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A multilevel model of emotional skills, communication performance, and task performance in teams

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Summary There is increasing research regarding the influence of emotions on teamwork. In this study, we use a multilevel approach to examine how team members' use of emotion-related skills affects team task performance and communication performance within the team. We measured individual self-reported emotional skills prior to team formation and then collected peer-rated individual communication performance and independently rated team task performance eight weeks later. Although there was no influence at the individual level between emotional skills and performance, team-level emotional skills positively predicted team task performance scores. At the cross level, team-level emotional skills predicted individual-level communication performance. These findings emphasize the importance of distinct team emotional skills in shaping both team performance and individual team member performance. Copyright © 2011 John Wiley & Sons, Ltd.

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Increased team-based structures in organizations have led to growing research aimed at improving team processes and performance (Allen & Hecht, 2004). Scholars examining specific links between team members' individual characteristics and team performance generally focus on overt demographic characteristics such as age, education, or tenure (e.g., Bunderson & Sutcliffe, 2002; Pelled, Eisenhardt, & Xin, 1999) or on individual difference variables such as attitudes, personality, values, and skills (e.g., Barrick, Stewart, Neubert, & Mount, 1998; Stewart, Fulmer, & Barrick, 2005). Research also identifies how team members' individual characteristics influence their own performance in a team context (e.g., Randel & Jaussi, 2003). Recent work shows the value in conceptualizing how individual characteristics combine at the team level to have a direct influence on team performance outcomes (e.g., Bell, 2007; Peeters, Van Tuijl, Rutte, & Reymen, 2006) and a cross-level influence on individual team member performance (e.g., Joshi, Liao, & Jackson, 2006).

The search for better team performance has lately focused on the role of emotions in teams (Elfenbein, 2006). Several researchers suggest that emotional intelligence (EI; Mayer & Salovey, 1997), an individual's capacity to be aware of and manage emotions, plays an important role in team performance (Druskat & Wolff, 2001; Elfenbein, 2006; Elfenbein, Polzer, & Ambady, 2007; Jordan & Troth, 2004). While drawing on the EI literature to consider the utility of emotional skills in predicting performance in teams, we focus on the role of enacted behaviors (operationalized as self-reported skills rather than potential abilities) in achieving better team outcomes.

Evidence demonstrates the relationship between individual emotional skills and individual team member performance (e.g., Elfenbein & Ambady, 2002) and between team emotional skills and team performance

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(e.g., Bell, 2007). To the best of our knowledge, no research considers how emotional skills influence individual-level and team-level performances simultaneously or the cross-level relationship that team emotional skills might have on individual team member performance. Thus, we develop and test a model to explain the following: (i) how the emotional skills of *individual* team members influence their performance in a team; (ii) how a collective of individual team members' emotional skills can be conceptualized as a *team-level* emotional skill construct that has independent direct effects on team performance; and (iii) how team-level emotional skills have *cross-level* influences on individual performance in teams (Figure 1). Our aim is to enable researchers to better understand the link between emotional skills and team effectiveness and respond to calls for multilevel research (e.g., Ashkanasy, 2003; Cohen & Bailey, 1997; Stewart et al., 2005) that considers the top-down effects of team factors on individual functioning in teams (Chen, Kirkman, Kanfer, Allen, & Rosen, 2007; Hitt, Beamish, Jackson, & Mathieu, 2007) and the impact of emotions in teams (Jordan & Ashkanasy, 2006).

We also examine the impact of emotional skills on both team task performance and communication performance in teams. Whereas past research focuses on task aspects of team performance (Tannenbaum, Beard, & Salas, 1992), we adopt a relational communications approach (Millar & Rogers, 1976) to argue that emotional skills will affect communication effectiveness and appropriateness (a process-focused performance indicator) within teams (Scullen, Mount, & Judge, 2003). An important element of good communication involves the management and recognition of one's own and others' emotional expressions (Bales, 1970; Briner, 1999). Elfenbein et al. (2007) suggest that the benefits of team-level emotional skills in the workplace arise largely from coordinating interactions. Communication performance is central to how teams work together and, we argue, is directly affected by the emotional skills team members possess.

Emotional Skills

Originally conceptualized at the individual level, Mayer and Salovey (1997) developed the most broadly accepted EI model that comprises four branches: awareness of emotions, acquiring emotional knowledge, using emotions in decision making, and managing emotions. Debate still surrounds the EI construct in respect to definition and

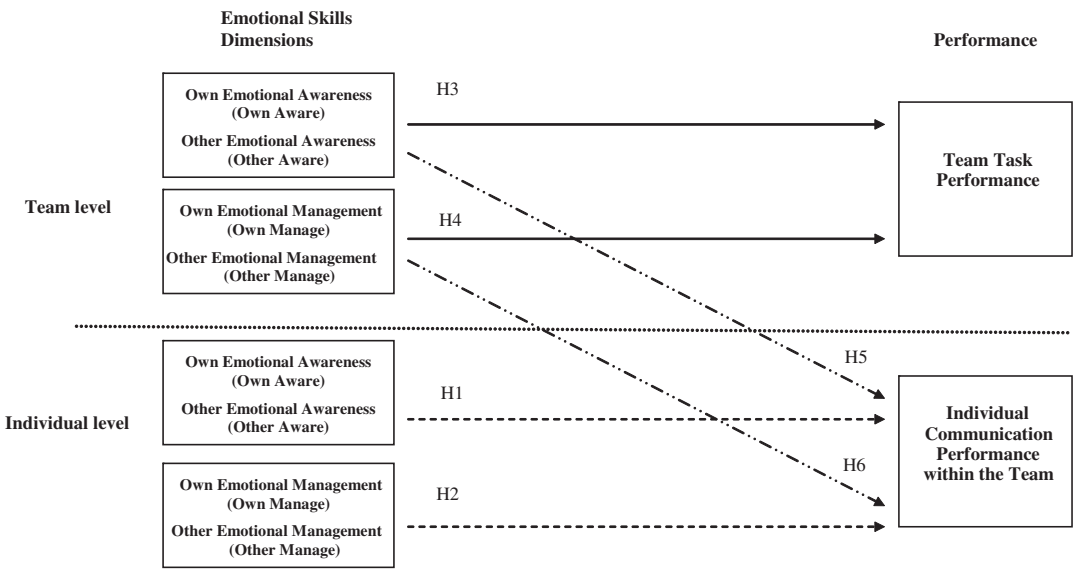

Figure 1. Multilevel model of the emotional skills-performance relationship in a team context

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measurement (Cherniss, 2010). While informing our work, we acknowledge this critique of EI and instead focus our research on the relationship between team members' self-reported emotional skills and performance in teams.

Jordan, Ashkanasy, Härtel, and Hooper (2002) and Jordan and Lawrence (2009) showed that team members need two broad emotional skills to enhance their capability to deal with emotions in team contexts: (i) emotional awareness and (ii) emotional management. These skills further distinguish between the following: (i) skills related to dealing with your own emotions and (ii) skills related to dealing with other peoples' emotions. Theoretical (George, 2000; Mayer & Salovey, 1997) and empirical research (Jordan & Troth, 2004) supports this delineation. We differentiate between these four skills and their potential to impact on individual behavior in teams as follows.

