sua ocorrência e a sua expressão;

• Satisfação com a equipa – vontade de continuar a trabalhar com uma mesma equipa em virtude da ocorrência de experiências agradáveis durante a realização de um projeto com essa equipa.

**4. Amostra e participação das organizações**

Este estudo é direcionado aos membros de equipas/grupos virtuais ou com algum grau de virtualidade e respetivos líderes. Para ser considerada uma equipa válida para o estudo é necessário que (1) seja constituída por três ou mais membros (excluindo o líder), (2) os membros interajam, pelo menos, em algum grau, através de comunicação mediada por tecnologia
eletrónica (e.g. computador, telefone) (3) se reconheçam e sejam reconhecidos como equipa, (4) partilhem relações de interdependência e (5) tenham em vista um objetivo comum.

A participação da organização consiste na autorização da recolha de dados. Assim, a organização deve proporcionar condições adequadas para a recolha de informação necessária à realização da investigação.

A recolha de dados acontecerá em dois períodos, em datas a acordar com a organização. O primeiro decorrerá durante os meses de outubro e novembro de 2018 e o segundo durantes os meses de dezembro de 2018 e janeiro de 2019.

**5. Formas de recolha de informação e tempo previsto**

Na organização, em cada um dos momentos de recolha de dados referidos, será necessário:

• O preenchimento de um questionário pelos membros dos grupos/equipas de trabalho participantes no estudo (cerca de 20 minutos);

• O preenchimento de um questionário pelos líderes dos grupos/equipas de trabalho participantes no estudo (cerca de 7 minutos).

**6. Direitos e obrigações da equipa de investigação**

A equipa de investigação tem direito a:

• Não fornecer quaisquer resultados do estudo caso haja interrupção da participação ou recolha incompleta de informação;

• Devolver os resultados do estudo somente nas condições de a organização (1) aceitar que esses dados sejam devolvidos num formato que proteja a identidade dos participantes e (2) garantir que a informação recolhida nunca será utilizada com a finalidade de avaliar o desempenho dos colaboradores envolvidos;

• Fornecer os resultados somente aquando da conclusão do estudo.

A equipa de investigação tem o dever de:

• Assegurar condições que permitam e garantam o consentimento informado dos participantes;

• Garantir a confidencialidade e o anonimato de todos os dados recolhidos e cumprir as demais normas éticas que regulamentam a investigação na área da Psicologia;

• Recusar a entrega de dados e resultados individuais, quer referentes a trabalhadores da organização participante, quer referentes a outras organizações pertencentes à amostra; • Efetuar a recolha de dados de forma a causar o mínimo transtorno possível à organização e aos seus colaboradores;

• Não disponibilizar, em circunstância alguma, a listagem de endereços de e-mail, que for fornecida para aplicação do questionário online;

• Fornecer à organização, em formato digital (.pdf), um exemplar de cada uma das dissertações de

mestrado realizadas com base na informação recolhida.

P’la Coordenação da Equipa de Investigação

# Appendix C

## Leaders' questionnaire

| Cód. Organização: | Cód. Equipa: | Cód. Individual: |
|---|---|---|

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

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

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

Muito obrigado pela colaboração!

**Declaração de consentimento informado (Participante)**

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

Confirmo ☐

_____, _____ de _____ 2019

[**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. | | | | | | | | | | |

**Inovação Grupal**

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 que lidera. Assinale com uma cruz (x) o valor que melhor se adequa ao que lhe é apresentado em cada afirmação, utilizando a seguinte escala:

| Discordo Totalmente | Discordo Bastante | Discordo Ligeiramente | Não Concordo nem Discordo | Concordo Ligeiramente | Concordo Bastante | Concordo Totalmente |
|---|---|---|---|---|---|---|
| **1** | **2** | **3** | **4** | **5** | **6** | **7** |

| | 1 | 2 | 3 | 4 | 5 | 6 | 7 |
|---|---|---|---|---|---|---|---|
| 1. A equipa é altamente inovadora. | | | | | | | |
| 2. A equipa é rápida na adoção de soluções novas e inovadoras. | | | | | | | |
| 3. A equipa introduz com frequência soluções novas e inovadoras. | | | | | | | |

## Appendix D

## Team members' questionnaire

| Cód. Organização: | Cód. Equipa: | Cód. Individual: |
|---|---|---|

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 _____ 2019

[**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**.

