The Effect of Team Affective Tone on Team Performance: The Roles of Team Identification and Team Cooperation

Abstract

Affective tones abound in work teams. Drawing on the affect infusion model and social identity theory, this study proposes that team affective tone is related to team performance indirectly through team identification and team cooperation. Data from 141 hybrid-virtual teams drawn from high-tech companies in Taiwan generally supported our model. Specifically, positive affective tone is positively associated – while negative affective tone is negatively associated – with both team identification and team cooperation, team identification is positively associated with team cooperation, and team cooperation is positively associated with team performance. Managerial implications and limitations are discussed.

Keywords: Team affective tone, team cooperation, team identification, team performance.

Research on team affective tone is growing due to its potential influence on team dynamics and effectiveness (Mason & Griffin, 2003; Tsai, Chi, Grandey, & Fung, 2012). While previous research has provided a comprehensive understanding of how and why group affective tone emerges (Kelly & Barsade, 2001; Walter & Bruch, 2008), little attention has been paid to exploring its impact on performance and intervening variables regarding that impact. Team affective tone refers to "consistent or homogeneous affective reactions within a group" (George, 1990, p. 108). Research has provided preliminary evidence that positive team affective states (or moods) lead to improved team performance (Pirola-Merlo, Härtel, Mann, & Hirst, 2002) while negative team affective states are associated with poorer performance (Cole, Walter, & Bruch, 2008). Similarly, research suggests that positive group affective tone enhances group creativity (Tsai et al., 2012) and group coordination (Sy, Côté, & Saavedra, 2005), which are likely to be associated with performance. Therefore, scholars and practitioners have called for more research to clarify precisely *how* team affective tone fosters or hinders team performance.

Team affective tone has two dimensions, positive and negative (George, 1990, 1996; George & Zhou, 2007; Sy et al., 2005), which are regarded as highly related but distinct factors (Sy et al., 2005). Examples of positive team affective tone include collective mood states such as enthusiastic and excited, while examples of negative team affective tone include collective mood states such as hostile and scared. As discussed later, team affective

tone exists for a number of reasons, particularly the emotional contagion process (through which the affective state of one person in a group is transferred to other members) (Barsade, 2002; Sy et al., 2005) and the experience of the same affective events within the group (Kelly & Barsade, 2001).

In an earlier review of team performance research, Cohen and Bailey (1997) listed team emotion and mood as the first of five key areas for future research to explore. Ten years later, Mathieu, Maynard, Rapp, and Gilson's (2008) review showed that despite substantial progress in other areas, such as group cognition and virtual and global teams, "the topics of team affect and mood have garnered far less attention, although they continue to offer interesting avenues for future research" (p. 460). Because evidence of the relationship between positive and negative team affective tone and team performance has been somewhat limited (Klep, Wisse, & van der Flier, 2011) and the intervening mechanisms of this relationship have not received sufficient attention, we seek to address this gap in the present study. For purposes of this study, we define team performance as the effectiveness and efficiency of a team accomplishing its task by means of the coordinated activity of team members (e.g., reduced redundancy of work content, streamlined work process; see, for example, Driskell & Salas, 1992; Kahai, Sosik, & Avolio, 2004; Lin, 2010; Molleman & Slomp, 1999; Sexton, Thomas, & Helmreich, 2000).

Drawing on the affect infusion model and social identity theory, we propose two critical

intervening variables – team cooperation and team identification – that link affective tone and team performance. By doing so, this study contributes to the literature in two ways. First, this study helps answer the question of how team affective tone affects team performance. We aim to achieve this by testing three possible indirect routes, namely an identity-based route (through team identification), a behavior-based route (through team cooperation), and a combined identity/behavior-based route (through identification-cooperation). Whilst the affect infusion model provides a theoretical framework for the choice of team cooperation as a potential intervening variable, social identity theory suggests team identification as a potential additional intervening variable. The design of teams for cultural fit is a specific human resource management (HRM) task, which influences employees' relational identification at the team level, and may in turn influence the behavior of team members (Li, Zhang, Yang, & Li, 2015). Li et al. (2015) found that a collectivism-oriented HRM approach may have a positive effect on team relational identification, subsequently improving the job satisfaction of team members and reducing their turnover intentions. The implications for HRM are to manage teams in a way that will, subject to the prevailing culture, lead to positive team-tone.

Additionally, social identity theory provides an overarching theoretical framework for both intervening variables. The theory posits that group members who identify strongly with their team are more likely to contribute to the collective team interest by adopting a more

collaborative attitude and behaviors toward ingroup members and may even sacrifice their individual interests to achieve this (Ashforth & Mael, 1989; Haslam & Ellemers, 2005). Therefore, both team cooperation and team identification have a solid theoretical underpinning as intervening variables for the relationship between team affective tone and team performance.

Second, our model enables us to test team-based emotional antecedents of team identification. Although previous research has shown that group members' emotional reaction toward an ingroup can affect their ingroup identification (Kessler & Hollbach, 2005), little is known about whether collective emotions at the team level can influence team identification. Similar to Kessler and Hollbach's (2005) findings, we will argue that positive group emotion increases and negative group emotion decreases group identification, which has both direct and indirect effects on team performance.

The remainder of our article proceeds as follows. First, we discuss how team affective tone may affect team performance via team identification and cooperation. Second, we describe the survey methodology used to test our model. Third, we present the results. Finally, we discuss the findings, limitations, and implications for practice and future research.

Conceptual Framework and Hypothesis Development

Team Affective Tone

Team affective tone, as a shared perception of moods and homogeneous emotional states

within a team (Shin, 2014), is an aggregate of the moods of the team members (Sy et al., 2005). Team members tend to experience similar moods based on several theoretical mechanisms, including the selection and composition of team members, the socialization of members, emotional contagion among members, and the exposure of members to the same team-related circumstances, such as team demands and outcomes (Barsade, 2002; George, 1996; Kelly & Barsade, 2001; Neumann & Strack, 2000; Sy et al., 2005; Weiss & Cropanzano, 1996). Although not all groups display an affective tone, a majority of groups appear to do so (George, 1996). The setting and management of teams are critical for success, and is typically under the remit of HRM units. Significant attention is given in the HRM literature to the management of teams for optimization of organizational outcomes. The impact of relational characteristics of work design on performance outcomes is a challenge for HR management (Carboni & Ehrlich, 2013). Work design, which is part of HRM planning and management, may help shape interpersonal relationships and informal communication within teams. Issues like knowledge transfer and knowledge sharing are directly influenced by metacognitive, cognitive, and motivational cultural intelligence (Chen & Lin, 2013), factors that may be enhanced by positive team affective tone.