Awareness of own emotions

This skill involves being attuned to one's momentary feelings and discussing and disclosing the emotions one experiences (Pennebaker & Francis, 1996). A team member who recognizes his or her escalating emotions during a difficult team encounter is taking an important first step toward managing those emotions. For example, the emotional escalation of frustration to anger is more difficult to resolve if the team member does not recognize the correct precipitate emotion. Silvia (2002) also found that emotional self-awareness lessens the experience of intense emotions. Being able to identify the emotion one experiences makes it easier to decide if it is reasonable and to act accordingly. Team members higher in emotional self-awareness are more likely to recognize the appropriate emotional intensity levels required during team exchanges and be better positioned to promote team relationships.

Awareness of others' emotions

Recognizing others' emotional displays and detecting false emotional expressions promote successful interactions with others (Jordan & Lawrence, 2009). An individual needs to accurately identify the emotion a fellow team member is experiencing to effectively respond to emotions in a team. For example, team interactions will be different when team members are enthusiastic as opposed to stressed. An awareness of others' emotions is also important for effective communication interchanges and team conflict resolution (Druskat & Wolff, 2001). Detecting a team member's negative emotion might signal the need for reflective listening to better understand the source of emotion for that person.

Managing own emotions

This skill requires connecting or disconnecting from an emotion depending on its usefulness and is linked to bounded emotionality (Mumby & Putnam, 1992). It often results in holding back on immediate reactions. In teams, situations such as conflict over values or goals, short time frames, or the entry of new team members can evoke intense emotions that may require self-control if the situations are to be resolved (Mischel & DeSmet, 2000; Weiss & Cropanzano, 1996). Skill in managing one's own emotions may be the key to better resolve team conflicts productively and without emotional escalation (Amason, 1996).

Managing others' emotions

This skill entails the promotion of more positive and productive emotions in teams (Mayer & Salovey, 1997). Sometimes, the emotional reactions of other team members need to be managed to ensure working relationships are maintained. Managing others' emotions enables a team member to regulate the emotional tone of interpersonal exchanges within the team so they can be productive.

Team Emotional Skills

With few exceptions (e.g., Bell, 2007; Côté, 2007; Elfenbein, 2006; Jordan & Troth, 2004), empirical researchers consider emotional skills in the workplace at the individual level. Our broad theoretical justification of team-level emotional skills is based on a work by Marks, Mathieu, and Zaccaro (2001) who argue that teams move toward goal

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achievement via a series of episodic interactions. The success of teams in these episodic interactions depends on the resources available to the team, the processes they engage in, and the level of skills within the team. Marks et al. (2001) argue that the essence of effective teamwork is interdependent behavior. Research shows that teams who are able to draw on each other's strengths and compensate for each other's weaknesses perform at a higher level (Côté, 2007; Jordan & Troth, 2004). These performance advantages are a result of the ways in which teams interact and compensate for each other. Similarly, we believe more successful teams will comprise members with greater emotional skills. Being aware of one's own felt and displayed emotions, and recognizing the emotions of others, is essential for team members to work together effectively (Ashkanasy, 2003). Once emotions are raised to a level of awareness, there is a need to appropriately and effectively regulate or manage (e.g., cognitively reappraise, express) those emotions to provide for an effective interaction with other team members (Mumby & Putnam, 1992).

At the more specific level of conceptualization, team emotional skills are considered in two main ways. On the one hand, team emotional skills are viewed as team norms influencing team members' awareness of emotional information and notions of appropriate emotional response behaviors (Druskat & Wolff, 2001; Elfenbein, 2006; Wolff, Druskat, Koman, & Messer, 2006). This norm filters team members' perceptions and reactions to emotion-related issues in the team. Team emotional skills are an emergent process or team style that contributes to effective intra-team processes and performance outcomes. On the other hand, other researchers (e.g., Bell, 2007; Jordan et al., 2002) regard team emotional skills as the pooled resources individual team members bring to the team, an input factor that contributes to effective intra-team processes and performance outcomes and takes a "sum of parts approach." Elfenbein (2006) notes each perspective asks different questions about teams. The normative framework considers the development of emotions-based norms within the team over time. The pooled resources framework provides insights about whether the team has the emotional resources to be productive and offers predictions about team performance before a team is formed.

We do not intend to evaluate the relative merits of each approach to team emotional skills in this study. The teams in our sample were required to meet over eight weeks to plan, develop, and then deliver a persuasive performance task. Input was required by all team members in a compensatory manner to achieve the performance task goals (Steiner, 1972). In other words, team members used a variety of skills in their team interactions about the performance task (e.g., emotional, decision-making, oral, and written communication skills) and compensated for team members with lower levels of such skills. Day et al. (2004, p. 1525) note that

> *although for this type of task, the group is frequently permitted to combine member contributions in any manner the group sees fit, the typical case is one in which each individual's contribution is likely to influence the group's final decision.*

In this way, we argue that a performance task requiring compensatory effort contextualizes the role of team skills to align conceptually with a pooled resources framework. Therefore, given that our performance task is compensatory in nature and that team membership is short-term and comprises members with no relationship history (which limits the development of team norms; cf. Elfenbein et al., 2007), we adopt a pooled resources framework to conceptualize team emotional skills. This is reflected in our study's research design assessing emotional skills at one time prior to team formation.

In conjunction with conceptualizing team emotional skills as a pooled resource, the composition measurement approach is important. There are many ways (e.g., minimum, maximum, diversity, and average) to measure a team's collective level of emotional skills. The average of individual team members' emotional skills is the most common (Côté, 2007; Druskat & Wolff, 2001; George, 2002; Yang & Mossholder, 2004). Steiner (1972) argues that group-level skills are best assessed using the mean score if team tasks require compensatory or additive effort (as opposed to disjunctive or conjunctive effort). Bell's (2007) meta-analysis examining the relationship between deep-level construct variables (e.g., personality factors and EI) and team performance also concluded that teams carrying out additive or compensatory tasks are more aligned theoretically and empirically to team mean assessments. Likewise,

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Kozlowski and Klein (2000) contend that team input variables measured using the mean are suitable for tasks that involve information exchange, reaching a single optimal solution and pooling of team performance.

We adopt a summative composition approach by similarly operationalizing team emotional skills as an average. Such an approach views team emotional skills as a collective resource team members share to assist each other (Elfenbein, 2006). Theoretically, the team-level construct represents a linear aggregation of individual emotional skills that collectively emerge as a construct at the team level. The extent of emotional skills may vary among individuals, but individuals have equal *opportunities* (during interactions as a team) to influence (e.g., modeling) and compensate for each other (Côté, 2007). This contributes to team-level emotional skills constructs that are both similar to and different from individual-level emotional skills constructs (Bliese, 2000; Chen, Thomas, & Wallace, 2005). The summative composition approach also suggests that there is no requirement for high agreement among individual emotional skills scores to operationalize the team-level construct (Chan, 1998; Elfenbein, 2006).

To summarize, we argue that conceptualizing and operationalizing team emotional skills utilizing a summative composition approach within a pooled resources framework are most suitable for our study. Teams met over a short time frame to plan, develop, and complete a compensatory performance task. The task required team members to adjust their emotions to match the cognitive and interpersonal demands of the work over this period (Côté, 2007). We also expect emotional skills to reflect consistent patterns of behavior at the individual level over this relatively short period that will collectively combine across team members to form stable patterns of behavior at the team level (i.e., team-level emotional skills; Bell, 2007; Stewart et al., 2005).

