IMPACTS OF CONFLICTS ON TEAM TRUST AND TEAM PERFORMANCE: AN EMPIRICAL STUDY ON UNIVERSITY SCIENTIFIC RESEARCH TEAMS IN JIANGSU PROVINCE, CHINA

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Abstract:
The purpose of this paper is to determine the impacts of conflicts on team trust and team performance at the University Scientific Research Teams in Jiangsu Province, China. This study considers three types of conflicts as independent variables, team success as a dependent variable, and team confidence as the mediating variable (task conflict, relationship conflict and process conflict). The survey of questionnaires is used to gather raw data: the survey of questionnaires. The questionnaire refers to a method that allows researchers to gather information on a specific target group to compare, explain or characterise an event / situation, attitudes, expertise, habits, and/or socio-demographic characteristics, and ultimately 140 respondents were considered as a final sample for this analysis. This research contributes to the existing information assembly in recognising the success of the team as this is the primary study with the arrangement of such factors. In the case of University Scientific Research Teams in Jiangsu Province, this study seeks to broaden the understanding of the link between task and relationship conflict, learning ability, accessibility of information, process conflict, team confidence, workforce optimization and team efficiency.

Keywords: conflicts, team trust, team performance, university scientific research teams, Jiangsu Province, China

1. Introduction

The recent claims from the practitioners states that the Jiangsu University that Core-team members have different views on how to handle the project which created a task conflict.

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The lack of trust between team members created emotional conflict, which affected team performance and team-member satisfaction (Lee et al., 2015). The strong emotional discontent produced strong hostility bias and created a situation in which task-based suggestions from the research members were met with antagonism and rejection from the fellow research members (Fong et al., 2018; Phungsoonthorn & Charoensukmongkol, 2018; De Dreu & Weingart, 2003; de Wit et al., 2012). The team structure is too big and adding more team members will not resolve the conflict. In fact, it will cause more problems such as distorting communication and slowing down processes (Cox, 2019; Thompson, 2011; Jang, 2017; Thompson, 2011). Resolution on conflict that arises remained unsolved. Favoritism among fellow team members results a leader’s inability to manage a cross-functional task with an emphasis in reciprocal interdependence (Phungsoonthorn & Charoensukmongkol, 2018; Weingart, Behfar, Bendersky, Todorova, & Jehn, 2015; Jang, 2017). Also, conflicts within the core group can trickle down and impact the subgroups since knowledge cannot be effectively shared (Duan & Frazier, 2019; Sheng & Yeh, 2009). Currently, the team is dominated by the project manager, which is negatively impacting the team’s performance. Moreover, few studies (Cox, 2019; Thompson, 2011; Cheung, 2016; Nathan & Lee, 2013; Paul He & Dennis, 2018; Chun et al., 2019; Yang et al., 2019) have carried out in-depth analysis on the intermediate mechanism of team conflict on team performance. To fill the research gap, this study focuses on exploring the intermediate variable of the conflict influencing process. Thus, the main objective of the study is to investigate the influence of team conflict on team performance in university scientific research teams in Jiangsu Province, China.

2. Literature Review

When a team engages in highly complex tasks, task conflict fosters intensive information exchange as well as thoroughgoing information processing. Problems can be considered from different perspectives, different opinions or alternatives can be discussed, which may produce high quality solutions and enhance performance. By contrast, tasks in lowly complex do not require variety methods to solve issues. Task conflict is more likely to have a weak or non-significant effect on team performance. (Michael, Dean and Ken, 2005; Maghfuriyah et al., 2019; De Silva et al., 2017; Kuruwitaarachchi et al., 2019; Pambreni et al., 2019). This theory provides theoretical foundation for this study to consider conflicts as independent variables, team performance as a dependent variable.