Indique-nos, por favor, qual o tipo de comunicação estabelecida entre si e os outros membros da sua equipa **no último mês**. Distribua 100% pelos diversos tipos, considerando que as percentagens mais elevadas correspondem aos meios de comunicação que mais frequentemente utiliza para comunicar com os restantes membros da sua equipa:

| **TIPOS DE COMUNICAÇÃO UTILIZADOS** | **Percentagem** |
|---|---|
| 1. Presencial. | ___% |
| 2. Através de *videoconferência* (comunicação à distância com som e imagem – por exemplo *skype* com som e imagem). | ___% |
| 3. Através de *teleconferência* (comunicação à distância somente com som – por exemplo *telefone/telemóvel* ou *skype* somente com som). | ___% |
| 4. Através de um serviço de *chat* (comunicação à distância, somente escrita e em tempo real – por exemplo, *whatsApp* ou *messenger do facebook*). | ___% |
| 5. Através de *rede social* ou *forum* (comunicação à distância somente escrita, sem ser em tempo real – por exemplo, *facebook* sem chat). | ___% |
| 6. Através de *e-mail.* | ___% |
| 7. Através de *plataforma eletrónica* de partilha de documentos ou gestão de agenda (por exemplo, *dropbox* ou *google drive*). | ___% |
| 8. Através de *memorandos* ou *relatórios.* | ___% |
| 9. Outro: Qual? _____ | ___% |
| **TOTAL** | **100%** |

### Satisfação com a equipa

*Indique o seu grau de satisfação ou de insatisfação com cada um dos seguintes aspetos relativos à sua equipa de trabalho:*

| Totalmente insatisfeito | Bastante insatisfeito | Moderadamente Insatisfeito | Nem satisfeito nem insatisfeito | Moderadamente satisfeito | Bastante satisfeito | Totalmente satisfeito |
|---|---|---|---|---|---|---|
| **1** | **2** | **3** | **4** | **5** | **6** | **7** |

| | **1** | **2** | **3** | **4** | **5** | **6** | **7** |
|---|---|---|---|---|---|---|---|
| 1. Clima existente na equipa de trabalho. | | | | | | | |
| 2. Forma de trabalhar da equipa. | | | | | | | |

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| 3. Forma como o líder organiza e coordena as atividades da equipa. | | | | | | | |
| 4. Resultados alcançados pela equipa de trabalho. | | | | | | | |
| 5. Relações entre os membros da equipa e o líder. | | | | | | | |
| 6. Relações entre os membros da equipa de trabalho. | | | | | | | |
| 7. Papel que cada membro desempenha na equipa. | | | | | | | |

**Conflito intragrupal**

As questões que se seguem dizem respeito a algumas situações que podem emergir na vida de uma equipa. Indique com que frequência surge **tensão** na sua equipa causada por cada uma das situações apresentadas, utilizando para o efeito a seguinte escala:

| **1** Nunca acontece | **2** Quase nunca acontece | **3** Acontece poucas vezes | **4** Acontece algumas vezes | **5** Acontece muitas vezes | **6** Acontece quase sempre | **7** Acontece sempre |
|---|---|---|---|---|---|---|

| | **1** | **2** | **3** | **4** | **5** | **6** | **7** |
|---|---|---|---|---|---|---|---|
| 1. Manifestação de divergências pessoais entre os membros da equipa. | | | | | | | |
| 2. Divergências no que diz respeito à distribuição do trabalho e da responsabilidade. | | | | | | | |
| 3. Divergências entre os membros da equipa associadas a diferenças de personalidade. | | | | | | | |
| 4. Manifestação de diferenças entre os membros da equipa relativamente a valores e atitudes perante a vida. | | | | | | | |
| 5. Opiniões diferentes quanto à forma como o trabalho deve ser executado. | | | | | | | |
| 6. Divergências quanto ao conteúdo das decisões tomadas. | | | | | | | |
| 7. Ideias diferentes relativamente às regras e aos objetivos da equipa. | | | | | | | |
| 8. Divergências relativas ao papel que cada membro desempenha na realização das tarefas. | | | | | | | |

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| 9. Emergência de diferenças na forma como cada membro do grupo se relaciona com os outros. | | | | | | | |

**Perceção de subgrupos**

Por fim, assinale com uma cruz (x) o valor que melhor se adequa a cada afirmação relativamente à sua equipa, utilizando a seguinte escala:

| Discordo Totalmente | Discordo muito | Discordo em parte | Não concordo nem discordo | Concordo em parte | Concordo muito | Concordo Totalmente |
|---|---|---|---|---|---|---|
| **1** | **2** | **3** | **4** | **5** | **6** | **7** |

| | **1** | **2** | **3** | **4** | **5** | **6** | **7** |
|---|---|---|---|---|---|---|---|
| 1. Quando estamos a trabalhar em conjunto numa tarefa, formam-se subgrupos. | | | | | | | |