Alternative approaches to team composition

We acknowledge the alternative operationalizations of team emotional skills that adopt a pooled resources framework (Elfenbein, 2006). As Kozlowski and Klein (2000, p. 58) explain, "collective phenomena may emerge in different ways under different contextual constraints and patterns of interaction." Conceivably, an individual in a team with the highest (or lowest) level of emotional skills might enhance (or weaken) the performance of other members in the team or team performance overall (Elfenbein, 2006). Côté (2007) considered dispersion (i.e., variance) as a team representation of emotional skills. He discusses how teams of individuals with different levels of emotional skills might be forced to reconcile varying approaches to group tasks. In essence, individual team members might experience different emotional states associated with different cognitive approaches for dealing with task information, and discussing and reconciling these differences may enhance performance. We test these alternative compilation typologies (Kozlowski & Klein, 2000) in our subsequent analyses. Ultimately, we argue that Kozlowski and Klein's (2000) pooled constrained emergence typology is most closely aligned to our conceptualization of team emotional skills. A minimum contribution is required by each team member in the emergence of the team construct, even though individual contributions can vary to some extent.

Emotional Skills and Communication Performance at the Individual Level

In many instances, an individual's communication performance within teams corresponds with the quality of team outcomes (Light, 2007). Scullen et al. (2003) demonstrated the core role of communication in work performance at the individual level. They also included a human skills component in their conceptualization of managerial job performance in which the ability to communicate with others was strongly highlighted. Communication performance incorporates two fundamental outcome properties—effectiveness and appropriateness (Spitzberg & Cupach, 1984). Effective communication accomplishes the goals, the objectives, or the intended functions of the team member, whereas appropriate communication avoids the violation of situational or relational rules governing the communicative context (Spitzberg & Cupach, 1984). The implicit assumption is that the most competent communication behaviors are appropriate and effective.

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We adopt the relational communications theory (Millar & Rogers, 1976), whereby relationships are redefined through communication, to explain the mechanism linking individual emotional skills to communication performance. Within this theory, it is not a single communication episode, or the process of communication that is the focus, but a series of exchanges as a whole that result in a single product (Parks, 1977). In line with this, we argue that appropriate and effective communication (communication performance) is dependent on the emotional skills used by an individual, and this performance emerges in a succession of exchanges. Other skills that involve the elements of detecting, understanding, and regulating emotional displays, such as encoding and decoding skills (Berger, 2005), nonverbal communication skills (Burgoon & Bacue, 2003), and persuading skills (Dillard & Marshall, 2003), have been found to directly contribute to successful communication performance. Similar to Berger (2005), we assert that emotional skills contribute to better communication outcomes for individuals within teams.

Significant relationships have been found between individual global emotional skills and performance in communication-dependent activities such as decision making (e.g., Lam & Kirby, 2002) and leadership behavior (e.g., Wong & Law, 2002). We outlined earlier that scholars (e.g., Jordan & Lawrence, 2009; Mischel & DeSmet, 2000) suggest that distinct emotional skills have particular ways of influencing the escalation of negative emotion (Silvia, 2002), productive emotion generation, (Borman & Motowidlo, 1993) and conflict behavior (Jordan & Troth, 2004). Research examining the performance of individuals *within* teams generally suggests that team members more capable of recognizing and managing their own and others' emotions during interactions are likely to make better decisions and resolve task conflict (i.e., communication performance outcomes) than individuals with lower levels of emotional skills (e.g., Pelled et al., 1999; Yang & Mossholder, 2004). Our rationale is that felt or expressed emotions, particularly negative ones, are less likely to distract or restrict individuals with stronger emotional skills from the communication performance task at hand. They are more likely to detect counterproductive emotions within the team (via awareness skills) and have a greater capacity to deescalate and deal with these emotions (via management skills). Emotional skills are also more likely to have an impact on individual performance within a team when the objective, or performance goal, involves communicating interdependently with others (Jordan & Troth, 2004).

Determining if differences exist in the strength of the relationship between distinct emotional skills and communication outcomes might have practical implications for organizations in terms of training programs. There is some research that considers the possibility of either a null or negative influence of emotional awareness on outcome variables (e.g., Elfenbein et al., 2007; Feyerherm & Rice, 2002; Foo, Elfenbein, Tan, & Aik, 2004). This is most likely due to the refocusing of individuals high in emotional awareness on their relationships with others, instead of the task at hand. We maintain that both emotional awareness and management skills will positively relate to communication performance in our sample. However, given the mixed research findings surrounding emotional awareness and Jordan and Lawrence's (2009) argument for the delineation of emotional skills (awareness versus management), we investigate these skills separately. The following hypotheses are proposed:

Hypothesis 1
An individual team member's emotional awareness (own and others) skills will be positively related to the individual member's communication performance within the team.

Hypothesis 2
An individual team member's emotional management (own and others) skills will be positively related to the individual member's communication performance within the team.

Emotional Skills and Task Performance at the Team Level

Most research examining team performance uses quantity or output performance measures such as goal achievement (DeShon, Kozlowski, Schmidt, Milner, & Wiechmann, 2004), task speed and accuracy (Bachrach, Powell, Collins,

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& Richey, 2006), ratings of team final project reports (Jehn & Mannix, 2001), and team problem-solving outcomes (Jordan & Troth, 2004). We also consider the relationship between team-level emotional skills and a team task performance variable to gain a more comprehensive view of the influences of emotional skills on performance in teams. Our performance task, requiring team members to design and deliver a persuasive presentation, is similar to work teams required to work together to develop a pitch for a tender or to gain a contract.

We earlier argued that the persuasive presentation task in our study is compensatory in nature, is aligned with a pooled resource view of team emotional skills, and is best operationalized using a summative composition approach, the mean score. Presentation scores were given to our teams by an external assessor after the presentation delivery. We propose that a team's pooled emotional skills will positively impact on the presentation scores received. The team's skills in regulating any negative emotions commonly associated with public speaking, such as fear and anxiety (Putnis & Petelin, 1999), will affect the extent a team is able to deliver a clear argument in a suitable format. It is also expected that teams with greater skills in recognizing and regulating others' emotions will be better able to "read" their audience and thus manipulate the emotions of others in a positive direction if required (e.g., audience engagement, use of humor). A team's emotional skills will also impact on presentation scores, via their influence during team preparation. For instance, team members with higher level skills are more likely to set a productive emotional tone that enables a greater exchange of ideas and clearer, problem-focused thinking. On the basis of this, and evidence that team emotional skills are positively related to team task performance (e.g., Bell, 2007; Elfenbein et al., 2007), we propose the following hypotheses:

Hypothesis 3
Team emotional awareness (own and others) skills will be positively related to team task performance.

Hypothesis 4
Team emotional management (own and others) skills will be positively related to team task performance.

Emotional Skills and Performance Cross-Level Relationships

The episodic interaction model of team behaviors (i.e., Marks et al., 2001) and the relational communications theory (i.e., Millar & Rogers, 1976), both outlined earlier, lead us to assert that teams with greater collective skills for recognizing and managing their emotions over a series of interactions will promote a communication environment in which individual members are more inclined to listen to alternative viewpoints and follow the appropriate relational rules of communication exchange (Canary & Spitzberg, 1987). Team goal-setting and problem-solving during task performance preparation typically involves some degree of individual compromise (Pelled et al., 1999), and this can be an emotional issue (Jordan & Troth, 2004). We suggest that a team's ability to use a high level of emotional skills during goal-setting and problem-solving will facilitate (or not) an effective interaction by individual team members. Team members can focus more on knowledge and idea exchange if they belong to a team able to resolve, in a timely and acceptable manner, emotional issues associated with group disharmony. Thus, there is a greater likelihood an individual will engage in effective communication (Canary & Spitzberg, 1987). The complexities and interdependent actions required to achieve team goals also require individuals to develop an awareness of, and sensitivity to, their own and others' goals (Lakey & Canary, 2002). This sensitivity to conversational partners helps team members establish the rapport necessary to achieve their goals (Berger & Kellermann, 1994). We suggest that the more responsive a team is to team members' emotions, the more likely individuals are to adopt appropriate communication behaviors (e.g., active listening) that promote relational sensitivity (Canary & Spitzberg, 1987).