In extant literature, there was much debate on whether task conflict positively or negatively affects team performance. So far, there is no uniform answer to this question. Some literature reported that moderate task conflict might positively influence team performance under certain circumstances. Moderate task conflict could facilitate team members to discuss different ideas, think more deeply, scrutinize task-related problems and further processing task-related information, thereby fostering team members to deepen understanding of task and develop new ideas and approaches. In addition, moderate task conflict could promote information exchange among team members and
develop the problem-solving skills of team members, leading the team to be more innovative and effective (Ma, 2018; Azam and Moha Asri, 2015; Tham et al., 2017; Udriyah et al., 2019). However, some studies showed that task conflict has negative or no association with team performance (Martinez-Moreno, 2009; O’Neill & McLarnon, 2018), because task conflict may produce tension, frustration, dissatisfaction and antagonism among team members. De Dreu and Weingart (2003) reviewed 28 articles from 1996 to 2001 and conducted the Meta-Analysis involving the relationship between task conflict and team performance. On the other hand, most studies found that the relationship conflict had a negative effect on team performance (Jehn 1997; Janssen, Vliert & Veenstra 1999, Dreu and Weingart, 2003; O’Neill, 2013; DeChurch, 2013; Ma, 2018; Rachmawati et al., 2019; Azam and Yusoff, 2020; Azam et al., 2020). The result of the mean corrected correlation between relationship conflict and performance of De Dreu and Weingart (2003)’s Meta-Analysis was -0.22, which means relationship conflict is negative associated with performance. Relationship conflicts suppress team performance in following three ways: Firstly, relationship conflicts reduce team performance because the negative emotions negatively affect the quality of decision making and knowledge exchange (Amason, 1996; Azam et al., 2014; Haur et al., 2017; Katukurunda et al., 2019). When team members have relationship conflicts, they might be uncooperative and have different destination. Secondly, team members might focus on power struggle rather than on team tasks, which might lead to unreasonable resource allocation such as the number of participants, time, cost, and facility. Thirdly, relationship conflicts negatively affect team morale and team cohesion (Barki and Hartwick, 2004). There are also a few studies indicated that relationship conflict has negative or no association with team performance (Jehn & Lytle, 2009; Parayitam & Dooley, 2007; Dewi et al., 2019; Nguyen et al., 2019).

Theory of task conflict and performance in groups and organizational teams was put forward by De Dreu and Weingart in 2003. It claims conflicts have effects on group performance. Whether conflict is beneficial or detrimental to group performance depends on three factors: conflict type, conflict management approach and task type. This theory divides conflict into two types: task-content and task-process conflict. Task-content refers to disagreements amongst members within a team about the content of tasks that they are working on, which typically includes differences in viewpoints, ideas, and opinions. Task-process conflict refers to disagreements about the distribution of responsibilities and resources. This theory claims conflict management approaches contain collaborating, contending, and avoiding. This theory puts forwards that task type can be divides to highly complex tasks and lowly complex tasks according to the difficulty and variability of the tasks. Task conflicts are more beneficial for team performance when members within a team engage in highly complex tasks. Highly complex tasks require consideration by every team member (Echem & Chan, 2018). Besides, process conflict was neglected by scholars. Very few studies had investigated the influence of process conflict on team performance. Jehn (1997) pointed that when process conflict is in low level, it is positively related to team performance. However, when process conflict is in high level, process conflict is more likely to negatively affect team performance. If team members
had intensive argument about “who should do what”, “How to distribute norms of resources”, they might be disturbed by the uncertainty conflict generated and use longer time to complete task. In addition, they might feel unfair due to the unreasonable resources, responsibilities and interests’ distribution, which was detrimental to team performance (Jehn, 1997).

This study considers three types of conflicts (task conflict, relationship conflict and process conflict) as independent variables, team performance as a dependent variable, team trust as the mediating variable. Considering the above conceptual framework, the following hypotheses can be formulated.

**H1**: Task and Relationship Conflict (TRC) is positively related to Team Trust (TT).

**H2**: Process Conflict (PC) is positively related to Team Trust (TT).

**H3**: Task and Relationship Conflict (TRC) is positively related to Team Performance (TP).

**H4**: Team Trust (TT) is positively related to Team Performance (TP).

**H5**: Process Conflict (PC) is positively related to Team Performance (TP).

**H6**: There is a Reciprocal Relationship between Task and Relationship Conflict (TRC) and Process Conflict (PC).

3. Research Methodology

Questionnaire survey is used to collect raw data: questionnaire survey. Questionnaires can be classified into personally administered questionnaires, mail questionnaires, electronic and online questionnaires (Sekaran und Bougie, 2016). In this study, a well-developed questionnaire will be designed. It is reported that there are 167 regular tertiary education institutions in Jiangsu Province. In these institutions, 170589 educational personnel can be found, among them 116350 are full-time teachers, 2048 are personnel in affiliated research organization, and 24648 are administrative personnel. In addition, there are approximately 31355 enrolment doctor students and about 196846 enrolment master students. (Ministry of Education of the People’s Republic of China, 2019) University scientific research teams in China mainly consist of teachers, doctor and master students. However, there is no official figure on the number of educational personnel and students who join the University Scientific Research Teams. The estimated size of study population is about 150000 (Zhang, 2018). Finally, 140 respondents have been considered as a final sample for this research.