It is widely accepted that emotions at work impact employee attitudes, cognitions and behaviors (Mason & Griffin, 2003; Tsai et al., 2012). Prior research also demonstrates that emotions can be shared such that “group affect” exists (Smith, Seger, & Mackie, 2007). Team

affective tone has been proposed as a valid construct to capture such collective affect (George, 1990) and it has been argued that team affective tone influences team dynamics and team effectiveness (George, 1996; Mason & Griffin, 2003). As noted, research provides evidence of the impact of team affective tone on team creativity (Tsai et al., 2012), group coordination (Sy et al., 2005), and team performance (Cole et al., 2008; Tanghe, Wisse, & van Der Flier, 2010). For example, Tsai et al. (2012) collected data from leaders and members of 68 R&D teams and performed hierarchical linear modeling analyses to explore how group affective tone influences the development of team creativity. Tsai et al. suggested that the proposed team-level effects in their study may be inflated by collectivist culture (e.g., social harmony, cooperation), but this was not taken into account in their study. Thus, our work complements their research by examining the influence of cooperation on team performance. As another example, Sy et al. (2005) investigated 56 groups of students in undergraduate courses at two large universities in the United States and found that student leaders' personal mood influenced their groups' outcomes. The authors indicated that group members may transmit their affective tone or moods to leaders; however, this was not taken into account in their study. Our field study regarding group-level affective tone thus complements their research.

Previous literature has also provided in-depth analyses of the relationship between specific moods and emotions at work (e.g., Ashkanasy & Daus, 2002; Brief & Weiss, 2002; Wegge, van Dick, Fisher, West, & Dawson, 2006). Along these lines, Weiss and Cropanzano

(1996) presented affective events theory for studying emotions, moods and affect-based behavior at work, such as OCBs and problem-solving behavior (e.g., Wegge et al., 2006). This is consistent with emotional regulation research that explains how emotional cues substantially influence affective behavioral responses (e.g., Gross, 1998a, 1998b; Kammeyer-Mueller et al., 2013; Little, Kluemper, Nelson, & Ward, 2013; Sonnentag & Grant, 2012; Turban, Lee, da Motta Veiga, Haggard, & Wu, 2013). Recent research supports the effect of team affective tone on team performance (Chi & Huang, 2014; Collins, Jordan, Lawrence, & Troth, 2015). However, little research has examined the mediation mechanisms between team affective tone and team performance (see Kim & Shin, 2015, for one example). Again, typically the literature does not cover team performance as the outcome. Team affective tone not only directly impacts team effectiveness, but can also influence how other factors affect it. For example, recent research finds that lower levels of negative affective tone enhance the positive effect of team innovation processes on team reputation (Peralta, Lopes, Gilson, Lourenço, & Pais, 2015). In addition, recent research has studied a similar construct to team affective tone, that is, group emotional climate (Härtel & Liu, 2012; Liu & Härtel, 2013; Liu, Härtel, & Sun, 2014), and found that positive emotional climate tends to enhance group performance and OCBs, whilst negative emotional climate leads to relationship and task conflict (Liu et al., 2014).

The labels of the two dimensions of team affective tone, positive tone and negative tone,

seem to imply that these two valences are strongly and negatively correlated. However, they are actually highly distinct and are meaningfully represented as orthogonal dimensions in the study of individuals' affective tone (Watson, Clark, & Tellegen, 1988) and team affective tone (George, 1990, 1996; George & King, 2007). In general, Menges and Kilduff's (2015) review of the literature on group shared emotions demonstrates that, regardless of team size, positive emotions are beneficial to team functioning and performance, whilst negative emotions are harmful. However, it is important to distinguish team affective tone and a newly proposed construct, namely, mixed group mood, which refers to co-occurring positive and negative mood states among group members (Walter, Vogel, & Menges, 2013). The team affective tone construct does *not* require the simultaneous co-occurrence of positive and negative emotions, and treats positive and negative tones as separate and unique constructs.

After theoretically establishing the direct impact of team identification and team cooperation on team performance, we develop theory regarding the intervening routes. As noted, we propose three such routes: (1) team identification, derived from social identity theory; (2) team cooperation, derived from the affect infusion model; and (3) combined identification-cooperation, based on the first two routes.

Social Identity Theory and Team Performance

Team identification and team performance. Social identity theory posits that a social category (e.g., a team) becomes part of the psychological self when members define

themselves in terms of that category (Ashforth & Mael, 1989; Tajfel & Turner, 1986). Team identification describes the "psychological merging" of self and team, which induces team members to ascribe team-defining characteristics to the self, to see the self as similar to other members of the collective, and to take the collective's interests to heart (Turner, Hogg, Oakes, Reicher, & Wetherell, 1987). Team members with strong team identification are motivated to follow group norms in their thoughts, feelings, and behavior (e.g., Chen, Kirkman, Kanfer, Allen, & Rosen, 2007; Janssen & Huang, 2008; Kearney, Gebert, & Voelpel, 2009; Riantoputra, 2010; Somech, Desivilya, & Lidogoster, 2009). Team identification can be seen as a cognition- and affect-based bond between employees and their team (Somech et al., 2009). The strength of team members' identification binds them together into a powerful psychological entity dedicated to realizing the team's goals (Gaertner, Dovidio, Anastasio, Bachman, & Rust, 1993; Van Der Vegt & Bunderson, 2005), and is thus positively related to team performance. Consequently:

H1a*: Team identification is positively related to team performance.*

Team Cooperation and Team Performance

Team cooperation is a key antecedent of team performance (Kirkman & Shapiro, 2001; Wagner, 1995; West, Patera, & Carsten, 2009). Cooperation refers to "the willful contribution of personal efforts to the completion of interdependent jobs" (Wagner, 1995, p. 152). Since interaction and interdependency are indispensable to work team success, there is typically a

strong need for cooperative actions (Brueller & Carmeli, 2011). Cooperation is an overarching teamwork consideration that captures the motivational facilitators necessary for increased performance (Salas, Shuffler, Thayer, Bedwell, & Lazzara, 2015). Cooperation among team members provides value-creation opportunities for the team (Gratton, 2005). Many large companies have been experimenting with teams and seeking to reap the benefits of heightened cooperation among team members, and to turn that cooperation into enhanced performance (Wageman & Baker, 1997). For instance, Analog Devices, Dana, Eaton, Monsanto, TRW, and Whirlpool have reorganized employees into teams in the belief that fostering cooperation among team members leads to enhanced team performance (Arya, Fellingham, & Glover, 1997), and have in fact found a positive relationship between team cooperation and team performance. In the sports area (the NBA), recent research finds that team cooperation not only positively relates to team performance, but also enhances the positive effect of leader-member skill distance on team performance (Tian, Li, Li, & Bodla, 2015). And a recent study of work teams in manufacturing organizations found that team cooperation predicted team helping, a likely antecedent of team performance, and, moreover, partially mediated the effects of team members' demographic and trait diversity on team helping (Liang, Shih, & Chiang, 2015). As a result, we hypothesize that:

