Transformational leadership as a mediator between emotional intelligence and team outcomes☆

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ABSTRACT

Using leadership theory we examined whether transformational leadership mediates the link between the emotional intelligence of team leaders and three outcomes as perceived by followers: leader effectiveness, team effectiveness, and service climate. Data were collected from 859 employees, working in 55 teams in a South Korean public-sector organization and results were analyzed at the group level. All variables were modeled in a path diagram and tested using hierarchical regression analysis and structural equation modeling. Same-source bias in the findings was controlled for by randomly splitting the sample into three separate groups. The results show that transformational leadership mediates the relationships between emotional intelligence and leader effectiveness, as well as between emotional intelligence and service climate, although not between emotional intelligence and team effectiveness. Practical implications of the findings are discussed, together with limitations and ideas for future research.

1. Introduction

The study of emotions in the context of leadership has become a key topic of interest among organizational behavioral researchers over the past decade. This is reflected for example in studies on the impact of leaders' emotional expression in the workplace (Bono & Ilies, 2006; George, 1995; Sy, Côté, & Saavedra, 2005), emotional contagion between leaders and followers (Barsade, 2002), as well as in how leadership styles influence the emotional states of employees and their job performance (Bono, Foldes, Vinson, & Muros, 2007; McColl-Kennedy & Anderson, 2002). Likewise, popular press and academic interest in the utility of emotional intelligence in the leadership process has not dissipated despite serious attempts to discredit the concept (e.g., Antonakis, 2004; Locke, 2005).

The scholarly study of emotional intelligence (EI) began in the early 1990's when Salovey and Mayer (1990, p. 189) initially defined emotional intelligence as: "the sub-set of social intelligence that involves the ability to monitor one's own and others' feelings and emotions, to discriminate among them and to use this information to guide one's thinking and actions." Being emotionally intelligent involves being able to actively identify, understand, process, and influence one's own emotions and those of others to guide feeling, thinking, and subsequent behaviors (Mayer & Salovey, 1997). Of course, emotional intelligence is a broad construct and measures such as the Mayer–Salovey–Caruso Emotional Intelligence Test (MSCEIT) (Mayer, Salovey, & Caruso, 2002) were not developed expressly for the workplace. Yet various measures of emotional intelligence do appear to correlate with important leader and organizational outcomes. A growing body of literature has suggested that leaders' ability to understand and

manage their own feelings, moods and emotions, as well as those of their followers contributes to effective leadership in a variety of organizations (Gardner & Stough, 2002; George, 2000; Kerr, Garvin, Heaton, & Boyle, 2006; Rosete & Ciarrochi, 2005). Moreover, researchers have argued that the emotional intelligence of leaders is a critical component in leading a team effectively (e.g., Jordan & Lawrence, 2009; Prati, Douglas, Ferris, Ammeter, & Buckley, 2003).

Amidst this work a key question remains: how do leaders with high emotional intelligence exert their influence in work related contexts? That is, how do leaders with a better awareness, assimilation, understanding, and managing of own emotions and those of others affect organizational outcomes? The purpose of the current study was to advance research on emotional intelligence and transformational leadership in the following ways: first, we argued that the effect of emotional intelligence on organizational outcomes is mediated by a transformational leadership. Second, we examined the influence of the emotional intelligence of a leader at the group-level of analysis. Third, we conducted our study in South Korea, rather than in the West where most studies on emotional intelligence have been conducted to date. And last, we obtained a sufficiently large database to statistically control for possible common-method bias. A path-analytic model is presented in which emotional intelligence affects transformational leadership; and in which transformational leadership is subsequently linked to three outcome variables, namely leadership effectiveness, team effectiveness, and service climate.