4. Findings

The respondents were classified according to gender, age, current position, years of service, rank and department of working. The sample size was 140 out of which 76 were males and 64 were females whose percentage is 54.3% for male and 45.7 % for female. Most of the researchers working in this sector are lies in the age of 35 and above which 60.7 % researchers are having age of 30-35 are 18.6 % and researchers of age 25-30 are
20.7%. Most of the researchers in education are graduates having bachelor’s degree that is of 62.1% after this Master’s degree holders are 31.4% and PhD degree holders are 6.4%. Researchers who are working more than 10 years are 50.7% of the sample researchers having experience of 5-10 years are 23.6% and the researchers who are fresh in this sector are 25.7% means they have less than 5 years of experience. The survey was distributed among all the levels of the sector, from which managerial level is on top having 37.9% of sample after this executive level of 32.1% directors are 6.4% and other like secretaries are 12.9%. So, it was attempted by every rank, it can be deducted it will be a realistic research. The PCA was to explore the underlying dimensions of Task and Relationship Conflict (TRC), Process Conflict (PC), Team Trust (TT) and Team Performance within the University Scientific Research Teams in Jiangsu Province, China Education industry context. First, the statistical assumptions of PCA were tested. The exercise revealed that a substantial number of variables were correlated \( r \geq .30 \). In addition, the two measures for inter-correlations among variables supported the use of PCA (Hair et al., 2010; Kline, 2011; Kothari, 2004; Neuman, 2007). Bartlett’s Test of Sphericity was statistically significant \( [4597.487, p = .000] \), while the Kaiser-Meyer-Olkin (KMO) measure of the sampling adequacy (MSA) was .818, indicating that the inter-correlations were sufficient for PCA (Pallant, 2007) (Table 1).

Table 1: KMO and Bartlett’s Test

<table>
<thead>
<tr>
<th>Kaiser-Meyer-Olkin Measure of Sampling Adequacy.</th>
<th>.818</th>
</tr>
</thead>
<tbody>
<tr>
<td>Approx. Chi-Square</td>
<td>4597.487</td>
</tr>
<tr>
<td>Bartlett’s Test of Sphericity</td>
<td></td>
</tr>
<tr>
<td>df</td>
<td>406</td>
</tr>
<tr>
<td>Sig.</td>
<td>.000</td>
</tr>
</tbody>
</table>

PCA with Varimax rotation was performed on the data collected. Four latent factors were extracted with eigenvalues greater than one, explaining 55.70% of total variance (Table 2). Thus, the results show that four latent factors were successfully extracted on 29 items. Following the guideline provided by the scholars (Byrne, 2010; Hair et al., 2010, Kline, 2011; Nunnally & Berstein, 1994), all four factors were renamed as Task and Relationship Conflict (TRC), Process Conflict (PC), Team Trust (TT) and Team Performance (TP), respectively.

Table 2: Total Variance Explained

<table>
<thead>
<tr>
<th>Component</th>
<th>Initial Eigenvalues</th>
<th>Extraction Sums of Squared Loadings</th>
<th>Rotation Sums of Squared Loadings</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Total</td>
<td>% of Variance</td>
<td>Cumulative %</td>
</tr>
<tr>
<td>3</td>
<td>2.490</td>
<td>8.587</td>
<td>48.533</td>
</tr>
<tr>
<td>4</td>
<td>2.078</td>
<td>7.167</td>
<td>55.700</td>
</tr>
<tr>
<td>5</td>
<td>.942</td>
<td>3.249</td>
<td>58.948</td>
</tr>
<tr>
<td>6</td>
<td>.914</td>
<td>3.151</td>
<td>62.099</td>
</tr>
<tr>
<td>7</td>
<td>.880</td>
<td>3.034</td>
<td>65.133</td>
</tr>
<tr>
<td>8</td>
<td>.845</td>
<td>2.914</td>
<td>68.047</td>
</tr>
</tbody>
</table>
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The internal consistency of all the factors were obtained by computing the Cronbach’s Alpha coefficient on the four extracted factors was retained by PCA. In view of the guidelines by researchers (Cronbach, 1951; Sekaran & Bougie, 2010), Cronbach’s Alpha was employed to estimate the reliability of the extracted factors as presented in Table 3. All four factors [Task and Relationship Conflict (TRC), Process Conflict (PC), Team Trust (TT) and Team Performance (TP)] had good reliability indices of .882, .819, .827 and .819, respectively.