It is important to emphasize that team emotional skills are different from individual emotional skills and can differentially impact on individual and team performances. The essence of our argument (supported by Côté, 2007)

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is that individuals within a team pool their emotional skills as resources to facilitate communication. Individuals with varying levels of emotional skills (e.g., a member with higher emotional skill) within a team compensate for and facilitate the emotional skills of other team members (e.g., a member with lower emotional skill). This is reflected in both team and individual behaviors and performances. A team with a reasonable level of pooled emotional skills might compensate for an individual team member with lower emotional skills in terms of active listening and reflection behaviors. This, in turn, will promote that particular team member's effective and appropriate behavior and/or performance (despite their initial low emotional skills). We expect all four team emotional skills to be related to individual team member's communication performance. The following cross-level hypotheses are proposed:

Hypothesis 5
Team emotional awareness (own and others) skills will be positively related to individual members' communication performance within the team.

Hypothesis 6
Team emotional management (own and others) skills will be positively related to individual members' communication performance within the team.

Method

Sample and procedure

The sampling frame for this study consisted of 567 undergraduate students enrolled in a business communication course. We asked the respondents to work in teams to develop and deliver a persuasive presentation on one of five predetermined topics. We required the respondents to form self-selected teams with no prior history of working together (no friendship groups). We also required team members to meet every week (in class) to work on their presentation for approximately eight weeks. Some teams also met outside class of their own volition. At Time 1, 376 respondents (response rate = 66 per cent) completed the first survey with a self-report measure of emotional skills during the second lecture of the course. Eight weeks later at Time 2, 540 respondents (response rate = 95 per cent) in 114 teams completed a second survey immediately following the delivery of their particular team presentation as an in-class reflective tool (held during course tutorials). Each respondent provided peer ratings of each of their fellow team members in terms of their communication performance in the team over the previous eight weeks. Although the entire sample undertook this peer-rating exercise as a course reflection about team performance, the 95 per cent response rate reflects those respondents who voluntarily returned the survey. Having peers rate other team members' communication is a common practice (e.g., Wayne & Kacmar, 1991); and Scullen et al. (2003), who suggested that performance is best rated by others when examining how an individual's personality or dispositional constructs influences his or her human skills performance, advocated it.

An anonymous code, entered by the respondents on the surveys, allowed both surveys to be matched. The matched sample consisted of 244 respondents belonging to 57 teams (consisting of three or more team members who had completed both Time 1 and Time 2 surveys; response rate = 43 per cent). This sample size is comparable with that in other multilevel research conducted with student teams (e.g., Gevers & Peeters, 2009). The average size of the teams was five members (Mean = 5.36, $SD = 2.1$), ranging from three to eight members. Of the respondents, 109 (45 per cent) were men; 128 (53 per cent) were born in Australia, and 116 (47 per cent) were born overseas. The mean age of respondents was 22 years ($SD = 4.3$), ranging from 17 to 45 years. The respondents had, on average, 4.4 years of work experience.

In addition to the surveys, one of four independent subject matter experts (SMEs) provided team task performance scores (an assessment that encapsulated the quality and persuasiveness of the presentations). As there were multiple

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independent assessors, a moderation meeting established a common standard to evaluate the quality of the presentations. Each of the SMEs had a minimum of two years experience assessing such tasks as well as university qualifications in the field. We discussed the inter-rater reliability results for this measure in the succeeding paragraphs.

Individual-level measures

Emotional skills

We administered the participants the validated self-report Workplace Emotional Intelligence Profile—Short Version (WEIP-S; Jordan & Lawrence, 2009). A refinement of WEIP (Jordan et al., 2002), the WEIP-S assesses a team member's self-assessment of their emotional awareness and emotional management skills within a team context and has an own and other focus. The scale captures four dimensions (four items each): awareness of own emotions (e.g., *I can explain the emotions I feel to team members*), management of own emotions (e.g., *When I am frustrated with fellow team members, I can overcome my frustration*), awareness of others' emotions (e.g., *I can read fellow team members "true" feelings, even if they try to hide them*), and management of other's emotions (e.g., *I am able to cheer team members up when they are feeling down*). The respondents indicated their level of agreement with each item by using a 7-point format (1 = *strongly disagree* to 7 = *strongly agree*). We averaged items for each subscale to provide four emotional skills scores for each respondent.

Communication performance

We assessed this by using Canary and Spitzberg's (1987) 13-item communication performance scale. We asked the participants to indicate the effectiveness and the appropriateness of the communication performance of each of his or her fellow team members during the life of the presentation project, using a 5-point response format (1 = *strongly disagree* to 5 = *strongly agree*). We modified the scales to assess the communication performance of specific team members within a team context. Sample items include *He/she achieved what he/she apparently wanted to achieve in our conversations* for communication effectiveness and *He/she was a smooth conversationalist* for appropriateness.

As peer observer ratings are sometimes idiosyncratic, we conducted within-team inter-rater reliability (r_{wg}) tests for individual-level communication performance. This established the level of consistency across peer raters for each individual team member with respect to their ratings for communication performance (James, Demaree, & Wolf, 1984, 1993). We calculated inter-rater reliabilities using all available peer ratings ($N = 1170$) for the 244 ratees in the 57 teams. The results of r_{wg} for each team member revealed a mean r_{wg} of .95 for communication performance (median $r_{wg} = .96$). As these values were satisfactory, each team member received an averaged aggregated score across his or her peers for each of the communication performance items. We averaged together the aggregated peer-rated items for each subscale to provide one communication performance score for each individual respondent. See the section on the measurement model analyses for individual-level construct for more information regarding construct validity and Cronbach's alpha reliabilities.

Team-level measures

Team emotional skills

According to Chan (1998), specifying the appropriate composition model is essential for multilevel research. We defined team-level emotional skills as a summative composition model and operationalized it on the basis of the mean of individual members' collective emotional skills scores (in each of the four subscales) within each team (Chen, Mathieu, & Bliese, 2004). In other words, we aggregated individuals' ratings of the four dimensions of emotional skills within each team to assess their teams' emotional skills, for the cross-level and team-level analyses in this study. It is important to note that Chen et al. (2004) argue that the evidence of intra-class correlation (ICC 1 and 2) and of inter-rater

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agreement (r_{wg}) is not necessary to justify the validity of team-level measures on the basis of summative composition models because the agreement or the sharedness regarding the construct is not assumed.

Although we argue for a summative composition approach in this study, earlier we acknowledged possible instances in which team emotional skills might be represented by non-linear combinations if the amount of contribution by each team member is qualitatively distinct (e.g., Côté, 2007; Elfenbein, 2006). To eliminate alternative explanations, we also analyzed team emotional skills and their expected impact on performance in teams by using minimum, maximum, and variance representations following guidelines outlined by Kozlowski and Klein (2000).

