

Team Member Satisfaction, Teamwork Management, and Task Conflict: A Multilevel Model

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Abstract. This study investigates how teamwork management influences the levels of team members' satisfaction both directly and indirectly, through its influence on reducing task conflict. Three hundred and fifty-eight team members from 88 teams were surveyed. A two-wave data collection procedure was implemented with a time lag of about two months. Due to the multilevel nature of data (while teamwork management and task conflict are conceptualized as team-level constructs, team member satisfaction is at the individual level), hypotheses were tested through Multilevel Path Analysis in Stata. Results revealed that teamwork management presented a positive relationship with the levels of satisfaction of team members towards the team. Moreover, task conflict presented a mediating role between teamwork management and satisfaction. The findings emphasize the importance of team members planning the work, organizing resources and providing support to each other to reduce conflict and generate a positive attitude of members towards the team.

Keywords: Team member satisfaction · teamwork management · task conflict

1 Introduction

Organizations have adopted team-based work to give an answer to the challenges of an increasingly complex and volatile environment (Mathieu et al. 2019). Although teams can potentially generate better results than individuals working separately, research shows that not all teams succeed, because they do not develop a functioning that leads to effective collaboration and to the achievement of team goals (DeChurch and Mesmer-Magnus, 2010). In order to achieve collective goals and to contribute to team effectiveness, team members need to be involved in teamwork processes, that is, to develop teamwork (Salas et al. 2008).

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O. Gervasi et al. (Eds.): ICCSA 2023 Workshops, LNCS 14105, pp. 24–34, 2023.
https://doi.org/10.1007/978-3-031-37108-0_2

Although most of the research has considered team performance as the main criterion of effectiveness (Mathieu et al. 2008), there is consensus in the literature regarding the need to consider multiple criteria when studying team effectiveness (Aubé and Rousseau, 2005).

In this context, Hackman (1987) identifies three criteria to be considered when assessing team effectiveness: (a) the degree to which the group's products/services correspond to the standards of quality and quantity of those who receive and/or analyse its output; (b) the degree to which the social processes used to accomplish the work contribute to maintain or enhance the ability of group members to work together in the future; (c) the degree to which the group experience contributes to team members' growth and well-being. In the present study, we focus on members' satisfaction with the group, which is aligned with the last criterion, being one of the most frequent ways to operationalize it. Team member satisfaction is an essential aspect of team effectiveness, and previous research have shown that employees' experiences at work have a significant impact on their work-related attitudes (e.g., personal well-being, turnover) and on their present and future commitment and performance (Nerkar et al. 1996; Spector, 1997).

Recognizing the importance of increasing team member satisfaction among teams, our study is focused on the processes that contribute to it. Specifically, adopting a multilevel design, we explore how individual satisfaction with the team can be influenced by the way the team cooperates, organizes, and plans its activities (i.e., by teamwork management). Moreover, we also intend to explore how teamwork management contribute to reducing conflicts regarding the task, indirectly influencing in a positive way the levels of satisfaction of team members. Our hypothesized model is depicted in Fig. 1.

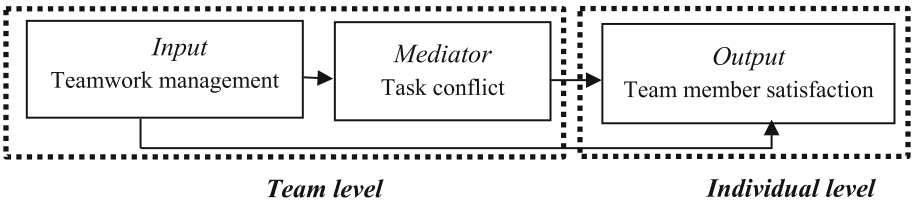


Fig. 1. Hypothesized model under analysis

1.1 Team Member Satisfaction

Job satisfaction has been a central theme in organizational research, and multiple studies can be found supporting its effects on organizations in aspects such as individual work performance (Riketta, 2008), firm performance (van de Voorde et al. 2012), productivity (Hoboubi et al. 2017) or organizational citizenship behaviour and turnover intentions (Tsai and Wu, 2010). Judge and Kammeyer-Mueller (2012) have proposed an integrating definition, which considers job satisfaction as an evaluative state that expresses contentment with the experiences provided by one's job.