2. Theory and hypotheses development

2.1. Emotional intelligence and transformational leadership

A growing body of studies has shown that emotional intelligence is inherently associated with transformational leadership (e.g., Barling, Slater, & Kelloway, 2000; Leban & Zulauf, 2004; Mandell & Pherwani, 2003). Palmer, Walls, Burgess, and Stough (2001) found significant correlations between emotional intelligence and several factors of the transformational leadership model. Specifically, the ability to monitor and manage emotions correlated with the inspirational, motivational and individualized consideration factors of transformational leadership. Similarly, Gardner and Stough (2002), and later Barbuto and Burbach (2006), showed that the emotional intelligence of leaders accounted for the majority of the variance in transformational leadership. Collectively, the findings of previous studies provide evidence that leaders who scored high on emotional intelligence were perceived by followers as exhibiting more transformational leadership behaviors.

Transformational leadership theory has also highlighted the importance of leaders' influence on followers' emotional states (Ashkanasy & Tse, 2000) and several studies have provided emotion-type insights into the transformational leader–follower linkage. McColl-Kennedy and Anderson (2002), for example, showed that transformational leaders who suggested alternative solutions to problems and who showed individualized consideration to followers were able to redirect follower negative feelings of frustration and helplessness to more constructive ones, which, in turn, led to heightened followers' performance. Conversely, perceptions of minimal transformational leadership behaviors resulted in high levels of follower frustration and low performance levels. Recent studies have also shown that energetic, exciting, and emotionally appealing expressions of charisma created positive moods in followers (Bono & Ilies, 2006) and lessened the emotion-related phenomena of burnout and stress in the workplace (Bono et al., 2007). Such results imply that transformational leadership can be interpreted as a process in which leaders use emotions to: communicate a vision to, as well as elicit responses from, followers; and to ensure that followers are emotionally motivated to perform their tasks beyond their own expectations (Brown & Moshavi, 2005; Humphrey, 2002).

The qualities of empathy, motivation, self-awareness, trust, and emotional stability, all qualities of a transformational leader, are also considered to be important elements of emotional intelligence (Bar-on, 1997; Goleman, 1998; Mayer & Salovey, 1997). From the angle of individual and contextual antecedents of transformational leadership behavior, emotional intelligence can be seen as the bedrock for transformational leaders. Based on our review of the literature we propose a direct linkage between emotional intelligence and transformational leadership.

2.2. Transformational leadership and leader/team effectiveness

The positive effects of transformational leadership on leader effectiveness and performance have been found at the individual, group, and organizational level (see Burke et al., 2006; Judge & Piccolo, 2004). Transformational leaders induce strong levels of satisfaction (Trottier, Van Wart, & Wang, 2008); citizenship behaviors (Podsakoff, Mackenzie, Moorman, & Fetter, 1990; Wang, Law, Hackett, Wang, & Chen, 2005); and service performance (Liao & Chuang, 2007) in followers. Transformational leaders, who showed individual consideration toward individual followers' growth and development by spending time to teach and coach, raised followers' awareness of the significance and worth of specified work outcomes and how their jobs affected organizational performance (Epitropaki & Martin, 2005) (Table 1).

Moreover, transformational leaders can dramatically influence a team environment when they change the attitudes and values of their followers in the direction of collective goals (Bass, Avolio, Jung, & Berson, 2003). They then create team atmospheres in which employees become convinced that they can attain higher goals than they initially thought possible which, in turn, has led to positive team performance in both subjective (Schaubroeck, Lam, & Cha, 2007) and objective measures of performance (Koene, Vogelaar, & Soeters, 2002; Rowold & Heinitz, 2007). DeGroot, Kiker, and Cross (2000, p. 363) have noted that "an effect size of transformational leadership at the group-level of analysis is double in magnitude relative to the effect size at the individual level." Over time, the positive influence of transformational leadership on team effectiveness/performance in various organizational settings, for example, in the military (e.g., Bass et al., 2003; Lim & Ployhart, 2004) and in corporate settings (Shin & Zhou, 2003) has

Table 1
Factor analysis on leadership measures.

