TRANSFORMATIONAL LEADERSHIP AND TEAM BEHAVIORAL INTEGRATION:
THE MEDIATING ROLE OF TEAM LEARNING

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INTRODUCTION

The present study scrutinizes the associations among transformational leadership, team learning, and behavioral integration in work team settings. We address two related questions: How does transformational leadership affect team behavioral integration? How do team learning orientation and learning behavior intervene in the relationship of transformational leadership and team behavioral integration? Our study highlights the prominence of behavioral integration that can delineate the various aspects of exchanges and interactions among team members and help explain the inconclusive results in group dynamics literature. Revealing the intricacy of team leadership and internal processes, we provide empirical evidence that transformational leadership has implications for behavioral integration through their influences on team learning orientation and learning behavior respectively. Finally, our research also contributes to team learning literature by showing the interplay between learning orientation and learning behavior and the mediating roles they play between team leadership and team behavior outcomes.

THEORETICAL BACKGROUND AND HYPOTHESIS

Behavioral Integration

In a recent review study, Mathieu et al. (2008) found that the degree of team interactions has been viewed critical in most of team effectiveness models. However, the core elements of team dynamics, and their effects team effectiveness, remain unclear (Day et al., 2004). The unclear essences and results may attribute to the complicated and interweaved properties of human interactions, and thus necessitate an encompassing, multidimensional construct of teamwork (Hambrick, 1995).

Hambrick (1994: 189) proposed the meta-construct of behavioral integration for “describing various elements of group processes--more encompassing than only amount of internal communication, communication quality, or collaboration”. A behaviorally-integrated team will show delightful quantity and quality (richness, accuracy, and timeliness) of information exchange, collaborative behavior, and joint decision making (Hambrick, 1994). Because behavioral integration includes both social and task dimensions, when taken in concert, it may more precisely capture a team’s level of wholeness (Hambrick, 1994). Research has presented
evidence about the positive impact of TMT behavioral integration. Nonetheless, only few efforts had delved to examine the determinants of behavioral integration (Lawrence, 1997). Furthermore, the extension of behavioral integration concepts from TMTs research to work teams studies remain limited (Shaw & Barrett-Power, 1998).

To examine behavioral integration, our study addresses the work team sample and focuses on the relationships among transformational leadership, team learning, and behavioral integration. Abstracted from group development model (Shaw & Barrett-Power, 1998), we expect transformational leaders can help work teams achieve real integration through the sequential interventions of learning orientation and learning behavior.

Team Learning

Research has examined the effects of team demographic (e.g., Van der Vegt & Bunderson, 2005) and socio-psychometric (e.g., Ellis et al., 2003) compositions on team learning. The benefits of team learning on team effectiveness (e.g., Edmondson, 1999) and performance outcomes (e.g., Bunderson & Sutcliffe, 2003) were also ascertained. However, only few studies paid attention to the roles of team leader in team learning (Edmondson, 1999).

Conversely, although team learning literature includes two interlocking yet distinct streams of learning orientation and learning behavior (Day et al., 2004), efforts delving into bridge the divergence so far remain unseen. Thus, following Edmondson’s (1999) model that members’ shared beliefs are the prerequisite for team learning behavior, we proposed that a team’s learning orientation will affect its learning behavior. Further, drawing on the suggestion of Edmondson et al. (2001) that leaders need to help create environment (climate) for team learning, we examined how transformational leaders can advance team learning orientation to induce learning behavior, which in turn promote members’ behavioral integration.

Transformational leadership and behavioral integration

Transformational leaders encourage followers to proactively participate in team affairs and value team goals, which help build collective confidence and generate a sense of community to achieve collaboration (Spark & Schenk, 2001). Transformational leaders also develop team member’s breadth and depth of thinking and encourage non-traditional perspective of view (Sosik, 1997), all of which will induce the quality and quantity of information sharing (Erkutlu, 2008). Finally, transformationally-led teams recognize and respect every member’s ideas in articulating team vision and appreciate joint efforts in performing job tasks, which will further decision commitment (Garcia-Morales et al., 2008). Thus,

Hypothesis 1: Transformational leadership is positively associated with team behavioral integration.

Team learning behavior and behavioral integration

Edmondson (1999: 353) conceptualized team learning behavior as “an ongoing process of reflection and action, characterized by asking questions, seeking feedback, experimenting, reflecting on results, and discussing errors or unexpected outcomes of actions.” Thus, a team that advocates learning activities will underline members’ information sharing and cognitive and behavioral exchanges, which in turn promote teamness and integration (Day et al., 2004). Team
learning behavior also appreciates the processes and initiatives of information seeking (Ellis et al., 2003), leading to the improvement of quantity and quality of information exchanged. Moreover, team learning behavior improves the process of brainstorming and idea generation, which in turn produce a cohort of sense to advance joint decisions (Palus & Youg, 2000).