In the work group context, satisfaction with the work group, specifically, can be defined as an affective response of members towards the group, its characteristics

and functioning (Wiiteman, 1991) and can be conceptualized as a criterion of team effectiveness.

Li et al. (2009) highlight that the level of satisfaction with the team may vary according to the existing personal and interpersonal relationships, the characteristics of the task (e.g., task identity and significance, autonomy and responsibility, and feedback about the results), the result of the work performed (performance), the participation of group members in the work performance, among other factors external or internal to the group. Accordingly, group member satisfaction with the group integrates both aspects related to the task system (e.g., work accomplishment) and aspects related to the affective system of the group (e.g., work climate in the team).

1.2 Teamwork Management and Team Member Satisfaction

The concept of teamwork management was introduced by Rousseau et al. (2006) as part of the construct of teams' internal functioning. Teamwork management refers to the way team members organize themselves to plan their tasks and carry out their work in order to improve team effectiveness (Rousseau et al. 2006).

Teamwork management is associated with the degree team members structure and plan their work to facilitate the implementation of new practices and monitor the work progress (Dimas et al. 2016; Rousseau et al. 2006). According to Rousseau et al. teamwork management involves the following dimensions: work planning/organization, resource management and support for innovation dimensions (Pinto and Lourenço, 2014; Rousseau et al. 2006). Work planning/organization is related to team members' knowledge of their colleague's responsibilities and functions and involve coordinating and planning the work so that tasks are carried out within the deadline (Ilgen et al. 2005; Marks et al. 2001; Rousseau et al. 2006), in order to avoid unnecessary efforts (Cohen et al. 1996). Resource management refers to the way team members manage the available resources (Anderson and West, 1996), allocating the necessary resources to achieve the desired objectives. Finally, support for innovation is defined as the degree team members generate new ideas and practices and promote their practical use (Anderson and West, 1996; Cohen et al. 1996).

These behaviours adopted in the teamwork context are important determinants of team effectiveness (Rousseau et al. 2006). By providing support to each other, allocating resources more efficiently and planning appropriately the work that needs to be done, teamwork management will generate a positive attitude of team members towards their team (i.e., high levels of satisfaction). Accordingly, we hypothesize that:

Hypothesis 1: Teamwork management will have a positive relationship with team member satisfaction.

1.3 The Mediating Role of Task Conflict

Intragroup conflict has been defined as a disagreement that is perceived as tense by at least one of the parties involved in an interaction (De Dreu and Weingart, 2003) and is usually conceptualized as task or relationship oriented (Jehn, 1994). Task conflict emerges when there is tension in the group due to the presence of different opinions regarding the task,

while relationship conflict involves situations of interpersonal tension between group members based on differences in personality, beliefs, and attitudes.

Previous studies support the negative influence of both types of intragroup conflict on satisfaction (De Dreu and Weingart, 2003; Dimas and Lourenço, 2015). Indeed, as noted by Tekleab et al. (2009), high levels of conflict may generate stress and harm psychological well-being. Thus, the usual reaction to conflict is dissatisfaction (De Dreu et al. 2004).

Previous studies have found that conflicts in teams are influenced by different factors, namely by the levels of diversity in the group (Jehn et al. 1999), faultlines (Choi and Cho, 2011), trust (Curşeu and Schruijer, 2010), or team climate (Jehn and Mannix, 2001).

Regarding conflicts related to the task, important sources of disagreements include deadlines management and coordination (Gevers and Peeters, 2009). Moye and Langfred (2004) have highlighted the importance of information sharing in reducing task conflicts. Indeed, sharing information among team members help to create a common understanding of the work developed, improving coordination and resources allocation.

Establishing cooperation and a pleasant collaboration is essential to reduce conflicts related to the way tasks are developed and aims are defined and achieved. Accordingly, a better teamwork management will contribute to reducing task conflicts among teams, increasing, in turn, the levels of satisfaction of team members. Accordingly, the following hypothesis is established:

Hypothesis 2: Teamwork management will have an indirect relationship with team member satisfaction through task conflict.