<table>
<thead>
<tr>
<th>Variable</th>
<th>Cronbach’s Alpha</th>
<th>N of Items</th>
</tr>
</thead>
<tbody>
<tr>
<td>Task and Relationship Conflict (TRC)</td>
<td>.882</td>
<td>11</td>
</tr>
<tr>
<td>Process Conflict (PC)</td>
<td>.819</td>
<td>5</td>
</tr>
<tr>
<td>Team Trust (TT)</td>
<td>.827</td>
<td>7</td>
</tr>
<tr>
<td>Team Performance (TP)</td>
<td>.819</td>
<td>6</td>
</tr>
<tr>
<td>Overall</td>
<td>.897</td>
<td>29</td>
</tr>
</tbody>
</table>

CFA was performed on the data collected from 140 respondents through AMOS (Version 23.0.0), using Maximum Likelihood (ML) estimation (Byrne, 2010). The measurement model of the four extracted variables showed that the overall fit of the model was statistically significant, indicating an inadequate fit between the covariance matrix of the observed data and the implied covariance matrix of the model. Other indices of model fit were also used following the guideline by the scholars (Byrne, 2010; Hair et al., 2010) whereby at least one absolute fit index and one incremental fit index be used in addition to the χ² statistic and the associated degree of freedom. Following this guideline, the Normed chi-square (i.e. CMIN/DF), the Comparative Fit Index (CFI) and the Root Mean Square Error of Approximation (RMSEA) were adopted in estimating the model in addition to the χ² associated degree of freedom. Structural equation modelling is a comprehensive approach to find the relationship among the factors (Anderson &
Gerbing, 1988; Barrett, 2007; Bollen, 1989; Byrne, 2010; Holmes-Smith et al., 2006; Tabachnick & Fidell, 2007). In SEM, prior to examine any specific relationship, researcher must determine the overall model fit (Hair et al., 2010). The researcher must either accept or reject the entire model. Hence, before to set off to the path analysis, the study went for measurement model to justify if the model defines the constructs adequately. The similarity between measurement model and the full (path) model is also necessary for depicting the different sorts of validity of the analysis (Byrne, 2010; Tabachnick & Fidell, 2007).

The model was re-specified and re-run again using AMOS (Version 23.0). As shown in Figure 2, the goodness-of-fit indices of the revised model were sharply improved as compared to that of the hypothesized model. Thus, indicating that there were statistical discrepancies between the observed covariance matrix of the sample (observed data) and the implied covariance matrix of population (revised hypothesized model). The Normed chi-square (CMIN/DF) showed a good fit for the revised model, with an index less than 3 (i.e. 2.411), supporting the consistency of the data to the revised model. The statistical significance of the \( \chi^2 \) of the model may be due to the large sample size (\( n = 140 \)).

Moreover, the measure of RMSEA was .068, which is below the recommended cut-off of RMSEA \( \leq .08 \) for the complexity of this revised model (Hair et al., 2010). Thus, RMSEA of .068 indicates lack of any significant difference between the covariance matrix.

![Figure 2: Fit Indexes and Parameter Estimates of the Revised Hypothesized Model](image_url)
of the sample and the covariance matrix of population. In other words, the revised model adequately fitted the data. The CFI (.879) of the revised model also show adequacy of the model fit, adding more evidence to support the goodness of fit of the revised model. The AMOS (Version 23.0) text output did not provide any further suggestion to modify the revised model.

