Article

Intra-Group Conflict and Teamwork Quality: The Moderating Role of Leadership Styles

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Abstract: The study examines the extent to which task and relations oriented leadership moderate the impact of task and relationship conflict on teamwork quality. In a sample of 37 teams, the study shows that relationship oriented leadership is beneficial for dealing with relationship conflict, but it does not have the expected positive interaction effect with task conflict. The main practical implication of the results is that in order to mitigate the negative effects of intra-group conflict on teamwork quality the leadership style should fit the type of disagreement (task versus relational) predominantly experienced by the teams.

Keywords: intra-group conflict; relations and task oriented leadership; group processes

1. Introduction

Leadership and leadership styles received considerable attention in the literature on groups. The behavioral patterns of leaders influence the attitudes, motivation and satisfaction of the group members as well as the productive outcomes of the group [1]. Not much attention is shown, however, to the impact of leadership styles on teamwork quality or to the interplay between intra-group conflict and leadership styles in group settings. Nowadays, a common distinction exists in the literature between task and relationship conflict [2,3] and most of the literature focused on the impact of these forms of intra-group conflict on team outcomes [4], or on the interplay between intra-group conflict and other emergent states in groups [5] with little to no attention on how intra-group conflict relates to teamwork quality and how leadership influences this relationship.

The leading models of team effectiveness [6–8] are based on the open system approach and they acknowledge the key role of group processes for group effectiveness. Recent research argues that
intra-group conflict is an emergent state that is closely related to group processes in generating the specific outcomes of the group [9]. Therefore exploring the moderating role of leadership styles on the interplay between intra-group conflict and teamwork quality is of great relevance for understanding of group dynamics and performance. The aim of this study was to further explore the way in which task and relationship conflict influence teamwork quality and to test the moderating role of leadership styles in this relationship. In particular, the study tests a contingency model of teamwork quality in which leadership styles moderate the relationship between task and relationship conflict on the one hand and teamwork quality on the other hand.

2. Teamwork Processes and Teamwork Quality

A large body of literature has investigated teamwork processes, both independently [10] and related to other aspects of group functioning, such as group composition [9,11], effectiveness [12] and teamwork quality [13]. Most research to date show that teamwork processes are highly correlated [14,15] and in general have a positive effect on team outcomes. Marks and colleagues [10] define teamwork processes as members’ interdependent acts that convert inputs to outcomes through cognitive, verbal and behavioral activities directed toward organizing task-work to achieve collective goals. Hoegl and Gemuenden use the term teamwork quality to describe the quality of group interaction processes, implying both the interpersonal interactions (communication) as well as task related processes (e.g., coordination and planning) [13].

The overlaps and the commonalities between the elements of different classifications of interaction processes, the differentiation between task related processes (such as goal setting, planning, monitoring and coordination) and interpersonal interaction processes (such as conflict management, affect management and motivation) covers most of the taxonomies of teamwork processes. All these process variables are strongly associated with the quality of communication within groups [13,14]. Communication is an important process both for task related processes as well as interpersonal interaction processes in that a good quality of communication is associated with better task-related processes (better planning activities and a better coordination), and more effective interpersonal interactions. In order to develop more parsimonious models of teamwork quality, the following dimensions were considered: planning (the process of dividing the general group task in sub-tasks and distributing them among the group members), coordination (the synchronization of the group members’ actions and the progressive evaluation of the way in which these specific integrative activities are being done) and communication (the exchange of information between group members) as the most studied variables in relation to group composition [16].

3. Intra-Group Conflict

In general, conflict refers to perceived incompatibilities or divergence in perceptions, expectations and opinions by several parties involved [17]; in particular, intra-group conflict describes a situation in which group members hold discrepant views (have different opinions, attitudes, knowledge) or have interpersonal incompatibilities with each other [2,18].

Several sources and types of disagreements and tensions were reported in the literature, starting with the scarcity of resources, affective states (stress and tensions) or cognitive states (difference in
perceptions, opinions and attitudes) [19]. These qualitative differences in the nature of conflict were identified rather long ago [17,19], yet it was in the 1990s when the literature on conflict frames of reference [3] and intra-group conflict [2,18] made a clear distinction between task (or cognitive) and relational (or emotional) conflict.