2 Materials and Methods

2.1 Data Collection Procedures

Organizations were identified using both the authors' personal and professional networks and national company databases that are accessible online. In the first contact with the company's representatives, the research purpose was presented, as well as the requirements for the company to participate. In these meetings, companies were also informed that a report on the companies' results could be provided if required. According to the criteria for defining a team (Cohen and Bailey, 1997), teams were considered for inclusion in the study if they (a) consisted of at least three members, (b) were perceived by themselves and others as a team, (c) and worked interdependently to achieve a common goal.

In order to reduce common method variance (Podsakoff et al. 2003), data was collected at two moments about two months apart from each other. A two-month time lag was chosen to reduce common method variance and, simultaneously, to have a period short enough for the antecedents to exert an influence on the outcome considered.

Data collection was carried out through surveys filled in mostly online (in a few cases, surveys were answered in paper format). A team was considered valid only if half of the team members responded to the surveys in both waves. The cut-off of 50% response rate is in line with previous studies that used team-level aggregated data (e.g., Keem et al. 2022).

2.2 Sample

The sample is composed of 358 members of 88 teams from different companies. Most of the companies were small and mid-size enterprises (SMEs) (76%) from the services sector (71%). Team size varied from 3 to 43 members with an average of approximately six members ($SD = 5.37$) and teams have been working together for about eight years ($SD = 10.50$). Teams develop different types of activities, most of them are services teams (46%). Team members have on average 34 years ($SD = 11.63$), 52% are female and have been working in the team for about four years ($SD = 5.84$).

2.3 Measures

Teamwork Management. This variable was evaluated using the scale developed by (Rousseau et al. 2006), which has been adapted to the Portuguese language by Pinto and Lourenço (2014). This scale is composed of six items that are measured using a 5-point Likert-type scale, from 1 (not true) to 5 (completely true). A sample item is "We organize our work activities".

Task Conflict. The scale developed by Dimas and Lourenço (2015) was used to evaluate task conflict. This scale is composed of five items and respondents are asked to rate how often they perceive tension in the team due to the presence of disagreements related to the task. A sample item is "different opinions about the work being done". Items are answered on a 7-point Likert scale, ranging from 1 (never) to 7 (always).

Team Member Satisfaction. Team member satisfaction was evaluated with the scale developed by Dimas and Lourenço (2015). This scale is composed of seven items that measure members' satisfaction with different aspects related to the team. A sample item is "team functioning". Statements are evaluated on a 7-point Likert scale ranging from 1 (totally dissatisfied) to 7 (totally satisfied).

Control Variables. Team size and team tenure were considered as control variables in the present study since previous research revealed that these variables may influence team outcomes (Robert and You, 2018; Standifer et al. 2015). Given that while some teams were surveyed before the COVID-19 pandemic (2020) has started and others already during the pandemic (2021, 2022), a dummy variable (0 = collected before the pandemic; 1 = collected during pandemic) was introduced to account for the possible influence of this pandemic crisis on the explained variables.

3 Results

3.1 Data Aggregation

Since teamwork management and task conflict were operationalized at the team level but obtained at the individual level using referent shift consensus, within-team homogeneity and between-team heterogeneity need to be assured. Accordingly, we calculated the inter-rater reliability index r_{wg} (James et al. 1993) and the intra-class correlation coefficients *ICC(1)* and *ICC(2)* (Bliese, 2000).