H1b*: Team cooperation is positively related to team performance.*

Social Identity Theory: The Intervening Mechanism of Team Identification

Positive team affective tone, team identification, and team performance. Previous literature has suggested that a group's social identity often results from affective processes (Petitta & Borgogni, 2011). We argue that positive team affective tone increases, while negative affective tone decreases, team identification. Because team identification involves a sense of emotional attachment to the team (Cho, Lee, & Kim, 2014), it is likely that team members' positive affective tone facilitates identification. For example, Kessler and Hollbach (2005) found that happiness (positive affect) enhances, while anger (negative affect) decreases, group identification, and that the intensity of affect influences the degree of change in group identification. Put differently, positive team affective tone facilitates members' belongingness regarding their team because group affect regulates members' attitudes toward the group (Mackie, Silver, & Smith, 2004). It has been found that a positive affective state results in interpersonal attraction (Gouaux, 1971), sociability and identification (Ilies, Scott, & Judge, 2006; Isen, 1970; Isen & Levin, 1972). When people are primed with positive mood, they are more likely to feel sociable and exhibit a stronger preference for social situations, as compared to those under negative mood (Whelan & Zelenski, 2012). Therefore, we infer that teams with stronger positive affective tone are more likely to be sociable and hence experience stronger team cohesion and identification. Research has also shown that people under positive mood are more likely to trust others (Mislin, Williams, & Shaughnessy, 2015). Because team positive affective tone is associated with the occurrence of positive mood

among team members, we expect that positive affective tone is likely to raise trust among team members, which in turn can enhance members' interpersonal attraction and overall team identification. Given our argument, established above, that team identification is in turn positively related to team performance, this chain of relationships suggests that team identification may function as a key intervening variable regarding the influence of positive affective tone on team performance. Thus:

***H2a**: Positive affective tone is positively related to team identification.*

***H2b**: Positive affective tone has a positive indirect relationship with team performance via team identification.*

Negative team affective tone is defined as a team's collective experiences of negative emotions and moods (i.e., team members' shared negative affect; George, 1990). Just as a positive tone enhances team identification, so a negative tone weakens identification by making the team a less desirable object for members' attachment. Further, teams with high negative affective tone enact what Frijda (1986) referred to as "control precedence." In a sense, these teams are controlled by their negative affective state (Cole et al., 2008), narrowing their attention to specific perception tendencies (e.g., dealing with their unpleasant engagement; Watson et al., 1988). As a result, members redirect their attention to resolving their experience of negative emotions and moods, weakening their team identification. Following studies that indicate the harmful effect of negative affective tone on motivation

(Brown, Westbrook, & Challagalla, 2005; Kiefer, 2005), persistence, and job performance (Cole et al., 2008; Seo, Barrett, & Bartunek, 2004), we expect negative team affective tone to diminish team performance indirectly via the intervening variable of team identification. Thus:

***H3a**: Negative affective tone is negatively related to team identification.*

***H3b**: Negative affective tone has a negative indirect relationship with team performance via team identification.*

Team identification is a major antecedent of team collective actions, such as cooperation (Hogg & Abrams 1988). As noted by Brewer and Silver (2000), "social identification can be viewed as a group resource that is critical to the ability of the group to mobilize collective action among its members or to recruit group members into a social movement" (p. 154). Social identity theory, in conjunction with its sister theory, self-categorization theory (Hogg & Terry, 2000), has been extended to explain Messick and Brewer's (1983) assumption that team identification enhances team members' confidence, resulting in increased cooperation (e.g., De Cremer & Van Vugt, 1998; Kramer, Hanna, Su, & Wei, 2001). Theory and research on organizational identification (Ashforth, Harrison, & Corley, 2008; Dukerich, Golden, & Shortell, 2002; Dutton, Dukerich, & Harquail, 1994; Kramer et al., 2001; Lee, Park, & Koo, 2015; Michel, Stegmaier, & Sonntag, 2010; Pratt, 1998; Riketta & Van Dick, 2006) strongly indicates that identification fosters cooperative

behavior toward the collective's goals. In work teams, team identification enhances members' motivation and willingness to participate in team activities, hence encouraging team cooperation (Kramer et al., 2001), as members with stronger identification are more willing to strive for the overall welfare of the team (Chen et al., 2007; Olkkonen & Lipponen, 2006; Van Der Vegt & Bunderson, 2005; van Dick, van Knippenberg, Kerschreiter, Hertel, & Wieseke, 2008). Identification acts as a "social glue" (Bezrukova, Jehn, Zanutto, & Thatcher, 2009) such that members become motivated to actively strive to reach agreement and coordinate their actions in identifying shared beliefs and exchanging information (Bezrukova et al., 2009; Haslam & Ellemers, 2005; Hogg & Terry, 2000). Such phenomena suggest an indirect effect of team identification on team performance via team cooperation. These findings support the following hypotheses:

H4a*: Team identification affects team performance via team cooperation.*

H4b*: Positive affective tone has a positive indirect relationship with team cooperation via team identification.*

H4c*: Negative affective tone has a negative indirect relationship with team cooperation via team identification.*

Affect Infusion Model: The Intervening Mechanism of Team Cooperation

Affect infusion model. Using an information processing perspective, Forgas (1995) developed the affect infusion model (AIM) to understand how mood affects a person's ability

to process information. Affect infusion refers to the process whereby affect-loaded messages influence and become part of the judgmental process in teamwork, eventually coloring team outcomes (Forgas, 1994). Previous literature (van Knippenberg, Kooij-de Bode, & van Ginkel, 2010) has found Forgas's (1995) AIM to be a useful framework for exploring the relationship between positive mood in teams and team decision quality.

AIM holds that affect can function as information that directly influences members' attachment toward a team as they use their affective state to infer their judgments under conditions of heuristic processing (e.g., Clore, Schwarz, & Conway, 1994). Affect itself plays a critical role in processing choices, as it can trigger motivated processing (e.g., to achieve cooperation) (Forgas, 1994). More specifically, individuals experiencing positive affect are likely to use simple, heuristic processing styles while negative affect triggers more careful and substantive processing (Forgas, 1992). In short, affect exists for the sake of signaling states of the world that have to be responded to (Frijda, 1988).

AIM argues that mood has a stronger effect on situations that are inherently complex and ambiguous and that require the use of active and constructive processing strategies (Forgas, 1995; Forgas & George, 2001). Given that teamwork in general is inherently too complex for an individual to tackle alone, team affect (e.g., positive affective tone) that helps reduce employees' cognitive complexity (Phillips & Lount, 2007) tends to be a significant factor regarding team dynamics such as cooperation. For employee behavior, "affect impacts

on organizational behavior because it influences both *what* people think (the content of cognition) and *how* people think (the process of cognition)" (Forgas & George, 2001, p. 4; see also Brief & Weiss, 2002; Clore, Gasper, & Garvin, 2001; Sy et al., 2005). For example, the affect-as-information mechanism (Schwarz & Clore, 1983) suggests that people use their affective states to make judgments.