Leadership scales	Factor loadings
Idealized influence attributed	.96
Idealized influence behavior	.96
Inspirational motivation	.96
Intellectual stimulation	.95
Individual consideration	.95
Eigenvalue	4.47
Percent variance explained	91.33

been demonstrated. Howell and Avolio (1993) found that those units in a large financial services firm in which their managers exhibited transformational leadership, demonstrated comparatively better financial performance. Later, Geyer and Steyrer (1998) reported that transformational leaders in Australian bank branches had better long- and short-term performance. Parallel to these findings, Rowold and Heinitz (2007) showed significant effects of transformational leadership on achieving annual performance-goals in public-transport branches. Strong correlations between followers' perceptions of transformational leadership and team effectiveness have been replicated in two very diverse cultural settings, namely, Hong Kong and the U.S.A. (Schaubroeck et al., 2007). Finally, transformational leaders who stimulated team members' intellects by encouraging them to see problems from a new perspective and to use untried approaches were able to improve technical quality in 118 diverse research and development teams (Keller, 2006). These findings provide some of the strongest evidence to date of the impact of transformational leadership on hard, as well as soft, team performance measures and reinforce our treatment of transformational leadership as a predictor of leader- and team- effectiveness.

2.3. Transformational leadership and service climate

Service climate refers to "employee perceptions of the practices, procedures, and behaviors that get rewarded, supported, and expected with regard to customer service and customer service quality" (Schneider, White, & Paul, 1998, p. 151) and constitutes the tone and atmosphere in which the employees operate in the workplace. Employees in positive service climates engage not only in role-prescribed behaviors toward customers, but also in extra-role behaviors beyond the call of duty to promote customer satisfaction (Schneider, Ehrhart, Mayer, Saltz, & Niles-Jolly, 2005). Favorable service climates have been associated with excellent interdepartmental service (Schneider et al., 1998), better employee service performance (Hui, Chiu, Yu, Cheng, & Tse, 2007; Liao & Chuang, 2007), higher customer satisfaction (Schneider et al., 2005), increased customer loyalty (Liao & Chuang, 2004; Salanova, Agut, & Peiró, 2005), and have been an integral part of generating business revenue from repeat customers (Schneider et al., 2005).

Team leaders serve as conduits for organizational policy and can affect follower perceptions of service climate. Kozlowski and Doherty (1989, p. 547) noted that "…an individual's immediate supervisor is the most salient, tangible representative of management actions, policies, and procedures. Thus, the nature and quality of interactions with supervisors may be a key filter in the interpretations that provide the basis for subordinates' climate perceptions." Given their day-to-day interactions with a team leader, followers are more likely to depend on information conveyed by the team leader in order to know what the organization expects from them and what they can expect from the organization (Schneider et al., 1998). Through their verbal and symbolic behaviors, transformational leaders instill enthusiasm and optimism in their followers and create a positive affective climate within the teams they lead (McColl-Kennedy & Anderson, 2002; Pirola-Merlo, Härtel, Mann, & Hirst, 2002). The levels of positive affect experienced by followers in the workplace become powerful motivational forces that enhance service related behaviors (Kelly & Hoffman, 1997). Moreover, a transformational team leader, by emphasizing what is right and wrong with followers in terms of service delivery, serves as a role model through which followers may internalize work values that are consistent with the leader's mission (Anderson, 2006; Bono et al., 2007; Martin & Bush, 2006).

A recent study empirically supports the notion that transformational leadership can influence service climate. Hairstylists in a Taiwan franchise of 110 salons assessed their managers' transformational leadership behaviors as well as the service climate of the stores. Store managers, in turn, assessed the service performance of each stylist (Liao & Chuang, 2007). Through a longitudinal path model, the authors showed that transformational leadership affected store's service climate. Positive store-level service climate enhanced the individual-level influence of transformational leadership on employee service climate, which in turn affected customer relationship outcomes such as intended repeat business. In sum, previous evidence underpins the idea that trans-formational leadership behavior in a team positively affects the team's service climate.