The r_{wg} index relates the within-group variance of a single item *j* in a group of K raters (S^2_{jk}) to an expected variance that assumes all ratings were due to random responding (σ^2_{EU}). Since our scales have multi-items, $r_{wg(j)}$ was implemented which is given by the following formula:

$$r_{wg(j)} = \frac{J \times \left(1 - \frac{S^2_{jk}}{\sigma^2_{EU}}\right)}{1 + (j-1) \times \left(1 - \frac{S^2_{jk}}{\sigma^2_{EU}}\right)}$$

Following Bliese (2000), *ICC(1)* was calculated using Bartko (1976) formula:

$$ICC(1) = \frac{MSB - MSW}{MSB + [(k-1) \times MSW]}$$

MSB is the between-group mean square, *MSW* is the within-group mean square, and K is the group size. This formula is a way of contrasting the between-group and within-group variance components from the ANOVA model. Since group sizes were different among teams, the group size average was used. While *ICC(1)* may be considered as a measure of the reliability associated with a single assessment of the group mean, *ICC(2)* provides an estimate of the reliability of the group means and is given by the following formula (Bliese, 2000):

$$ICC(2) = \frac{MSB - MSW}{MSB}$$

The results showed adequate average r_{wg} values for teamwork management (M = .89, SD = .21) and task conflict (M = .88, SD = .17), well above the recommended cut-off of point of .70 (James et al. 1993). Results for *ICC(1)* and *ICC(2)*, were .30 and .67, for team work management, and .29 and .66 for task conflict, respectively. Taken together, the r_{wg}, *ICC(1)* and *ICC(2)* values provide sufficient justification for aggregating the data to the team level (Bliese, 2000).

3.2 Measurement Model Assessment

We conducted a confirmatory factor analysis using the maximum likelihood method of estimation to ensure that the variables presented adequate convergent and discriminant validity. The three-factor measurement model revealed some adjustment problems (χ^2 (132) = 592.69, $p < .001$, CFI = .93, RMSEA = .099). The analysis of the Modification Indices that revealed the model would benefit from estimating the covariances between two errors of the task conflict scale and two errors of the satisfaction scale. After adding those covariances to the model, the adjustment indices presented adequate values (χ^2 (130) = 459.23, $p < .001$, CFI = .95, RMSEA = .08).

All standardized factorial loadings of the items on respective latent variables were significant ($p < .001$) and ranged between .68 and .95, indicating convergent validity. The correlation between teamwork management and task conflict was −.14 ($p < .001$) and with satisfaction was .19 ($p < .001$), while the correlation between task conflict and satisfaction was −.27 ($p < .001$) indicating satisfactory discriminant validity (Kline, 2005).

3.3 Hypotheses Testing

Descriptive statistics and intercorrelations among studied variables are presented in Table 1. Regarding control variables, team tenure was positively and significantly related to team member satisfaction ($R = -.22$, $P < .01$) but not with task conflict ($R = .09$, ns). Teams collected during the pandemic presented higher team member satisfaction ($R = .11$, $P < .05$) and lower levels of task conflict ($R = -.47$, $P < .01$). Team size was not significantly related to the explained variables. Thus, it was dropped from further analyses (Becker et al. 2016). Teamwork management was negatively related to task conflict ($R = -.34$, $P < .01$) and positively related to team member satisfaction ($R = .33$, $P < .01$). Task conflict was negatively related to team member satisfaction ($R = -.34$, $P < .01$).

Table 1. Descriptive statistics and intercorrelation matrix.

Variables	1	2	3	4	5	6	*M*	*SD*
1. Team tenure	–						8.72	10.76
2. Team size	−.04	–					8.53	7.72
3. Pandemic situation	.03	.03	–				–	–
4. Teamwork management	−.26**	−.01	.22**	–			3.95	0.50
5. Task conflict	.09	.06	−.47**	−.35**	–		2.90	0.80
6. Team member satisfaction	−.22**	.03	.11*	.33**	−.34**	–	5.60	1.00

Note: N = 358 members/88 teams. * $p < .05$; ** $p < .01$. *M* = Mean; *SD* = Standard Deviation; Pandemic situation (0 = before the pandemic; 1 = after the beginning of the pandemic). Team member satisfaction was collected two months after the remaining variables

Data for this study is hierarchical in nature since we are interested in exploring the effect of two variables that are operationalized at the team level, teamwork management and task conflict, on one variable from the individual level, member's satisfaction with the team. Because individuals in the same group share common influences, using ordinary regression analysis would possibly lead to unreliable results since the assumption of independent observations would be violated (Bryk and Raudenbush, 1992). Accordingly, the first step is partitioning the variance (σ^2) in team member satisfaction into its within- and between-group components. If it turns out that there is little or no variation (less than 5%) in team member satisfaction between groups, ordinary regression analysis can be used (Heck et al. 2013).