A critical way by which affect influences individuals' information processing is through an affect-congruent impact on their thoughts and plans (Forgas, 1995; Yang, Cheng, & Chuang, 2015). In general, positive affect tends to facilitate information integration (Estrada, Isen, & Young, 1997) and the positive interpretation of issues, such as framing strategic issues as opportunities (Mittal & Ross, 1998). When employees experience positive affect, they tend to sense and explain the information from a favorable perspective (Tee, 2015; Yang et al., 2015). Conversely, negative affect can signal unconventional circumstances (Clore, Gasper, & Garvin, 2001), and lead to more laborious attributional and mood-regulatory processing (Lazarus, 1991; Sullivan & Conway, 1989). When employees experience strong negative affect, they tend to interpret and understand the information from an adverse aspect (Liu, Wang, & Chua, 2015; Mislin et al., 2015). Research on emotional regulation has confirmed that people engage in a variety of regulatory strategies to resolve their negative emotions (Gross, 1998a, 1998b). Should these cognitive efforts persist, task execution suffers (Cole et al., 2008) because individuals are distracted from their goals (Frijda, 1986).

Positive affective tone and cooperation. The theoretical rationale that happy or enthusiastic workers are more cooperative than sad workers has been a popular presumption in social and applied psychology (Lucas & Diener, 2003). For example, previous literature has empirically showed that positive emotional contagion (i.e., successful transfer of positive mood) leads to greater cooperation and team performance within work teams (Totterdell, 2000).

Within teams, positive affective tone can strengthen team cooperation for two major reasons. First, when team members are in a positive mood, they perceive things in an optimistic light and thus are more likely to feel positively toward coworkers (Ilies et al., 2006) and actively cooperate with them (Watson et al., 1988). Positive affective tone is considered a pleasant-feeling state (Estrada, Isen, & Young, 1994), which tends to facilitate information integration (Estrada et al., 1997). Enhanced information integration, in turn, is conducive to team cooperation. Previous literature suggests that team members' mood influences the synergy between members (Jordan, Lawrence, & Troth, 2006).

Second, positive affective tone is associated with enthusiasm (Watson et al., 1988) and empathy (Nezlek, Feist, Wilson, & Plesko, 2001), and employees are more likely to help coworkers when they feel enthusiastic and empathetic toward them (Ilies et al., 2006). Thus, research indicates that groups with positive affective tone experience improved team cooperation (Barsade, 2002; George & Brief, 1992). Further, research on organizational

spontaneity puts special emphasis on the positive affective tone of primary work teams as an explanation for why cooperative support occurs (Bierhoff & Müller, 1999). This is because the affective tone in the team influences particular moods, which in turn influence within-team cooperation (Kelly & Spoor, 2006). Thus, it has been found that positive affective tone in teams serves as a coordination function to facilitate cooperation (Spoor & Kelly, 2004).

Positive affective tone, cooperation, and team performance. Collectively, driven by positive emotional tone (Schug, Matsumoto, Horita, Yamagishi, & Bonnet, 2010), cooperation can be considered an intervening variable enhancing team performance (Gong, Shenkar, Luo, & Nyaw, 2007). Previous literature argues that positive emotions or affective tone powerfully direct individuals to cooperate (Loch, Galunic, & Schneider, 2006), resulting in improved performance. Thus, the hypotheses linking positive affective tone to performance can be summarized as follows:

H5a*: Positive affective tone is positively related to team cooperation.*

H5b*: Positive affective tone has a positive indirect relationship with team performance via team cooperation.*

Negative team affective tone, team cooperation, and team performance. Cole et al. (2008) argue that negative team affective tone may distract team members from pursuing goals, hence lessening efforts to improve team performance. In support, they cited two

studies. First, Grawitch, Munz, and Kramer (2003) found that teams manipulated to have higher negative affective tone focused their activities less on team tasks than teams manipulated to have higher positive affective tone. Second, it was found that teams with substantially higher positive-to-negative emotion ratios tended to be high-performance teams (Losada & Heaphy, 2004). However, Cole et al.'s (2008) research did not examine the specific mechanisms underlying this effect. We argue that because affect impacts information processing and directs people's attention, one key mechanism relates to team cooperation. Under negative team affective tone, efforts are less likely to promote team cooperation due to a preoccupation with emotional regulation and to being distracted from pursuing team goals. Therefore, negative team affective tone is likely to damage team cooperation, which in turn undermines team performance.

Further, negative affective tone characterized by lethargy (Watson et al., 1988) deters team members' initiative to coordinate with others (i.e., low cooperation). As noted, affect influences how employees think and act, presumably by providing signals that guide information processing and judgment (Brief & Weiss, 2002; Clore et al., 1994; Sy et al., 2005). Specifically, a negative affective experience serves as a signal of abnormal circumstances (e.g., Clore et al., 2001), which triggers team members' cognitive processing to cope with their negative feelings, thereby impairing their immersion in teamwork (Lazarus, 1991). To the extent these cognitive efforts persist, the likelihood of teamwork execution

lessens as team members become preoccupied with "fixing" their negative feelings (e.g., Frijda, 1986). For example, studies report that negative affective tone has harmful effects on team members' motivation and behavior (Brown et al., 2005; Kiefer, 2005), including their cooperation, effort, and task effectiveness (King, Hebl, & Beal, 2009; Seo et al., 2004; Staw & Barsade, 1993). Hence:

H6a*: Negative affective tone is negatively related to team cooperation.*

H6b*: Negative affective tone has a negative indirect relationship with team performance via team cooperation.*

Figure 1 summarizes our theoretical framework and hypotheses.

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Method

Sample

The rapid development of advanced information technology has dramatically changed the communication styles of today's work teams (Shin & Song, 2011). Most teams today are technologically enabled, meaning that they use traditional face-to-face communication, as well as a host of other media such as smartphone, video, and the Internet (Robert, Dennis, & Ahuja, 2008). Even for face-to-face team members, their workplace interactions are increasingly mediated by information technology. These "hybrid-virtual teams" – that is, teams that count on both technology-supported virtual interactions and face-to-face contacts

(Fiol & O'Connor, 2005) – are becoming highly prevalent and important in today's firms (Cousins, Robey, & Zigurs, 2007). For that reason, this study focuses on hybrid-virtual teams.

We conducted a survey of working professionals across hybrid-virtual teams from high-tech firms in Taiwan. We selected high-tech firms because they often rely on hybrid-virtual teams. Specifically, work teams across the major sectors of our sample firms – specifically, research and development, management information systems, human resources management, and marketing and production – were approached. It is important to note that work teams from the high-tech industry in Taiwan are an appropriate sample because Taiwan has a strong high-tech presence in the global economy (Hsu & Chuang, 2014; Wang, Huang, & Fang, 2014).

A total of 24 large ICT firms in two well-known science parks in Taipei and Hsinchu participated in our survey. Regarding team sizes, Oliver and Marwell (1988) suggest there is no absolute range for the efficiency of teams, depending on costs, while Jackson and colleagues (1991) suggest that the minimum size for studying a group or team is at least three members. Since we investigated both team members and their leaders, we excluded teams smaller than five people. No team was larger than 15 members. In cases where a leader supervised more than one team, we only surveyed one of his or her teams to avoid any confusion for the leader. This study used an anonymous questionnaire to reduce participants' suspicion or hesitation about completing the questionnaire. Additionally, the research purpose

of this study and the instructions regarding how to complete the questionnaires were provided in detail to enhance participants' understanding and comfort.