Task conflict refers to the disagreements among the group members about the content of the task due to different viewpoints, opinions and ideas, while relationship conflict refers to interpersonal incompatibilities and frictions among the group members resulting in tension, annoyance and animosity [2]. Some empirical studies supported the independence of these two types of conflict [3,20], while others doubted their conceptual independence [4]. However, this distinction is crucial since the two types of conflict seem to have opposite effects on group performance, especially in tasks involving information processing [21]. Task conflict is expected to be beneficial for group performance, increasing the quality of decision as well as the acceptance of decisions and satisfaction with the group outcome, while relationship conflict has a negative impact on group performance, group satisfaction and commitment with the group, due to the fact that it increases stress and anxiety and therefore it limits the information processing abilities of the group members [2]. Although intuitively appealing, these differential effects were not supported by the meta-analysis exploring the impact of task and relationship conflict on group performance and group members’ satisfaction and showed that both types of conflict have detrimental effects for group outcomes [4].

Teamwork quality is certainly a critical factor for group outcomes [13] and it is likely to be interrelated with intra-group conflict as well. In general both task and relationship conflicts are likely to be associated with negative emotionality in groups [5]. Negative emotionality is detrimental for the quality of interpersonal interaction within teams (e.g., low quality of communication, negative group atmosphere) and will detract the team members from focusing on the task (e.g., lack of appropriate planning, coordination problems). Therefore, high levels of disagreements concerning the way in which the group members should proceed in order to achieve their common task, as well as high levels of personal frictions are very likely to be detrimental for teamwork quality. Based on this argument the first hypothesis of this study is:

**Hypothesis 1:** Task and relationship conflict have a negative impact on teamwork quality.

As previously noted, leadership styles received a considerable attention in the literature on groups. The distinction between transformational and transactional leadership styles [22] was especially attractive and most research to date argues that a transformational leadership style is more beneficial for the global effectiveness (including satisfaction) of the group as compared to the transactional leadership style. The present study uses the task/relations orientation distinction because in line with Forsyth [1], this is more closely related to the group dynamics, group processes and certainly with the types of conflict discussed before. A relations oriented leader addresses “the feelings, attitudes and satisfaction of the members of the group and so correspond to the interpersonal, socio-emotional side of the group” ([1], p. 345), while a task oriented leader defines problems for the group members, assigns tasks and makes sure that the tasks are performed in a timely and effective manner and coordinates the actions of the group members toward the common goal [23]. Because the quality of communication is essential for both coordination and planning processes, it is expected that relations oriented leadership (which fosters intra-group communication) to be beneficial for teamwork quality,
to a greater extent than task oriented leadership. It is also expected that relations oriented leaders to be more effective in dealing with relationship conflict within groups. In conclusion, based on the previous arguments, leadership orientation impacts both on group processes (directly) as well as on the relationship between intra-group conflict and group processes.

**Hypothesis 2:** Relations oriented leadership has a stronger positive impact on teamwork quality than task oriented leadership.

**Hypothesis 3:** Leadership styles moderate the negative relationship between intra-group conflict and teamwork quality. For groups with relations oriented leaders the negative relation between task and relationship conflict, on the one hand, and teamwork quality, on the other, will be attenuated.