Team task performance

We assessed team task performance via the assessment scores given for workshop presentations by one of four independent and experienced SMEs. The SMEs evaluated team presentations and allocated up to 10 marks. We allocated up to five marks to presentation delivery (e.g., audience engagement, team coordination) and up to five marks to presentation argument (e.g., expression of ideas supported in the literature, quality of the argument the team developed). To ensure consistency of ratings prior to presentations, the SMEs met to discuss the expected standards and associated marks regarding the performance task. We also compared the means of team presentation marks across SMEs, and the analysis showed that the SMEs had similar means and score distributions. Furthermore, each SME was paired with another of the remaining three assessors to independently rate 20 per cent of each others' presentations. Cohen's kappa coefficients for each of the SME's ratings were 0.71, 0.73, 0.79, and 0.80, respectively. Cohen's kappa coefficient is commonly used to measure the level of agreement between nominal variables. We gave the category of "yes" for raters whose final mark corresponded to within one mark of the second raters' final mark. We gave the category of "no" for a rater who had mark discrepancies greater than one mark with the second rater. We chose this analysis over simple percentage agreement because it takes into account agreement occurring by chance. Our kappa coefficients indicate a good level of inter-rater agreement according to Landis and Koch (1977).

Control variables

As demographic variables such as sex, age, and nationality influence individuals' attitudes toward other team members (e.g., Chattopadhyay, George, & Lawrence, 2004), we used the information collected from the participants regarding their sex (1 = male, 2 = female), age (actual age), and national origin (1 = born in Australia, 2 = born outside Australia) as individual-level control variables. We used team size as a team-level control variable.

Results

Measurement model analyses for individual-level constructs

Before conducting the hypothesis tests, we established the construct validity of the individual-level variables in the context of the obtained sample. Because of sample size constraints (team level $n = 57$), we did not perform a separate measurement model analysis for the team-level emotional skills constructs. This was also unnecessary given the guidelines of Chen et al. (2004) for team-level analyses and to ensure theoretical consistency with our summative composition approach that argues for a non-linear aggregation of individual emotional skills that collectively emerge as a construct at the team level.

We conducted all model estimations on covariance matrices, using the maximum likelihood procedure in EQS 6.1 (Bentler & Wu, 2005). We used Hu and Bentler's (1999) approach as a guide to assess model fit. We reported corrected test statistics (the Satorra–Bentler rescaled chi-square statistic and the comparative fit index [CFI] robust) to take account of the skewness in the data (Kline, 1998). The *a priori* measurement model for individual-level emotional skills

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consisted of four correlated factors, where each factor represented a distinct emotional skill. An analysis of this model, χ^2 (98) = 135.92, p = .007, demonstrated a good fit. Fit index values were good, *CFI* = 0.96, incremental fit index *(IFI)* = 0.96, non-normed fit index *(NNFI)* = 0.95, root mean square error of approximation *(RMSEA)* = 0.04, standardized root mean square residual *(SRMR)* = 0.06, factor loadings were moderate, and Cronbach's alphas for the constructs were satisfactory (Table 1). To test discriminant validity within the emotional skills measurement model, we fixed the correlation parameters between the constructs at 1.0 and used a chi-square difference test to compare the constrained and unconstrained models (Bagozzi & Phillips, 1982). The test revealed that the modified measurement model, χ^2 (104) = 244.79, $p < .001$, fitted the data significantly better than the constrained model, $\Delta\chi^2$ (6) = 108.87, $p < .001$. The results of this test show that the participants did distinguish between the four emotional skills constructs.

The *a priori* measurement model for communication performance at the individual level consisted of one factor that represented effective and appropriate communication performances for an individual, as rated by their team peers. An analysis of this model, χ^2 (65) = 618.00, $p < .001$, revealed a poor fit, given the combination of supportive fit indices, *CFI* = 0.76, *IFI* = 0.76, *NNFI* = 0.70, *RMSEA* = 0.19, *SRMR* = 0.13 (Anderson & Gerbing, 1988; Hu & Bentler, 1999). Deleting problem indicators is the preferred solution for poor fitting models (Anderson & Gerbing, 1988). The deletion and the respecification of the model to obtain a better fit were based on face validity and statistical considerations (residual correlations, factor loadings, Cronbach's alphas). On this basis, we removed four item indicators from the analysis and they included the following: *He/she said several things that seemed out of place in our group conversations*; *He/she got what he/she wanted out of our group conversations*. The respecified model revealed a substantially improved fit as compared with the *a priori* measurement model, $\Delta\chi^2$ (38) = 461.38, $p < .001$. We deemed the modified model, χ^2 (27) = 156.62, $p < .001$, an acceptable fit, given that the *CFI* (0.92), *IFI* (0.92), *NNFI* (0.90), and *SRMR* (0.05) all reached good cutoff values, the *RMSEA* (0.11) was marginal, the factor

Table 1. Means, standard deviations, reliabilities, and correlations among hierarchical linear modeling variables[a].

Variables	Mean	*SD*	1	2	3	4	5	6	7	8	9
1. Individual own aware	4.28	1.14	(.79)								
2. Individual own manage	5.45	0.82	.28***	(.68)							
3. Individual other aware	4.74	0.90	.48***	.24***	(.73)						
4. Individual other manage	4.73	0.89	.49***	.22***	.36***	(.76)					
5. Individual peer-rated communication performance	3.94	0.40	.05	.10	.06	.25***	(.93)				
6. Team own aware	4.28	0.61	.53***	.03	.35***	.29***	.10	—			
7. Team own manage	5.47	0.42	.03	.48***	.12*	.09	.20***	.07	—		
8. Team other aware	4.73	0.51	.33***	.10	.55***	.27***	.08	.63***	.22***	—	
9. Team other manage	4.75	0.51	.27***	.07	.26***	.58***	.40***	.51***	.15*	.47***	—

Note: We assigned Variables 6 to 9 of group-level emotional skills scores for individual groups to individuals within those groups. Thus, the effective sample size for group emotional skills is n = 57 project teams.

[a]Internal consistency reliabilities appear in parentheses along diagonal. We computed correlations between Variables 1 to 6 of individual-level emotional skills and communication performance using n = 244.

***p < .001; **p < .01; *p < .05

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loadings were moderate to high, and the communication performance variable had a high Cronbach's alpha reliability (communication performance $\alpha = .93$). The reliability finding corresponds to those found by Canary and Spitzberg (1987; $\alpha = .93$) and Oetzel (2001; $\alpha = .71$ to $\alpha = .92$) for their communication performance measures. Table 1 presents the means, the standard deviations, the Cronbach's alphas, and the correlations between the variables of interest.

Hypothesis tests

The discussion of results is by order of analytical method. We used hierarchical linear modeling (Raudenbush, Bryk, Cheong, & Congdon, 2004) to test our individual-level and cross-level hypotheses. We used partial bivariate correlational analysis, using SPSS, to test our team-level hypotheses. HLM allowed for the simultaneous estimation of (i) the *individual-level* effects of emotional skills on the within-team portion of individual communication performance and (ii) the *cross-level* effect of team emotional skills on the between-team portion of individual communication performance (Chen et al., 2007).