Of the 775 questionnaires distributed to the members and leaders of 155 teams, 680 usable questionnaires from 141 teams were returned, a response rate of 87.7%, much higher than average (Baruch & Holtom, 2008). With the support of our participating firms, our research assistants directly distributed questionnaires (sealed individually in envelopes) to the employees expressing their willingness to participate. Further, the research assistants collected the sealed envelopes directly from participants. Our high response rate was achieved partially due to a gift voucher incentive. Incentives have been found to increase response rates without lessening sample representativeness or response quality (Goritz, 2004). The correlation matrix of our data is provided in Appendix A.

Measures

The constructs were assessed with established measures, using 5-point Likert-type response scales. We employed several steps in choosing items. First, the items were refined by three management professors working in the field, and were then translated into Chinese from English, following the Brislin back translation procedure (Brislin, 1970). Second, we conducted focus groups comprised of MBA students to discuss the items. Last, we conducted three pilot studies with sample sizes of 59, 73, and 65 to verify the quality of our items and

improve their clarity and readability. Respondents for the pilot studies were drawn from professionals in the ICT industry who took college evening courses. Problematic items were reworded or dropped following exploratory factor analyses in our three studies.

Team affective tone. Based on previous studies on team affective tone (Chi, Chung, & Tasi, 2011; Sy et al., 2005), we employed Watson et al.'s (1988) PANAS scales to measure affect at the team level. We asked respondents what their feelings are when they think/talk about their team. For positive team affective tone, we used words such as "excited", "enthusiastic", and "inspired". For negative team affective tone, we used words such as "guilty", "scared", and "hostile". The Cronbach's α is .93 for positive team affective and .95 for negative tone.

Team identification. We employed Mael and Ashforth's (1992) organizational identification scale to measure team identification. We modified the questions by replacing "organization" with "team". Sample items are "when someone criticizes my team, it feels like a personal insult"; "I am very interested in what others think about my team". The Cronbach's α for team identification is .91.

Team cooperation. We measured team cooperation with four of the five items from Wong, Tjosvold, and Liu (2009). Sample items include "our team members seek compatible goals", "our team members 'swim or sink' together". (The excluded item is "Our team members want each other to succeed".) The Cronbach's α for team cooperation is .89.

Team performance. We measured team performance with four of the five items from Lin's (2010) task effectiveness scale. Sample items include "the collaboration of our team reduces redundancy of work content" and "the collaboration of our team improves team efficiency". (The excluded item is "The collaboration of our team facilitates innovating new ideas".) Cronbach's α for team performance is .86. We consider these items to be appropriate for two major reasons. First, they emphasize the *outcomes* of teamwork, including team efficiency, reduced redundancy of work content, coordinated efforts, and streamlined internal processes. These outcomes are appropriate indicators of teamwork performance (Alstete, 2001; Gold, Malhotra, & Segars, 2001; Mohamed, Stankosky, & Murray, 2004). Second, the word "collaboration" in the items is a sound proxy for "teamwork." In fact, teamwork and collaboration are defined similarly in previous literature as a group's process for enabling members to easily work together. For example, while some studies define teamwork as the process of working collaboratively with a group of people (e.g., Justus, 2011; Kvarnström, 2008; Salas, Stagl, Burke, & Goodwin, 2007; Sedibe, 2014; Singh, Sharma, & Garg, 2010; Tarricone & Luca, 2002; Williams & Laungani, 1999), others define collaboration as the group's process of building and maintaining a shared conception of a problem or task (Brézillon & Naveiro, 2003; Connolly, Jones, & Jones, 2007; Marion, Barczak, & Hultink, 2014; Srikanth & Jarke, 1989; Van den Bossche, Gijselaers, Segers, & Kirschner, 2006).

To reduce common method variance and increase the validity of our data, we surveyed

four members from each team to measure our antecedents (team affective tone) and intervening variables (team cooperation and team identification), and we surveyed the team leader to measure team performance.

Note that this study included all the usable data collected in our survey; we did not arbitrarily remove any data, which increases the accuracy and generalizability of the study's findings. It has been noted that data manipulation by, for example, removing some data, is inappropriate because the statistical results may be distorted to produce conclusions consistent with pre-determined personal biases (Hauptman & Hill, 1991; Joseph & Baldwin, 2000).

Data Aggregation and Validities

For all of our main variables, we adopted a consensus approach, therefore interrater agreement is a prerequisite for the aggregation of the individual-level measures to the team level. Two methods can be used within the consensus approach: direct consensus and referent-shift (Chan, 1998; van Mierlo, Vermunt, & Rutte, 2009). Direct consensus assumes that team members agree in their perceptions of a certain group characteristic. Thus it involves measuring individual members' perceptions, judgments, or attitudes, which then are aggregated if there is strong agreement among team members. In contrast, referent-shift requires respondents to assess team members' general experiences and perceptions within a

team. Direct consensus is better suited to measure team affective tone and team identification, as both constructs are directly related to personal experience and can be more credibly measured with reference to a team member's assessment of his or her own perceptions and attitudes. In alignment with the literature (Wong et al., 2009), we employed referent shift to measure team cooperation, as team cooperation involves directly evaluating other team members.

Before aggregating the data by averaging individual responses into team-level data, we justified the appropriateness of such aggregation (see Appendix B). Although two of the 141 teams (1.4%) showed r_{wg} figures that were slightly smaller than (but very close) to zero for the dimension of positive affective tone, we did not alter these figures arbitrarily to zero because the percentage is rather small and data manipulation should generally be avoided to preserve the integrity of the original data. Previous literature indicates that resetting these r_{wg} figures to zero might not be necessary because such figures could reflect that a target has multiple true scores (e.g., a teacher instructing groups of students differently) (Lüdtke & Robitzsch, 2009). Nevertheless, we also conducted a post hoc analysis by resetting the figures to zero and found no significant difference between this analysis and that in Appendix B.

After the aggregation of individual responses into team-level measures had been justified (see Appendix B), team-level data were analyzed with two-step structural equation modeling (SEM). We used SAS software with its CALIS procedure to conduct the SEM

analysis, applying the estimation method of maximum likelihood and the propagation of missing values in the calculations. In the CFA analysis, the goodness-of-fit of our model was evaluated with a variety of metrics (see Table 1). The values of CFI, NFI, and NNFI were all larger than or equal to 0.9. The normalized chi-square (chi-square/degrees of freedom) of the CFA model was smaller than the recommended value of 2.0, the RMR was smaller than 0.05, and the RMSEA was smaller than 0.08. Collectively, these figures suggest that the proposed model fits the data well.