4. Method

4.1. Sample

The study was carried out in a university for professional education in the province of Limburg, The Netherlands. Forty six teams having four to six members were asked to participate in this study. Each of these teams was involved in similar educational activities in several domains. The university offers a wide range of educational activities with a preeminent practical character and follows a strategy focused on small-scale and high quality education in three major cities in The Netherlands. The teaching philosophy puts emphasis on practice oriented work and students are asked to deal with real projects in order to develop their technical and analytical skills. Therefore, the teams involved in this research were asked to deal with real life projects in several domains in which they were specialized. A first set of teams did a market research project in catering management (fourteen teams). The aim was to develop and carry out a market study concerning a particular product and to write a report with recommendations about expanding and increasing the exploitation possibilities for this particular product. A second set of teams (sixteen teams) did a building exploitation project and they were asked to make the complete analytical inventory of a building, to analyze the architectural features of the building, the installations, technical and inventory elements and to report their analyses about the way in which these features are used. A third set of teams (six teams) did a project in brokerage with the special aim to gain insights into the practice of housing management and the mediation of real estate. During this project the teams had to chart the daily practice of housing management in a company and then write a report with their findings concerning the strategic phases of house sales in the investigated companies. Finally a set of ten teams did a project on city management, in which the students had to write a report containing strategic advice concerning the exploitation of two city blocks in a situation in which the city center should be re-designed.

From the total of 234 respondents that received the questionnaire, 162 questionnaires (items were translated in Dutch) were usable after the response rate was computed in each group. The rule for inclusion was that at least 80% of the group members returned valid questionnaires. The groups with a response rate lower than 80% were dropped from the analyses and the final sample of teams consisted of 37 teams with an average of five members (ranging from four to six).
4.2. Questionnaire

Task and relationship conflict were evaluated with eight items (four for each type of conflict) from an intrateam conflict scale introduced by [2,18]. Sample items for task conflict include: “How often are there differences of opinions regarding the task in your team”, or “How often do people in your work group disagree about the work being done”, for relationship conflict: “How often are personality clashes present in your group” or “How much emotional conflict is there in your work group”. The answers were recorded on a 5 point Likert scale (from 1 = never to 5 = very often). The Cronbach’s alpha for task conflict scale was 0.73, and for relationship conflict was 0.80. The values obtained on our sample are consistent with previous studies, which reported slightly lower coefficients for task than for relationship conflict items [2,21].

Teamwork quality is a multidimensional construct [13,16] comprising coordination, planning and quality of communication. Coordination was evaluated with five items adapted from Curșeu et al. [16] (e.g., “The group members have synchronized their actions in order to reach the group goals”), planning was also evaluated with five items adapted from Curșeu et al. [16] (e.g., “The group has developed its own strategy in approaching this project”) and the quality of communication was evaluated using four items adapted from Eby et al. [14] (e.g., “During the debates, each team member has been carefully listened to by the others”). The answers were recorded on a 5 point Likert scale ranging from 1 = strongly disagree to 5 = strongly agree.

Previous research on teamwork quality and group processes showed that scales evaluating these constructs often have a unitary factor structure [13,14,16], therefore a principal component analysis with the three teamwork processes was performed. The results showed a unitary factor structure, the main factor accounting for 81% of the scores variance with the following factor loadings: coordination = 0.86, planning = 0.80 and communication = 0.87. Due to these results as well as to the small sample size (at the group level), the three teamwork processes were aggregated into a unitary variable. The Cronbach’s alpha for the scale was 0.84 and the descriptive statistics for this aggregated variable are presented in Table 1.

Leadership styles were evaluated using a scale developed based on the Leader Behavior Description Questionnaire (LBDQ) [23]. Relations oriented leadership was evaluated using four items (“The tutor listen to the group members”, “The tutor stimulate the development of informal relationships within the group”, “The tutor is friendly and approachable”, and “The tutor treats all group members as equals”). Task oriented leadership was also evaluated using four items (“The tutor assigns clear tasks to each group member”, “The tutor makes sure that the group project is done in a timely and efficient manner”, “The tutor focuses attention on irregularities, mistakes, exceptions and deviations from what each group member is expected to do” and “The tutor coordinates the activities of the group members so that the final goal of the group is achieved”). Each respondent was asked to rate his/her leader on a five-point Likert scale with answer categories ranging from 1 = strongly disagree to 5 = strongly agree. The Cronbach’s alpha for relations oriented leadership was 0.88 and for task oriented leadership was 0.82.
To justify aggregation into group scores, we used the procedure introduced by James, Demaree, and Wolf [24] to estimate the inter-rater reliability (the index of agreement). For multiple-item scales assuming a number of $J$ parallel items the formula is:

$$R_{wg}(J) = \frac{J \left[ 1 - \frac{\bar{s}_{j}^2}{\sigma_{E}^2} \right]}{J \left[ 1 - \frac{\bar{s}_{j}^2}{\sigma_{E}^2} \right] + \frac{\bar{s}_{j}^2}{\sigma_{E}^2}}$$