**Hypothesis 2:** Team learning behavior is positively associated with team behavioral integration.

**Team learning orientation and learning behavior**

Team learning orientation reflects “a shared perception of team goals related to learning and competence development” and is best considered as “as a holistic gauge of a team’s overall learning propensity rather than as an activator of specific learning behaviors” (Bunderson & Sutcliffe, 2003: 553). Previous studies proposed that shared beliefs in social systems would induce members’ behaviors (Walsh, 1995). Research showed that teams with a learning climate would establish shared norms for active learning (Turner et al., 2002). Unlike other kinds of team climate, team learning orientation is more specifically directed to task and goal orientation (Burningham & West, 1995), and thus the norm of the need of continuous learning can be more easily transmitted to encourage team learning actions (Druskat & Pescosolido, 2002).

**Hypothesis 3:** Team learning orientation is positively associated with team learning behavior.

**Transformational leadership and learning orientation**

Yukl (2008) suggested that leadership “constitutes a process of facilitating individual and collective efforts to learn and accomplish shared goals in organizations.” Transformational leadership can articulate a shared vision of the future and instill values to foster the goals accepted by team members and, in so doing, build a learning climate to “cause basic values, beliefs, and attitudes of followers to align with organizational collective interests” (Wang et al., 2005). Transformational leaders also highlight intellectual stimulation, which advocates a proactive learning environment (Dinno et al., 2004). Finally, individual considerations promote psychological attachments between transformational leaders and their subordinates, which help ensure the attainment of team learning orientation (Wang et al., 2005).

**Hypothesis 4:** Transformational leadership is positively associated with team learning orientation.

**Transformational leadership, team learning, and behavioral integration**

The group development model proposed team behavioral integration as the outcome of team compositions, mediated by four aspects of forming, storming, norming, and performing of team processes (Shaw & Barrett-Power, 1998). Identifying the mediating mechanisms through which transformational leadership affects team behavioral integration thus become imperative.

Edmonson and colleagues (1999, 2001) suggested a model that links leadership, team climate, learning behavior, and task outcome. Indeed, the dynamics of team learning has been considered a socio-cognitive process (Bossche et al., 2006), in which members’ shared cognition such as learning orientation may affect interpersonal interactions to promote learning behavior (c.f. Bunderson & Sutcliffe, 2003). Thus, we expect transformational leadership may not only
directly affect behavioral integration (hypothesis 1), but also indirectly through their impact first on team learning orientation (hypothesis 4) and then on learning behavior (hypothesis 3).

**Hypothesis 5:** Team learning orientation and learning behavior sequentially mediate the relationship between transformational leadership and team behavioral integration.

**METHODS**

Data for this study were obtained from indirect or staff departments, which have high degree of task and performance interdependence, in Taiwanese companies. The final sample is composed of 443 members in 99 work teams with an average team size of 6.9. Forty-four percent of these work teams are from manufacturing, 29% from service, and 27% from other industries such as construction. We conduct ANOVA analysis to test whether our studied variables are different among the three industry segments, and the results show insignificant (p > .05).

Podsakoff et al.’s (1996) 22-item scale was adopted to measure the perceived transformational leadership behavior. Respondents indicated the extent of agreement with each statement on a 7-point Likert-type scale (1 = strongly disagree, 7 = strongly agree). To capture team learning, we adopted Vandewalle’s (1997) 5-item, 7-point scale to test learning orientation and Edmondson’s (1999) 7-item, 7-point Likert-type scale to assess learning behavior. In addition, Simsek et al.’s (2005) 9-item, 7-point Likert-type scale was applied to evaluate team behavioral integration. Because transformational leadership, learning orientation, and learning behavior are the shared characteristics perceived by team members, we collect data of transformational leadership from team members, and data of learning orientation and learning behavior from both team leader and members.\(^1\) As to the measure of behavioral integration, we use team leader’s responses. We check on reliability and validity for each construct via Cronbach’s α and CFA; both of them are at satisfying level. We also calculate ICC (1), ICC (2), \(r_{WG(J)}\), and ANOVA. The results support data aggregation. Besides, we control for team demographics, team personality diversities, and task interdependence.

We adopt a two-step structural equation modeling approach (Anderson & Gerbing, 1988) with LISREL 8.80 (Jöreskog et al., 2006) to test our hypotheses. First, confirmatory measurement model is evaluated to verify the distinctiveness of research variables. Second, the nested-mode, sequential chi-square difference tests (SCDTs) are applied to evaluate the structural model. To simplify the examined model and maximize the variance among indicators, we follow the suggestions of Fitzgerald et al. (1997) to combine the survey items of each variable into three to five parallel indicators.

**RESULT**

To validate the full measurement model, we compare the baseline model with four alternative models in which every two of studied variables were sequentially combined into one factor. Results show the baseline model fits the data well and factor loadings of the indicators on their respective factors were all significant. The construct reliabilities (CR) and average variances extracted (AVE) were all above recommended levels. Thus, the discriminant and convergent validities were ascertained.