***** INSERT TABLE 1 ABOUT HERE *****

Convergent validity was supported by three criteria (Fornell & Larcker, 1981). First, all factor loadings in Table 1 were significant at $p < 0.001$, supporting the convergent validity of our constructs. Second, the Cronbach's alphas of the constructs were all larger than 0.70 (see Table 1), supporting the reliability of the research instruments. Third, the average variance extracted (AVE) for all the constructs exceeded 0.50, suggesting that the items capture substantial variance in the underlying constructs beyond that attributable to measurement error (Fornell & Larcker, 1981). Thus, the data met all three criteria required for convergent validity (Fornell & Larcker, 1981).

Discriminant validity evidence is presented in Table 2. The table shows that the smallest square root for AVE among all five constructs in our CFA model (see the principal diagonal elements) was 0.78 for team performance, which was larger than any of the

interfactor correlations. Therefore, the condition for discriminant validity was met.

***** INSERT TABLE 2 ABOUT HERE *****

Findings

Structural Model and Hypotheses Testing

After the above CFA model was verified, the hypotheses were assessed via a structural equation model. To accurately test the relationship between team performance and its predictors, we included several important team-level variables that may affect team performance. These control variables include teamwork satisfaction, computer capability, the ratio of members' difference in gender, the ratio of members' difference in age, the ratio of members with higher education and the ratio of expatriate members. Teamwork satisfaction was measured with four items adapted from Foo, Sin, and Yeong (2006) and then averaged to form a single control index. An example item was "I am generally satisfied with the work I do on the team." Computer capability was measured with five items adapted from Shih (2006) and then averaged to form a single control index. An example item was "I am skillful in using computers in my job." These two control variables were included because of their importance in influencing team performance (e.g., Fuller, Hardin, & Davison, 2006; Liu, Magjuka, & Lee, 2008; Massetti & Lobert-Jones, 1997; Napier & Johnson, 2007). The remaining variables regarding ratios of difference were included to control for the possible effects of homophily,

that is, that "similarity breeds connection" (McPherson, Smith-Lovin, & Cook, 2001, p. 415). Because the ratios were likely to change over time due to turnover or recruitment, they were approximated only by each team leader with a 5-point Likert-type scale (0%-20%; 21%-40%; 41%-60%; 61%-80%; 81%-100%). The ratio of members' difference in gender was measured according to the ratio of male to total team members, the ratio of members' difference in age according to the ratio of young employees (less than 30 years old) to total members, the ratio of members with higher education according to bachelor graduates (or above) to total members and the ratio of expatriate members according to expatriate members to total members. Figure 2 presents the results of the SEM with the control variables.

***** INSERT FIGURE 2 ABOUT HERE *****

The results generally support our proposed model. First, team identification is not significantly related to team performance (β = -0.01, p > .05; H1a is not supported), but team cooperation is positively related to team performance (β = .32, p < .05; H1b is supported). Positive affective tone is positively related to team identification (β = .49, p < .01; H2a is supported). Due to the unsupported H1a, the indirect relationship between positive affective tone and team performance via team identification is not supported (H2b is not supported).

Second, while negative team affective tone is negatively related to team identification (β = -0.23, p < .001; H3a is supported), the indirect relationship between negative team affective tone and team performance via team identification is not significant (Sobel test

result: $\beta = .00$, *ns*, H3b is not supported).

Third, given that team identification is positively related to team cooperation ($\beta = .41$, $p < .001$), team identification is indirectly related to team performance via team cooperation (Sobel test result: $\beta = .13$, $p < .05$; H4a is supported). Meanwhile, positive team affective tone is indirectly related to team cooperation via team identification (Sobel test result: $\beta = .20$, $p < .01$; H4b is supported). Team negative affective tone is indirectly and negatively related to team cooperation via team identification (Sobel test result: $\beta = .09$, $p < .01$; H4c is supported).

Fourth, positive team affective tone is positively related to team cooperation ($\beta = .38$, $p < .01$; H5a is supported) and is indirectly related to team performance via team cooperation (Sobel test result: $\beta = .12$, $p < .05$; H5b is supported). Fifth, negative team affective tone is negatively related to team cooperation ($\beta = -0.17$, $p < .05$; H6a is supported) and is indirectly related to team performance via team cooperation (Sobel test result: $\beta = .05$, $p < .05$; H6b is supported).

To further confirm our hypothesized indirect relationships of affective tone with team performance, we conducted post-hoc analyses by adding two direct paths between positive and negative affective tone and team performance (see Appendix C). The results reveal that the two direct paths are both nonsignificant, supporting our hypothesized indirect relationships between affective tone and team performance. Finally, Appendix D summarizes

the total effects of positive and negative affective tones on team performance.

Discussion

This study finds that team affective tone influences team performance through two indirect routes. The first route is team collective actions (i.e., team cooperation). We drew on the affect infusion model (Forgas, 1995; Forgas & George, 2001) to argue that positive team affective tone increases, while negative affective tone decreases, team cooperation, and in turn increases or decreases team performance. The second route is identification-cooperation. Social identification research suggests that group emotions play a significant role in forging strong identification (Kessler & Hollbach, 2005). Social identity theory also indicates that team identification enhances team performance via effort-related mechanisms (Hirst, van Dick, & van Knippenberg, 2009); therefore, we argued that team affective tone affects team performance via team identification and then via team cooperation. This model was supported by data from our sample of 141 hybrid-virtual teams of working professionals from ICT firms in Taiwan.

Theoretical Implications

Using the affect infusion model and social identity theory, this study offers an organizing framework for the impact of positive and negative affective team tone on team identification and cooperation, and on subsequent team performance. In so doing, the study extends the

literatures of group affect and team performance as follows:

Contribution to the literature on group affect. This study makes a pioneering effort in exploring *how* team affective tone impacts team performance. Specifically, the study supports two indirect routes for motivating team performance: affect-cooperation and affect-identification-cooperation. Thus, the study has helped open the black box between team affective tone and team performance. However, the failure to support the direct intervening route of identification between affective tone and team performance suggests the need to rethink the dynamics involved. One possibility is that, given that the interaction of social category diversity and team identification has been found to predict team performance (Van Der Vegt & Bunderson, 2005), team identification may directly influence team performance— but only when social category diversity is high. High diversity coupled with team identification enables a team to marshal greater resources in the service of team goals.

Contribution to the literature on team performance. Given that team performance enhancement is the ultimate goal of team management and can influence overall organizational efficiency and performance (Howard, Turban, & Hurley, 2002), our results are of significant value to team effectiveness research as well. Despite earlier calls for more research on team affect (Cohen & Bailey, 1997), the construct still deserves much more research attention (Mathieu et al., 2008). This study not only examines the effects of both positive and negative team affective tone on team performance, but also identifies the

1 important intervening mechanisms noted above. The study is one of the first to integrate
2 factors relating to emotion (team affective tone), identity (team identification), and collective
3 behavior (team cooperation) in explaining team performance. Examining these families of
4 variables offers a more comprehensive model of team performance than most prior research
5 (e.g., Smith, Jackson, & Sparks, 2003; Tanghe et al., 2010). In addition, the model integrates
6 these variables and describes their dynamic relationships.