Where $\bar{s}_{j}^2$ is the mean of item variance and $\sigma_{E}^2$ varies as a function of the assumed variance. For an assumed uniform distribution: $\sigma_{EU}^2 = (A^2 - 1)/12$, and for an assumed normal distribution: $\sigma_{EN}^2 = [(A - 1)/6]^2$, and $A$ is the number of response options (e.g., intervals on the Likert scale). The within group agreement index ($R_{wg}$) can take values between zero and one, and generally, a value of 0.70 or higher is considered to reflect a reasonable amount of agreement within a team [24]. Table 1 summarizes the $R_{wg}$ for each variable.

Table 1. Within Group Agreement Indices ($R_{wg}$).

<table>
<thead>
<tr>
<th>Variable</th>
<th>Minimum</th>
<th>Maximum</th>
<th>Mean</th>
<th>SD</th>
</tr>
</thead>
<tbody>
<tr>
<td>Task conflict</td>
<td>0.75</td>
<td>1.00</td>
<td>0.81</td>
<td>0.05</td>
</tr>
<tr>
<td>Relationship conflict</td>
<td>0.75</td>
<td>1.00</td>
<td>0.83</td>
<td>0.05</td>
</tr>
<tr>
<td>Communication</td>
<td>0.75</td>
<td>1.00</td>
<td>0.83</td>
<td>0.06</td>
</tr>
<tr>
<td>Coordination</td>
<td>0.75</td>
<td>1.00</td>
<td>0.84</td>
<td>0.06</td>
</tr>
<tr>
<td>Planning</td>
<td>0.75</td>
<td>0.95</td>
<td>0.84</td>
<td>0.05</td>
</tr>
<tr>
<td>Relations oriented leadership</td>
<td>0.75</td>
<td>0.95</td>
<td>0.83</td>
<td>0.04</td>
</tr>
<tr>
<td>Task oriented leadership</td>
<td>0.75</td>
<td>1.00</td>
<td>0.83</td>
<td>0.05</td>
</tr>
</tbody>
</table>

After the within-group agreement was computed and verified, the individual scores of the group members were aggregated into group scores by computing the group mean.

4.3. Results

Table 2 around presents descriptive statistics and correlations among the variables evaluated in this study.

Table 2. Means, standard deviations and correlations.

<table>
<thead>
<tr>
<th></th>
<th>Mean</th>
<th>SD</th>
<th>1</th>
<th>2</th>
<th>3</th>
<th>4</th>
<th>5</th>
<th>6</th>
</tr>
</thead>
<tbody>
<tr>
<td>Group size</td>
<td>5.10</td>
<td>0.55</td>
<td>1</td>
<td>0.01</td>
<td>0.07</td>
<td>0.08</td>
<td>0.10</td>
<td>-0.09</td>
</tr>
<tr>
<td>Task conflict</td>
<td>2.24</td>
<td>0.56</td>
<td>0.01</td>
<td>0.07</td>
<td>0.67*</td>
<td>-0.26</td>
<td>-0.20</td>
<td>-0.43**</td>
</tr>
<tr>
<td>Relationship conflict</td>
<td>1.90</td>
<td>0.53</td>
<td>0.07</td>
<td>0.67**</td>
<td>1</td>
<td>-0.22</td>
<td>-0.32*</td>
<td>-0.57**</td>
</tr>
<tr>
<td>Task oriented leadership</td>
<td>3.08</td>
<td>0.83</td>
<td>0.08</td>
<td>-0.26</td>
<td>-0.22</td>
<td>1</td>
<td>0.73**</td>
<td>0.52**</td>
</tr>
<tr>
<td>Relations oriented leadership</td>
<td>3.16</td>
<td>0.42</td>
<td>0.10</td>
<td>-0.20</td>
<td>-0.32*</td>
<td>0.73**</td>
<td>1</td>
<td>0.79**</td>
</tr>
<tr>
<td>TWK quality</td>
<td>3.34</td>
<td>0.35</td>
<td>-0.09</td>
<td>-0.43**</td>
<td>-0.57**</td>
<td>0.52**</td>
<td>0.79**</td>
<td>1</td>
</tr>
</tbody>
</table>