Following the procedure outlined by Mathieu and Taylor (2006, 2007), we first calculated (i) a series of null models (no individual-level or team-level predictors) to examine the presence of within-team variance in individual-level communication performance and (ii) ICCs to examine the total systematic variance and the reliability of individual-level communication performance due to between-team differences and distributions. ICC (1) represents the proportion of variance in individual-level communication performance due to team variation, and ICC (2) reflects the extent to which the reliability of individual-level communication performance can be explained by team means for each of the scale items (Bliese, 2000). Note that the calculation of ICCs for individual-level communication performance is intended to justify whether the amount of between-group variance in individual-level communication performance is statistically sufficient to be detected by group-level predictors (i.e., the four dimensions of group-level emotional skills). It is not intended to provide statistical support for the group aggregation of communication performance.

Results for the null model in Table 2 reveal significant within-team variation in individual communication performance ($\tau_{00} = .08$, χ^2 (56) = 288.03, $p < .001$). An ICC (1) of .56 and ICC (2) of .81 indicated that 56 per cent of the variance in communication performance was due to between-team variance, and reliability based on the team means was .81. The amount of between-team variance and the team mean reliability found for communication performance are comparable with the median ICC 1 and ICC 2 values of dependent variable constructs analyzed using HLM in the organizational literature (Bliese, 2000). Collectively, these results show that there is enough variance both within groups and between groups in the individual communication performance data to provide justification for conducting multilevel analyses to test the individual-level and cross-level hypotheses (Snijders & Bosker, 1999).

Results of control variables

We conducted analyses to test whether each of the control variables had a significant relationship with individual-level communication performance. Results in Table 2 reveal that none of the control variables were significantly associated with individual-level communication performance, with the exception of national origin. Becker (2005) suggests that non-significant control variables use up degrees of freedom, resulting in biased parameter estimates. Thus, we decided not to include the control variables of age and sex in the subsequent analyses.

Individual-level relationships

Hypotheses 1 and 2 predicted that an individual team member's level of emotional awareness (own and others) and emotional management (own and others) skills will be positively related to the individual team member's communication performance. Table 2 shows that none of the dimensions of individual-level emotional skills were

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Table 2. Hierarchical linear modeling results for individual and team (average) emotional skills and individual communication performance[a].

	Null model		Individual communication performance		
Variables	Variance	χ^2	Coefficient	Standard error	*t*
Initial analysis					
Individual communication performance τ_{00}	0.08***	288.03			
Control variable analysis					
Individual level					
Age			.00	0.01	−0.41
Sex			.04	0.04	1.00
National origin			−.25***	0.06	−4.48
Team level					
Team size			−.02	0.02	−0.72
[b]R^2				0.06	
Individual-level analysis					
Control variables					
National origin			−.25***	0.06	−4.41
Emotional skills					
Individual own aware γ_{10}			.00	0.02	−0.09
Individual own manage γ_{10}			.01	0.02	0.56
Individual other aware γ_{10}			−.02	0.02	−0.73
Individual other manage γ_{10}			.03	0.02	1.11
[b]R^2				0.09	
Cross-level analysis					
Control variables					
National origin			−.25***	0.06	−4.35
Emotional skills					
Individual own aware γ_{10}			.00	0.02	0.35
Individual own manage γ_{10}			.00	0.03	0.26
Individual other aware γ_{10}			−.01	0.02	−0.41
Individual other manage γ_{10}			.00	0.03	−0.03
Emotional skills					
Team own aware γ_{10}			−.03	0.07	−0.43
Team own manage γ_{10}			.14*	0.07	1.89
Team other aware γ_{10}			−.15*	0.07	−2.06
Team other manage γ_{10}			.36***	0.07	5.22
[c]R^2				0.33	

[a]Level 1, $n = 244$ students; and Level 2, $n = 57$ project teams. Entries are estimations of fixed effects with robust standard errors.
[b]R^2 = Proportion of within-branch variance explained by individual-level predictors.
[c]R^2 = Proportion of between-group variance explained by group-level predictors.
***p < .001; **p < .01; *p < .05

associated with peer ratings of individuals' communication performance. Thus, Hypotheses 1 and 2 were not supported.

Cross-level relationships

Hypotheses 5 and 6 predicted that team-level emotional awareness (own and others) and emotional management (own and others) skills will be positively related to individual team members' communication performance. We tested the cross-level effects of each of the team emotional skills dimensions on the between-team portion of individual communication performance by using the "intercepts-as-outcomes" model (Hofmann & Gavin, 1998). Table 2 shows the analysis using the mean score approach to operationalize team emotional skills constructs.

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Team-level own and other emotional management skills positively predicted individual-level communication performance, whereas team-level other emotional awareness skills negatively predicted individual-level communication performance. These results demonstrate that three out of four team-level emotional skills dimensions had direct effects on individual-level communication performance after controlling for team size at the team level and the four dimensions of emotional skills and national origin at the individual level. An examination of Table 1 indicates that there is no significant correlation between team-level other awareness skills and individual-level communication performance at the bivariate level. Such conflicting results between the correlation and the HLM findings might suggest that a suppressor variable is present. For HLM cross-level analyses, however, it is important to note that we are analyzing the relationship between team-level emotional skills and the between-group portion of variance in individual communication performance. In contrast, Table 1 correlates team-level emotional skills with both the within-group and between-group variances of individual communication performance. Conflicting results such as these can legitimately occur without invalidating the findings. It is concluded that there is support for Hypothesis 6 and not for Hypothesis 5.

Alternative cross-level analysis

We also conducted a cross-level analysis operationalizing team emotional skills as standard deviation scores, maximum scores, and minimum scores. We found no significant cross-level influences of team emotional skills for a dispersion model of team emotional skills (i.e., standard deviation scores). A maximum score composition model showed individuals received more favorable ratings of communication performance the greater the emotional management (other) score of the strongest member in the team. Furthermore, individual communication performance was judged less favorably the greater the emotional awareness (own) score of the strongest member of the team. A minimum score composition model showed individual communication performance within the team was assessed more favorably the higher the emotional management (other) score of the weakest member in the team.

Team-level relationships

Hypotheses 3 and 4 tested whether team-level emotional skills would impact on team task performance scores. An examination of partial bivariate correlation results (controlling for team size; see Table 3) revealed that team-level own and other emotional awareness skills were positively related to task performance scores. Of the two team emotional management skills, only team other emotional management had a positive relationship with team task performance scores. These results provide full support for Hypothesis 3 and partial support for Hypothesis 4.

Discussion

In support of calls by Ashkanasy (2003), our findings show the value of a multilevel approach to more fully understand the links between emotional skills and performance in teams. An examination of cross-level effects in

Table 3. Means, standard deviations, and partial correlations among team-level variables[a].

Variables	Mean	*SD*	1	2	3	4	5
1. Team own aware	4.28	0.61	—				
2. Team own manage	5.47	0.42	.01	—			
3. Team other aware	4.73	0.51	.58***	.23	—		
4. Team other manage	4.75	0.51	.47***	.12	.42***	—	
5. Team task performance	7.92	0.98	.25*	.15	.31*	.42***	—

[a]We computed partial correlations between variables using $n = 57$ project teams, controlling for team size (effective $n = 54$).
***p < .001; **p < .01; *p < .05

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particular provided unique information about the connections between important constructs that might not appear if analyses are merely conducted at the individual or team level. Our study also highlighted the importance of the composition model chosen when conceptualizing and assessing team emotional skills in line with Bell's (2007) and Elfenbein's (2006) discussions. The type of team, as well as the nature of the performance task being undertaken, needs to be considered. The value of emotional skills in predicting communication performance in teams was also established. Previous studies have investigated the relationship between emotional skills and task performance at a single point in time (e.g., Jordan & Troth, 2004; Offerman, Bailey, Vasilopoulos, Seal, & Sass, 2004). We employed a longitudinal design whereby the respondents reflected on teammates' communication performance over two months when making their peer ratings. Independent raters also assessed teams' task performance at the end of this period. Overall, for teams with no history and completing a compensatory task, our results suggest that the pooled emotional skills of teams (assessed at the time of team formation) have an impact on individual communication performance and on team task performance over a two-month period. Our findings also support the major premise of the episodic interaction model of team behaviors (i.e., Marks et al., 2001) and the relational communications theory (i.e., Millar & Rogers, 1976) that focuses on communication as an important and enduring aspect of teams.