In this way, the intraclass correlation coefficient (Bliese, 2000) was calculated to examine the ratio of between-group to the total variance (*ICC*). *ICC* is computed as follows:

$$ICC = \frac{\sigma_b^2}{\sigma_b^2 + \sigma_w^2},$$

where σ_b^2 is the between-group variance and σ_w^2 is the within-group variance. The *ICC* value confirmed that 34% of the variance in member's satisfaction is explained by

team membership, suggesting the need to use Hierarchical Linear Modelling to test hypotheses.

Thus, we tested our hypothetical model through generalized structural equation modeling (GSEM) with Stata (version 16), including a random intercept in the equation that accounts for group membership. Additionally, teamwork management and task conflict were grand-mean centered (Kreft et al. 1995).

Results of GSEM analysis are presented in Table 2. Teamwork management presented a negative influence on task conflict ($B = -.55$, $p < .001$) and a positive influence on member's satisfaction with the team ($B = .42$; $p < .01$). Thus hypothesis 1 was supported. To test hypothesis 2, we computed the indirect effect of teamwork management on team member satisfaction via task conflict. Results revealed that the indirect effect was significant ($B = .13$, $p < .01$, 95% CI = .05; .22) providing support for hypothesis 2. The total effect of teamwork management on members' satisfaction was also significant ($B = .56$, $p < .001$, 95% CI = .31; .80).

Table 2. Generalized structural equation modeling analysis.

Predictor variables	Task conflict	Member's satisfaction
Team tenure	–	−.01*
Pandemic	−.65***	−.15
Teamwork management	−.40***	.42**
Task conflict	–	−.33***
var(M1[Group])	–	.14
var(e.taskconflict)	–	.46
var(e.satisfaction)	–	.69
Log-likelihood	−831.57	−831.57

Note. The random intercept was included in the path analysis. * $p < .05$; ** $p < .01$.; *** $p < .001$

4 Discussion and Conclusions

In the present study we explored how teamwork management influence team member satisfaction, both directly and indirectly through its influence on reducing task conflict. As predicted, a better planning of teamwork generates a positive attitude of team members towards the group. Indeed, when teams organize the work that needs to be done, allocating resources, and providing support to achieve deadlines, the team tend to be more effective and team members more satisfied with the group (Rousseau Et Al. 2006). Additionally, a better organization and planning of the work, translates into a better coordination and improve collaboration (Gevers and Peeters, 2009; Moye and Langfred, 2004), Reducing, in turn, the conflicts that may arise concerning the task. Since conflict, regardless of type, produces tension and discomfort, when task conflicts among the team are less frequent, team members tend to be more satisfied with their team.

Overall, our results highlight the importance of teamwork management for team effectiveness. To the best of our knowledge this is the first study that explores the direct and indirect influence of teamwork management on team member satisfaction. Being member's satisfaction one of the main criteria of team effectiveness (Hackman, 1987), this study contributes to the literature on team effectiveness by exploring the conditions that promote a positive attitude of team members towards the group.

Regarding practical implications, our findings suggest that leaders should coach their teams to develop their ability to plan and organize their work, to contribute to team functioning and to team effectiveness.

The findings of this study should be considered in light of some limitations. although we implemented a two-wave data collection procedure, teamwork management and task conflict were collected at the same time, what can contribute to common-method variance (Conway, 2002). Additionally, although we predicted an influence of teamwork management on task conflict, the reverse could also be possible. Indeed, more task conflicts could reduce the ability of team members work together, coordinate efforts, plan and organize their activities. Accordingly, future studies should implement a three-wave data collection. Finally, in future studies, it would be relevant to adopt a multi-method approach (e.g., direct observation, or interviews), for better data triangulation.

Acknowledgments. This work has been supported by the Fundação para a Ciência e a Tecnologia (FCT) under project grant UIDB/05037/2020.

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