Legend: *p < 0.05, **p < 0.01
The correlation between the two types of conflict is positive and significant. The high correlation between relationship and task conflict is well documented in the literature [2,5,18,25]. In their meta-analysis, De Dreu and Weingart [4] reported a mean corrected correlation of 0.54 between the two types of conflict. Both types of conflict have a negative and significant correlation with teamwork quality, the highest being for relationship conflict (−0.57). Both task and relations oriented leadership styles also have a positive and significant correlation with group processes, with relations oriented leadership having by far the strongest positive association with group processes. However, this pattern of results changes when the covariance between the two leadership styles is accounted for.

In order to test the hypotheses, a hierarchical regression (OLS) with group processes as dependent variable was performed. Group size was not entered in the regression equation due to the small correlations with the other variables considered in the study (see Table 2). The two types of conflict (task and relationship related) were entered in the first step of the regression analysis, the two leadership styles (relations oriented and task oriented) were entered in the second step and the cross product terms were entered in the last step of the regression. In order to minimize multicolinearity the cross product was based on the centered values of the variables (task, relationship and process conflict as well as relations and task oriented leadership styles) [20]. The variance inflation factors (VIF scores) were all below 1.87 and therefore multicolinearity was not a serious problem in the analyses. The results of the regression analyses are summarized in Table 3.

**Table 3.** Regression analysis of teamwork quality by type of intra-group conflict and leadership styles.

<table>
<thead>
<tr>
<th>Step and variable</th>
<th>1</th>
<th>2</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Task conflict (TC)</td>
<td>−0.15</td>
<td>−0.19</td>
</tr>
<tr>
<td>Relationship conflict (RC)</td>
<td>−0.24**</td>
<td>−0.20*</td>
</tr>
<tr>
<td>Task oriented leadership (TL)</td>
<td>−0.17</td>
<td>−0.26*</td>
</tr>
<tr>
<td>Relations oriented leadership (RL)</td>
<td>0.81***</td>
<td>0.82***</td>
</tr>
<tr>
<td>2. RL × TC</td>
<td></td>
<td>−0.34**</td>
</tr>
<tr>
<td>RL × RC</td>
<td></td>
<td>0.33**</td>
</tr>
<tr>
<td>TL × TC</td>
<td></td>
<td>0.30</td>
</tr>
<tr>
<td>TL × RC</td>
<td></td>
<td>−0.20</td>
</tr>
<tr>
<td>R²</td>
<td>0.76</td>
<td>0.89</td>
</tr>
<tr>
<td>Adj. R²</td>
<td>0.73</td>
<td>0.75</td>
</tr>
<tr>
<td>F change</td>
<td>26.67***</td>
<td>2.01*</td>
</tr>
</tbody>
</table>

Legend: Standardized regression coefficients are reported for the respective regression steps, N = 37, *p < 0.10, **p < 0.05, ***p < 0.01.

As shown in model 1, although both relationship and task conflict have a negative impact on teamwork quality, only the effect of relationship conflict is significant, therefore Hypothesis 1 is partially supported. Further, as shown in model 2, when the two leadership styles are added to the regression equation, the impact of the intra-group conflict on teamwork quality decreases, indicating an interaction between intra-group conflict and leadership styles. The direct effect of relations oriented leadership style on teamwork quality is positive and significant, while the impact of task oriented leadership style is negative and marginally significant. These results fully support Hypothesis 2. When the cross product terms are added to the regression equation in model 3, the impact of task oriented
leadership also becomes significant, but negative. It can be concluded that task oriented leadership has a negative impact on group processes. Concerning the standardized beta coefficients for the cross product terms, only the interaction between relations oriented leadership with both task and relationship conflict is significant. In order to be able to check whether the moderation hypothesis is supported we plotted the regression slopes for this particular interaction (see Figure 1 and Figure 2). Based on the visual inspection of the slopes, it can be concluded that indeed, high relations oriented leadership attenuates the negative impact of relationship conflict on group processes. The interaction between task conflict and relations oriented leadership is different. For groups with leaders scoring high on relational orientation, the relationship between task conflict and teamwork quality is negative, while for groups with leaders scoring low on relational orientation the association between task conflict and teamwork quality is positive.