At the individual level, empirical evidence failed to support Hypotheses 1 and 2, which proposed a relationship between individual team member emotional skills and communication performance. In our introduction, it was noted that empirical results are mixed regarding the nature of the relationship between emotional skills and individual performance (Côté & Miners, 2006). Some studies suggest that individual-level emotional skills and work performance are positively related (Wong & Law, 2002; Wong, Law, & Wong, 2004), whereas other studies suggest that there is no relation or an inconsistent relation between individual-level emotional skills and performance (Elfenbein et al., 2007; Feyerherm & Rice, 2002). We argued that individual emotional skills would positively predict individual performance within a team if the objective required communicating interdependently with other teammates. Although our results showed that the individual skill of managing others' emotions is significantly correlated with communication performance at the individual level (Table 1), HLM revealed that this relationship disappeared once individual variance effects were separated from team variance effects.

One possible explanation is that some of the previous studies reporting individual emotional skills and performance links are actually capturing team-level effects (if data were collected in a team context). Another explanation is the nature of the measures utilized in our study (i.e., self, peer, and SMEs). The measure of emotional skills was self-assessed (within a team context), and the measure of communication performance was peer-assessed (within a team context). Research has generally found low correlations between self-assessed and peer-assessed measures, with an average correlation of $r = .14$, $p < .05$ (Ready, Clark, Watson, & Westerhouse, 2000). Jordan and Ashkanasy's (2006) examination of emotion-specific research revealed a correlation of $r = .17$, $p < .05$ between self-assessed and peer-assessed emotional skills. Wong and Law's (2002) study investigating a hypothesized positive relationship between EI and job performance further demonstrates the effect of same versus other source data on results. Although they found that emotional labor significantly moderated the EI and job performance relationship when incumbent self-assessments of emotional labor were used, this relationship did not hold when employing supervisor assessments of emotional labor. Wong and Law (2002) also found no effect of leader EI on follower job performance. They concluded that the EI and performance outcome relationship is more complicated than initially thought and is dependent on the performance measure, source of measurement, and the job requirements of the incumbent being assessed.

Several relationships were found between team-level emotional skills and team performance. In support of Hypothesis 3, team own and other emotional awareness had a positive relationship with scores given by an independent assessor for a team performance task developed over eight weeks. In partial support of Hypothesis 4, team other emotional management was also positively related to team task performance scores. Similar to Elfenbein et al. (2007), we believe that the benefits of team emotional skills on team task performance arise largely in coordinating the emotional aspects of relationships and interactions. A team's ability to compensate for team members with lower emotional skills enables the development of a more positive emotional environment within the team. This allows members to more effectively focus on synchronizing their cognitive and interpersonal skills to achieve performance goals.

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The finding that team own emotional management was not related to team task was unexpected. Prior to data collection, we suggested that the management of own emotions would be conveyed in a team's skills to regulate any negative emotions commonly associated with public speaking, such as fear and anxiety, and that this would affect the extent a team is able to deliver a clear argument in a suitable format. One explanation is that teams did not feel fearful or anxious about the task. This might be due to either a context of presenting to supportive/empathetic peers or the low stakes perceived by teams in terms of loss of marks if performance was not good enough. It is also feasible that the SMEs allocating the performance mark did not consider the fear or the anxiety exhibited by the team when rating the delivery aspects of the presentations but focused more upon teams' skills to establish rapport and engagement with the audience (via other emotional management). What this null finding highlights is the importance of considering the type of team task when thinking about the salience of particular team emotional skills.

At the cross level of analysis, and using a summative composition model, full support for Hypothesis 6 was found. Teams with a greater skill in managing their own and others' emotions positively influenced the communication performance of individual team members, as rated by other team members. These cross-level results are unique in the literature and strongly indicate the utility of examining top-down team effects on individual performance (Chen et al., 2007; Hitt et al., 2007). We believe it is likely that teams with greater collective skills for managing their own and others' emotions will promote a communication environment in which members are more inclined to listen to alternative viewpoints and follow the appropriate relational rules of effective and appropriate communication exchanges (Canary & Spitzberg, 1987). That is, team emotional skills encourage a positive emotional tone within the team that promotes a constructive communication environment for individuals to operate within. These findings support previous research that establishes a general link between EI and the maintenance of relationships (Foo et al., 2004).

Contrary to the expectations outlined in Hypothesis 5, our results showed that a team's level of skill in recognizing others' emotions negatively influenced the communication performance of individuals within the team. Although this was unexpected, a further examination of the communication effectiveness items show they largely tap an individual's capacity to have their views accepted within the team. Although clearly requiring further research, it is possible that a team higher in emotional other awareness is more likely to optimize and promote a focus on the "team view," possibly due to greater team cohesion needs, and be less tolerant of individual team members expressing discrepant views on how a task should be completed. Indeed, this finding might reveal a trade-off between task and relationship aspects of team work across levels. A team focusing on relationship maintenance or development within the group via team emotional other awareness skills might reduce an individual team member's capacity to focus on communication that is task related. If a team focuses too much on resolving divergent ways of working, emotional skills resources are taken up (as a finite pooled resource) to resolve relationship issues, and this prevents individual communication and exchange of ideas (in an acceptable manner).

There are other instances in the literature where negative outcomes are linked to higher emotional skills. For instance, Foo et al. (2004) found that individuals high on emotional skills did worse on a negotiation task because they focused too heavily on their relationships with others involved in the negotiation, at the expense of the task. Although this explanation does not explain the positive relationships found between team emotional awareness abilities and task performance in our study, perhaps as Foo et al. (2004) suggested, the nature of the performance task is critical. Our communication measure captured relationship aspects of performance over eight weeks, whereas the team performance measure was a once-off task performance measure. It is possible that high levels of team emotional awareness detract from (and thus, negatively influence) a team member's communication in the long run.

Overall, our findings point to the importance of team emotional management abilities for both individual communication performance (at cross level; Hypothesis 6) and team task performance (team level; Hypothesis 4). This is especially the case for team-level management of others' emotions that was positively related to all performance outcomes measured at the individual level (Table 1) and the team level. Clearly, the team and the collective ways in which teams agree to work (including managing emotions) has an impact on both individual and team outcomes.