A statistical hypothesis, sometimes called confirmatory data analysis, is a hypothesis that is testable on the basis of observing a process that is modeled via a set of random variables. A statistical hypothesis test is a method of statistical inference by four dimensions [Task and Relationship Conflict (TRC), Process Conflict (PC), Team Trust (TT) and Team Performance (TP)]. Total six hypotheses were also answered by goodness-of-fit indices showing that Task and Relationship Conflict (TRC) and Process Conflict (PC) substantially influence Team Trust (TT) into the Education industry in University Scientific Research Teams in Jiangsu Province, China. Moreover, it also shows the influence of Team Trust (TT) on Team Performance (TP). However, the results did not support the second and fourth hypothesis that relate to the influence of Task and Relationship Conflict (TRC) on and Team Performance (TP) and the influence of Process Conflict (PC) on Team Performance (TP). The last research hypothesis was also addressed. It was revealed that there is a significant positive reciprocal relationship exists between Task and Relationship Conflict (TRC) and Process Conflict (PC). The main findings of the study are summarized in Table 4.

### Table 4: Summary of the Main Findings of the Study

<table>
<thead>
<tr>
<th>H(x)</th>
<th>Hypothesis</th>
<th>Finding</th>
</tr>
</thead>
<tbody>
<tr>
<td>H1</td>
<td>Task and Relationship Conflict (TRC) is positively related to Team Trust (TT)</td>
<td>Accepted</td>
</tr>
<tr>
<td>H2</td>
<td>Process Conflict (PC) is positively related to Team Trust (TT)</td>
<td>Accepted</td>
</tr>
<tr>
<td>H3</td>
<td>Task and Relationship Conflict (TRC) is positively related to Team Performance (TP)</td>
<td>Rejected</td>
</tr>
<tr>
<td>H4</td>
<td>Team Trust (TT) is positively related to Team Performance (TP)</td>
<td>Accepted</td>
</tr>
<tr>
<td>H5</td>
<td>Process Conflict (PC) is positively related to Team Performance (TP)</td>
<td>Rejected</td>
</tr>
<tr>
<td>H6</td>
<td>There is a Reciprocal Relationship between Task and Relationship Conflict (TRC) and Process Conflict (PC)</td>
<td>Accepted</td>
</tr>
</tbody>
</table>

### 5. Conclusion and Managerial Implications

This study investigates the impact of different key variables, including Process Conflict, Task and Relationship Conflict, Workforce optimization, Knowledge accessibility, Learning capacity and Team Trust on Team Performance. The primary motivation behind this study is to look at the association of employees in the organization and how the employees impact on the development of the organization, which is the scientific education of Jiangsu University Scientific Research Teams in Jiangsu Province, China.
The present study plans to gauge the degree of applying the TP practices on employees in a standout amongst the most exceptional and development sectors in the University Scientific Research Teams in Jiangsu Province, China, which is the education industry. The University Scientific Research Teams in Jiangsu Province, China is presently at the cutting edge of the world countries in the education industry as for advancement, development and infrastructure techniques. And also, the study will uncover the difficulties which confronting this sector in actualizing the TP practices. Along these lines, the consequences of the study will identify the weak points and will feature the practices that are not being connected in this sector in endeavor to propose the reasonable proposals that would profit the administrators and the managers in this sector to take the suitable activities to defeat the weak points. The consequences of this report demonstrate that the amount and capability of the accessible work in different sectors are the greatest difficulties that obstruct the development of Chinese business and point of confinement its offer. The report likewise found that training employees and enhancing the nature of administrations gave to them are the fundamental needs that must be contemplated keeping in mind the end goal to enhance the yield of sectors and guarantee their development.

In this study, conceivable executive elements, including Task and Relationship Conflict, learning capacity, knowledge accessibility, Process Conflict, Team Trust, workforce optimization and Team Performance. To date, the present study is one of the not very many studies led in the Chinese world to look at such connections. Henceforth, this study is an endeavored to add to the current knowledge by analyzing and understanding the effect of these free variables on Team Performance as the dependent variable. In the accompanying sub-segments, the commitments of this study are explained.

The present study’s outcomes have suggestions for scientific education, leaders and strategy organizers. Right off the bat, this study raises the issue of team performance who are the most critical resource of university scientific research teams in Jiangsu Province, China. As other announced logical research, this study is not without impediments. Notwithstanding the understanding offered, this study has a few impediments that ought to be considered by future studies. At first, this study fuses just scientific education in university scientific research teams in Jiangsu Province, China without thought of different gatherings which have a perfect association with scientific education.

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