4.4. Discussion

The main aim of this study was to explore the impact of the interplay between intra-group conflict and leadership styles on group processes. It was argued that relations oriented leadership style attenuates the negative impact of task and relationship conflict on group processes. The results presented here only support this moderation hypothesis for relationship conflict. This means that in groups with leaders oriented toward establishing and maintaining good working relationship among the group members the relation between relationship conflict and teamwork quality is less negative as compared with the groups whose leaders have a low orientation toward relations. These results are consistent with the conceptualization of relations oriented leadership as a style that impacts on the interactional dynamics of the group. Because relations oriented leaders are concerned with the satisfaction of the group members and with their well being in the group, it is likely that they will find more efficient ways of solving the relationship conflict in a more constructive way than leaders with a lower orientation toward the relations. This is just a possible explanation for the results reported in this study. Further research should investigate this relation more thoroughly. In particular, a research question worth being explored in empirical settings concerns the mediating role of conflict management styles in the relationship between leadership styles and group processes and group outcomes. In this way it can be empirically tested to what extent the impact of leadership styles on group processes and outcomes can be explained by the conflict management style adopted by the leader.

The results also show that relations oriented leaders are effective in steering effective teamwork processes especially when task conflict is high, a relational orientation of the leader does not yield the expected benefits for teamwork quality. Therefore the results presented here document a differential role of relations oriented leaders in mitigating the negative effects of relational and task related disagreements on the quality of interaction processes in teams. One practical implication derived from this pattern of results is that in order to be effective, the leadership style should fit with the type of disagreements experienced by the team. If the disagreements are relational, a relations oriented leadership style seems to be more effective, while if the disagreements are task related, a task oriented leadership style seems to work better (as indicated by the positive yet not significant beta coefficient of the interaction between task conflict and task oriented leadership style). Future empirical research should focus on the differential impact of the two leadership styles discussed above on these two types of group processes presented here (task related and interaction related processes). One possible
hypothesis to test would be that relationship oriented leaders will have a stronger impact on the interaction processes than on the task related processes, while task oriented leaders have a stronger impact on task related processes than on interaction processes.

**Figure 1.** Interaction effects of relationship conflict (RC) and relations oriented leadership style (ROLead) on teamwork quality (TWK quality).

Another relevant research finding concerns the role of the intra-group conflict types on teamwork quality. In line with previous research [4] this study shows that task and relationship conflicts both have negative effects on teamwork quality. Further research, however, is needed to test the independence of these two types of conflict, not only in strict covariance terms, but rather in a more meaningful way by relating the two concepts with different criteria variables related to group dynamics.
Finally, this study contributes to the leadership literature by exploring the impact of relations and task oriented leadership styles on teamwork quality. The results reveal a positive impact of relations oriented leadership on the quality of interaction processes in teams. This is in line with the general literature suggesting a positive impact of relations oriented leaders on group members’ satisfaction, commitment with the group and the productive outcomes of the group. The task oriented leadership has a small negative impact on teamwork quality. The independence of the two leadership styles should be subjected to further exploration. According to results presented here, the two styles are not independent and it might be that their impact on the interplay between intra-group conflict and group processes is different in a setting in which group leaders exhibit more differentiated behavioral patterns with respect to relations or task orientation. From a pure managerial perspective, it seems wise to stress the benefits of relations oriented leadership in order to improve the quality of group processes and ultimately group performance.

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References


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