7 **Practical Implications**

8 The findings suggest several implications for practice. First, managers should learn the
9 important role that team affective tone has on team success. That is, in addition to traditional
10 wisdom regarding the extrinsic and intrinsic motivations to boost teamwork (e.g., rewards,
11 autonomy), managers should understand the motivational boost provided by positive
12 affective tone and the motivational inhibitor of negative tone. Second, our findings suggest
13 that successful teams should attempt to *regulate* the affective tone of their team members.
14 Thus, managers should improve their skills regarding accurately observing team members'
15 affective tone and how to regulate their members' experiences and displays of affect to help
16 attain desired outcomes (e.g., team performance). Other research has suggested that team
17 leadership (e.g., leader positive personality and mood) may help develop positive team
18 affective tone (Chi et al., 2011; Pirola-Merlo et al., 2002). From the perspective of senior
19 management, this suggests that selecting the right team leaders may impact team affective

tone. From the team leaders' perspective, our research also highlights the importance of effortful management of team affect, for example, by more effective within-team communications and organizing events that promote more positive moods and emotions among team members. Meanwhile, it is important for team members to learn to show their compassion for each other, which helps mitigate any negative affective tone and its potentially detrimental performance impact. Team leaders may also try to shape group emotion norms (e.g., Bartel & Saavedra, 2000), strengthening group cooperation and identification by either enhancing or tamping down affective experiences and expressions (Kelly & Barsade, 2001). From an HRM perspective, HRM managers can be encouraged to work with team leaders to organize events that can promote positive team emotional experiences. HRM managers can also provide emotional management training to team leaders. This is particularly important for hybrid virtual R&D teams, due to the relatively infrequent face-to-face contact among the team members. Many team communications rely on non-personal media (e.g., telephone-conference, virtual platforms, emails). Having more and high quality social events can help build strong team spirit and identification. In addition, from an HRM perspective, team members should also be trained with effective virtual communication skills to foster positive emotions and to avoid misunderstandings, negative emotional interpretations, or potential stress and conflicts.

Third, and similarly, team members who are effective at managing their own and peers'

affective tone will likely have a positive influence on team identification and cooperation, and thereby performance, whereas members who are inept at managing their emotions and moods may transmit a negative affective tone and undermine team processes. Thus, training and education should be extended to members as well to enhance their emotional intelligence and self-regulation competencies. Fourth, the findings reveal that team cooperation is a key intervening variable regarding the relationship between affective tone and team performance. This suggests that cooperation should be monitored as a bellwether regarding effective team dynamics. To encourage cooperation, team leaders can facilitate group identification, provide adequate resources, and give supportive feedback for stimulating positive affect, because team members are likely to engage in critical reflection on their teamwork experiences through their specific emotional reactions (e.g., Brueller & Carmeli, 2011; London & Sessa, 2007). Team performance can be improved if team members have the time and emotional stamina to reflect on their accomplishments (London & Sessa, 2007; Salas et al., 2015).

Finally, our research has implications for the performance evaluation of teams. Given the important role of team affective tone in fostering team performance, behavioral performance measures seem to be an important additional performance evaluation criterion. For example, team members can be evaluated on how their behaviors contribute to the development of positive team affective tone. At the team level, team affective tone could also be monitored and evaluated as part of the evaluation of team performance. However, given

that this practice represents an unchartered territory, organizations need to be cautious in implementing it.

Limitations and Future Research

There are several limitations to this study. First, the cross-sectional survey limits our ability to achieve causal inferences from the data. Future studies should measure or directly observe team members' behavior (e.g., cooperation) over time. Second, this study was conducted in a single industry setting – Taiwan's high-tech industry. As a result, the generalizability of the findings might be limited. Additional research across different industries and national cultures may be helpful for generalizing the findings. Third, while collecting data from multiple members of each team as well as their leader helped to mitigate common method variance, it remains that much of our data was derived from team members. It is advisable for future research to seek data from additional sources, such as archival data and clients, or with a multiple-wave longitudinal research design.

Regarding additional future research, our discussion of practical implications suggests that team leaders can make a difference in how teams develop certain affective tones. Therefore, future research should further examine the antecedents of team affective tone from a leadership perspective. Moreover, scholars are encouraged to explore other potential mechanisms or other team characteristics beyond affective tone and compare their explanatory utility regarding team effectiveness. Additional control variables (e.g., actual

team involvement, team tenure, task specifications, team leadership) beyond those studied here may be included in future research. From a social identity theory perspective, given the important role of team identification in fostering team cooperation and subsequent team performance, it is important for future research to identify other antecedents of team identification. For example, future research can investigate how effective team leadership (e.g., ethical leadership, participative leadership, authentic leadership) contributes to the development of team identification. Team diversity is another potentially important factor that can improve or hinder team performance (Mach & Baruch, 2015). In addition, future research can examine how social exchange factors (e.g., affective trust, leader-member exchange, perceived justice) interact with team identification in affecting team performance.

In closing, our study helps unpack the black box linking team affective tone with team performance, indicating that both team identification and team cooperation play important roles.

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Table 1. Standardized loadings and reliabilities

Construct	Indicators	Standardized loading	AVE	Cronbach's α
Team performance	TP1	0.84 (t = 11.47)	0.61	0.86
	TP2	0.93 (t = 13.57)		
	TP3	0.66 (t = 8.32)		
	TP4	0.66 (t = 8.43)		
Team cooperation	CO1	0.76 (t = 10.15)	0.70	0.89
	CO2	0.81 (t = 11.12)		
	CO3	0.88 (t = 12.85)		
	CO4	0.89 (t = 12.96)		
Team identification	TI1	0.83 (t = 11.58)	0.68	0.91
	TI2	0.72 (t = 9.40)		
	TI3	0.82 (t = 11.39)		
	TI4	0.90 (t = 13.18)		
	TI5	0.85 (t = 12.16)		
Positive team affective tone	PA1	0.87 (t = 12.72)	0.76	0.93
	PA2	0.93 (t = 14.09)		
	PA3	0.85 (t = 12.20)		
	PA4	0.82 (t = 11.58)		
	PA5	0.87 (t = 12.78)		
Negative team affective tone	NA1	0.90 (t = 13.43)	0.84	0.95
	NA2	0.95 (t = 14.96)		
	NA3	0.89 (t = 13.26)		
	NA4	0.92 (t = 14.10)		
	NA5	0.94 (t = 14.46)		

Goodness-of-fit indices (N = 141): χ^2_{220} = 386.07 (p-value < 0.001); NNFI = 0.96; NFI = 0.89; CFI = 0.97; RMR = 0.01; RMSEA = 0.05

Table 2. Team-level scale properties for verifying discriminant validity

			Inter-Construct Correlations[a]					
Name	Mean	Std	1	2	3	4	5	6
1. Team performance	3.93	0.64	0.78					
2. Team cooperation	3.86	0.36	0.27	0.84				
3. Team identification	3.85	0.41	0.17	0.64	0.82			
4. Positive team affective tone	3.51	0.38	0.21	0.66	0.53	0.87		
5. Negative team affective tone	2.15	0.44	-0.04	-0.51	-0.45	-0.44	0.92	

[a] Diagonal elements (in italics) represent square root of AVE for that construct.