We also considered alternative compilation typologies in this study at the cross level of analyses (i.e., minimum, maximum, and standard deviation scores) and believed these results complement, as well as expand, our

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understanding of how team-level emotional skills impact on individual communication performance. Given the nature of our newly formed teams, and the assigned type of task, we were not surprised that dispersion (i.e., standard deviation) as a team representation of emotional skills did not emerge as an adequate predictor of performance. Côté (2007) suggested that teams of members with varying levels of emotional skills might integrate divergent approaches to group tasks and that this might result in an increased performance. For our teams, it appears that any critical and diverse discussion that occurred about the team task because of the variance in emotional skills of team members was not translated to performance presentation scores. On the other hand, capturing team-level emotional skills by the score of the strongest member (i.e., maximum score) was consistent with our summative approach in that a team member with the highest score on management of others' emotions positively impacted on the communication performance of individual team members. These are probably the individuals who compensate for the weaker team members captured in our summative approach.

Our results also revealed that the score of the weakest or strongest (i.e., minimum or maximum score) member on team-level own awareness predicted lower levels of individual communication performance. It is possible that team members with higher levels of this skill become distracted by emotions within the team (e.g., fear or anger), and this inhibits the communication performance of individual team members. Similarly, an individual with the lowest level of emotional awareness within the team, (e.g., who is unaware of and unable to resolve anger or sadness within the team), is likely to impact negatively on the individual communication performance of team members. We also believe these results complement our finding that any compensation by other members (captured by the average) for team-level own awareness has no impact on communication performance. It also highlights to researchers the importance of considering the composition of team emotional skills and the impacts on performance.

Overall, we believe that the results for the summative approach support our initial argument that, in some work contexts, emotional skills might be viewed as resources team members combine to share and draw upon when needed. Different teams accumulate different amounts of emotional skills, and teams with large amounts of emotional skills appear to outperform teams with smaller amounts. Team emotional skills require a minimum contribution by each team member in the emergence of the team construct, and individual contributions can vary to some extent with differing emotional skills having a minimal role in the performance of the team (Kozlowski & Klein, 2000).

The differential effects of team emotional skills dimensions on communication performance within teams and team task performance also highlight the value of investigating more complex constructions of emotional skills. Many researchers have restricted their analyses to a global measure of emotions to illustrate a generally positive relationship between workplace outcomes and emotional skills (Bell, 2007). However, the relationship appears to be more complicated than initially thought, and it is important to examine distinct emotional skills. The importance of separating emotional skills relating to own and others' emotions was also demonstrated. Our study suggests that the skill of being emotionally self-aware is not the same as being aware of the emotions of others in the context of performance in teams. Similarly, the magnitude of the effect of the skill to manage other peoples' emotions does not necessarily translate to the skill to manage one's own emotions.

Limitations and future research directions

Foremost, the generalizability of our findings is limited given that the sample comprised undergraduate students with an average age of 22 years. It is worth noting, however, that the sample had worked 4.4 years on average. A student sample was initially chosen to increase control of team work experiences during the project and to ensure the type of work completed was consistent across teams (i.e., compensatory). We also attempted to focus student performance around a meaningful task (compared with *ad hoc* tasks typically used in the student sample context). Nevertheless, there are clear benefits to transferring this research to a work setting with *in situ* teams. For example, it might be worthwhile considering the influence of team emotional skills on decision-making and problem-solving tasks made

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by work teams with significant organizational and financial consequences (Barsade, 2002). It would also be useful to collect continuing assessments of communication performance leading up to the task to ensure that retrospective memory biases do not affect the data.

The use of a self-report measure of emotional skills is another limitation. This method, chosen for its relatively quick and simple administration, preserved sufficient validity and reliability requirements (e.g., Wong et al., 2004) and enabled us to examine emotional skills within a specific context (i.e., the participant's team). Although our results showed the predictive capacity of the self-report measure of emotional skills when assessing teams, it would be worthwhile pursuing research using alternative measures of emotional capabilities such as the situational test of emotional management (McCann & Roberts, 2008) or to consider peer ratings of emotional skills. We also acknowledge that the variable "management of own emotions" had a relatively low Cronbach's alpha of .68, although this is only below the recommended cutoff of .70 (Tabachnick & Fidell, 1989).

The model presented in Figure 1 suggests several other areas for future research. Although we focused on self-managing teams with no appointed leader, it would be worthwhile examining how team-level emotional skills are associated with team and individual performances in teams with a formally appointed leader, given that the leadership process is often highly emotional (Côté, 2007). Investigating whether team emotional skills or leader emotional skills have a greater effect on performance might be another fruitful area. We believe it would also be useful to identify and investigate the mechanisms through which team emotional skills impact on performance in teams. Possible mediating constructs include task interdependence (Bachrach et al., 2006), group cohesion, and team conflict (Yang & Mossholder, 2004). Finally, given the performance task, we conceptualized and operationalized team emotional skills using a summative composition approach to predict performance around a task that was compensatory in nature and for which all team members were equally important (Steiner, 1972). However, it might be valuable to investigate other types of performance tasks that are disjunctive or conjunctive in nature and to use the multilevel top-down approach to examine other composition models of team emotional skills to predict performance. Finally, we believe an interesting direction for future research would be to adopt a normative approach for examining emotional skills in highly interdependent long-term teams and examine how such norms are shaped over time. Such a design would necessitate measuring team members' emotional skills at various stages of the team's lifecycle.

Implications for theory and practice

This article extends past research by theoretically and empirically relating emotional skills to performance in teams from a multilevel perspective. We responded to calls by researchers including Ashkanasy (2003), Côté and Miners (2006), and Elfenbein et al. (2007), to develop a model that simultaneously examines the multilevel impact of emotional skills on performance. This study also promotes new ways of thinking about team performance in terms of communication.

This is the first empirical study we are aware of to examine the cross-level influence of team-level emotional skills on individual performance. Specifically, our results show that the two dimensions of team emotional skills were significantly and positively related to individual team members' communication performance (in terms of effectiveness and appropriateness) within a team, whereas a negative relationship was found between team other awareness and individual communication. Our results also provide some support for our team-level hypotheses in the model. The overall findings have implications for advancing research on emotional skills in teams and its unique effects on communication performance outcomes.

A particular strength of this study is that both independent and dependent variables were collected at two different times. Moreover, both dependent variables were independently rated. This strengthens the validity and the reliability of the findings. We argue that the combination of peer ratings of team communication performance variables and independent assessment of team task performance provides a unique perspective on the performance of teams and team members that have not been used as measures of performance outcomes in the existing emotions research.

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In terms of practice, it seems emotional skills contribute to more productive interactions between team members. It might be useful, therefore, to consider the development of team emotional skills as an important part of team-building processes. The conceptualization of emotional skills within this study suggests that these are skills that can be attained and utilized by team members. This may be via modeling behavior or it might be through formal training processes such as team building and training (Jordan et al., 2002). The recognition that emotional skills experienced and drawn upon as team resources appear to influence individual team members' behavior, and team performance is important. Having the capability to address emotional issues within the team ensures it has maximum opportunities for optimizing performance. In essence, our results suggest that team-level emotional skills generally contribute to better communication performance for team members and better task performance for teams and should be viewed as important skills for promoting performance in teams.

Finally, the pooled resources approach provides greater insight about whether a team has the emotional resources to be productive and offers predictions about team performance *before* the team is formed. Our findings suggest that a team with a reasonable level of pooled emotional skills is able to compensate for an individual team member with lower emotional skills in terms of active listening and reflection behaviors. Indeed, in terms of team allocation and selection (comprising members with limited prior contact), Côté (2007) suggests the value of identifying some individuals with higher emotional skills before team formation to compensate for those with lower skills, in terms of the impact on performance. We further propose the particular importance of selecting team leaders with strong emotional skills who are likely to have the greatest impact on the team at both the team and cross levels of performance.

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