\(^1\) To reduce the CMV problem, one half of the responses of team members were assigned to learning orientation and the other half to learning behavior so that their ratings were from different sources.
We then assess our hypotheses by comparing a series of nested models. Figure 1 presents the regression weights for each of the paths derived from the final model. Transformational leadership positively related to learning orientation (consistent with Hypothesis 4) and learning behavior positively related to behavioral integration (supporting Hypothesis 2). However, learning orientation was insignificantly related to learning behavior, a finding that did not support Hypothesis 3. The direct relationship between transformational leadership and behavioral integration (Hypothesis 1) was also supported. Moreover, team learning orientation and learning behavior showed a full mediating effect on the relationship between transformational leadership and team behavioral integration, a result that is somewhat different from Hypothesis 5. The total effects of transformational leadership, learning orientation, and learning behavior on team behavioral integration are .29, .36, and .46 respectively. The $R^2$ for team behavioral integration is .44, a relatively substantial variance explained, and $R^2$ for learning orientation and learning behavior are .18 and .55 respectively.

**DISCUSSION**

Our paper shows that to build a behaviorally-integrated team through transformational leadership, team leader needs to develop a learning climate or induces members’ proactive learning behavior. The paper first contributes to the group dynamics perspective. Unlike previous work team studies that utilized either emotional or task-based constructs to conceptualize team dynamics, our study applies behavioral integration to characterize teamwork. Further, our study helps better understand the comprehensive group development processes by highlighting the effects of contextual factors (specially, transformational leadership and team learning) on team integration (Shaw & Barrett-Power, 1998). Finally, the introductions of team learning perspective to explain the “black box” between transformational leadership and team behavioral outcome also extend the team leadership research (Piccolo & Colquitt, 2006).

Second, our study expands team learning research, which so far has devoted limited attention to the differentiation of learning climate and real learning actions and has done little to investigate in depth the leader’s impact (Edmondson, 1999). Our study fills the gap by examining the interplay between learning orientation and learning behavior, as well as the impact from the team’s transformational leader. Such an integrated approach opens up a promising avenue for further exploration and reveals the intricacy of contextual forces and internal dynamics, as well as the complex exchanges among drivers of team learning behavior (Edmondson, 1999).

Nonetheless, although the results offer substantial support for our overall model, there is a surprising lack of support for Hypothesis 3. Our original prediction was premised on the belief that in a learning environment, members would display learning thrust and initiatives to engage in learning behavior (Edmondson et al., 2001). However, the results show that the development of a learning-oriented climate is not a prerequisite; team learning behavior can be directed straightly by its team leader. Research has shown that team members are particularly affected by leaders’ behaviors (Taylor & Lind, 1992). As transformational leadership is a person-focused leadership style and includes self-actualization aspects (Burke et al., 2006), team members will be expected to be more easily and directly motivated to learn when their leaders exhibit such behaviors. The social exchange theory also proposes that the support from leaders would induce followers to behave in the way that leaders expect in return (Dansereau et al., 1995). As such, when members are aware of leaders’ inspirations, they may actively engage in learning actions.
even without a learning climate around. Future studies can compare whether learning initiatives are different under person-focused and task-focused environments (Edmondson, 1999).

The research also contributes to business practice. The study of how team members interact is of vital importance, as it matters team adaptability, response speed, information-processing efficiency, and task effectiveness (Montoya-Weiss & Massey, 2001). Our study, focusing on transformational leadership, shows that it is critical to build a behaviorally-integrated team through the management of team learning climate and learning actions.

**Limitation and Future Directions**

First of all, research data are sampled from Taiwanese firms, leading to the concerns of generalizability. However, as team-level multiple response data are difficult to collect, the restriction may be, to some degree, acceptable (c.f. Chen et al., 1993). Second, on top of contextual factors within a team, external forces such as perceived organization support may also affect team integration. Third, research can compare the determinants and effects of various team process variables such as cohesion, social integration, and behavioral integration in a variety of teams like TMTs, work teams, and multidisciplinary teams, to get a more comprehensive picture of team dynamics (c.f. Simsek et al., 2005). Fourth, the boundary impact of team composition and contextual factors on team behavioral outcomes can be examined as well (Stock, 2004). Finally, a longitudinal design could be conducted to check the change of team behavioral integration. Along with the group development model, it will be insightful to investigate into the complicated processes that lead to behavioral integration over time.

In summary, the examination of transformational leadership as the driving force of a team’s behavioral integration and as a source of team learning climate and actions offers critical insights for a diverse range of research topics and for business practices. Our study highlights essential team behavioral outcome that are vital for a team to succeed in turbulent environment.

**REFERENCES AVAILABLE FROM THE AUTHOR**

**FIGURE 1 The Final Model**

![The Final Model](image-url)"
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