1

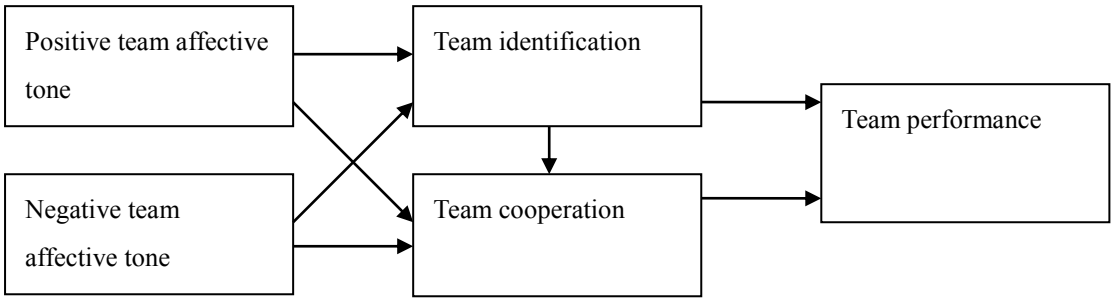

Figure 1. **Hypothesized model**

2

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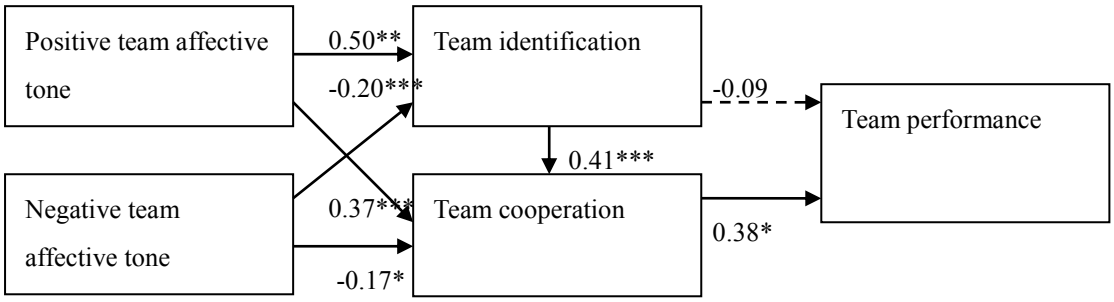


Figure 2. **Results**

$p^* < 0.05$; $p^{**} < 0.01$

1
2

APPENDIX A: Correlation matrix

Variables	Mean	Std	1	2	3	4	5	6	7	8	9	10	11
1.Team performance	3.93	0.64	1.00										
2.Team cooperation	3.86	0.36	0.27*	1.00									
3.Team identification	3.85	0.41	0.17	0.64*	1.00								
4.Positive team affective tone	3.51	0.38	0.21	0.66*	0.53*	1.00							
5.Negative team affective tone	2.15	0.44	-0.04	-0.51*	-0.45*	-0.44*	1.00						
6.Computer capability	4.19	0.44	0.17	0.36*	0.46*	0.26*	-0.17	1.00					
7.Teamwork satisfaction	3.63	0.37	0.11	0.61*	0.55*	0.65*	-0.57*	0.29*	1.00				
8.The ratio of members' difference in gender	3.13	1.50	0.12	0.30*	0.19	0.20	-0.14	0.10	0.24*	1.00			
9.The ratio of members' difference in age	1.68	0.91	-0.09	-0.09	-0.10	-0.18	0.12	0.12	-0.01	-0.01	1.00		
10.The ratio of members with higher education	3.67	1.45	0.04	0.15	0.01	0.14	-0.13	0.15	0.13	0.40*	0.02	1.00	
11.The ratio of expatriate members	1.30	0.75	-0.02	-0.01	0.10	-0.06	-0.02	-0.05	0.05	-0.01	0.02	-0.03	1.00

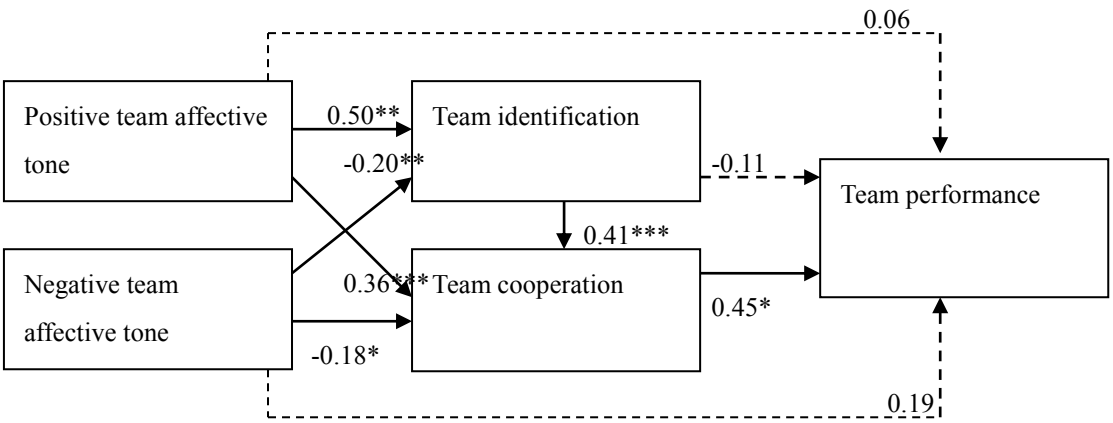
*p <.01

APPENDIX B: Inter-rater reliability

Construct	ICC1	ICC2	r_{wg}
Cooperation	0.3203	0.6447	0.936
Team identification	0.3196	0.6440	0.946
Positive team affective tone	0.3174	0.6417	0.944
Negative team affective tone	0.2944	0.6163	0.904

Note 1: The ICC1 values are all larger than the recommended level of 0.12 (James, 1982).
Note 2: The r_{wg} values are all larger than the recommended level of 0.70 (James, Demaree, & Wolf, 1984).

APPENDIX C: Post-hoc tests with the control variables for the direct relationship between affective tone and performance



APPENDIX D: Analysis of indirect effects

Path	Indirect effects through			Total effect
	only team identification	team identification and team cooperation	only team cooperation	
PTAT→Team performance	0.0000 (0%)	0.0779 (35.65%)	0.1406 (64.35%)	0.2185
NTAT→Team performance	0.0000 (0%)	-0.0312 (32.57%)	-0.0646 (67.43%)	0.0958

Legend: PTAT = Positive team affective tone; NTAT = Negative team affective tone.

Note: All the direct effects of F4 and F5 on F1 are insignificant and thus they are not included in the table.