2.4. The mediating role of transformational leadership

Thus far we have reviewed research on the links between emotional intelligence and transformational leadership, and between transformational leadership and the three team outcomes: leadership and team-effectiveness, and service climate. The key proposition in this study is that transformational leadership mediates the relationship between emotional intelligence and the team outcomes. A requirement for this proposition is that emotional intelligence be related to team outcomes, and an extensive range of studies supports this proposition (e.g., Gardner & Stough, 2002; George, 2000; Kerr et al., 2006). Leaders who scored high

on emotional intelligence have been shown to affect follower job satisfaction (Sy, Tram, & O'Hara, 2006), followers' psychological climate (Klem & Schlechter, 2008) as well as to promote various work-related performance factors, such as extra-role behaviors (Wong & Law, 2002), project team performance (Leban & Zulauf, 2004), and customer satisfaction (Langhorn, 2004).

Our model assumes that emotional intelligence precedes transformational leadership thus has a causal effect on transformational leadership. Many authors have described emotional intelligence as a constellation of personality traits and have noted that emotional intelligence can be considered as reasonably stable. Bar-on (1997), for instance, has suggested that emotional intelligence increases gradually from early childhood until the fifth decade of life. Related predictive validity studies have provided further intriguing results: Feist and Barron (2003), for example, conducted a longitudinal study across a 44 year time span from 1950 to 1994, starting at age 27 and ending at 72—literally a lifetime, to determine if intellect, potential, and personality variables in early adulthood would predict creative academic achievement in later life. In the main, emotional intelligence factors such as CPI Tolerance (tolerance for beliefs not consistent with one's own) and Psychological Mindedness (insightful, intellectual, perceptive, and understanding) explained considerable variance in achievement over and above intellect and potential. In essence, social and emotional abilities played a more important role in explaining professional success than did intellectual ability. Indeed, Humphrey (2002) has posited that individuals who have more empathy and emotional self-management are more likely to emerge as transformational leaders.

The final part of the argument for a mediation effect is that leaders with high emotional intelligence co-create outcomes such as leader and team effectiveness, and positive service climate because their emotional intelligence causes them to engage in transformational leadership behaviors. Much like an athletic develops and draws upon endurance and skeletal–muscular coordination skills during a competitive game a transformational leader draws upon emotional intelligence skills to accomplish organizational goals with or through followers. The emotional intelligence factors: Self Emotion Appraisal, Others' Emotion Appraisal, Use of Emotion, and Regulation of Emotion are drawn upon when exhibiting the transformational leadership factors of Idealized Influence, Inspirational Motivation, Intellectual Stimulation, and Individual Consideration. For example, Individual Consideration occurs through treating followers as individuals with different needs, abilities and aspirations; a transformational leader tends to do well on Appraising Others' Emotions and is sensitive to the feelings of others which include showing understanding of others' emotions. By offering Intellectual Stimulation a transformational leader aids, when needed, in the re-examining of critical assumptions at work, thereby getting followers to look at problems from many different angles. This requires communicating in a noncritical style, thus Regulation of Emotion (e.g. handling difficulties rationally, controlling one's temper, and becoming calm quickly when one is upset) becomes an important skill. One can further see how Use of Emotion underlies Inspirational Motivation because one needs to face failure positively, work hard in unfavorable settings, be self-motivated, and feel competent before one can talk optimistically about the future, and express confidence that goals will be achieved. Finally, one must have a sense of one's own emotions and where they come from (Self Emotion Appraisal) before one can talk effectively about a sense of purpose, and consider the morality of actions and decisions (Attributed Behavior Influence). Emotionally intelligent leaders may deliberately use more transformational leadership behaviors because they realize through them the effects on performance: the study by McColl-Kennedy and Anderson (2002) showed that the ability of transformational leaders to influence follower feelings of frustration and optimism had a large influence on performance. In sum, the effect of emotional intelligence on leader- and team-effectiveness as well as on service climate becomes magnified when leaders display transformational behaviors to develop a collective sense of high-performance goals at the group-level.

2.5. Research hypotheses and hypothesized path model

On the basis of prior studies we present a path analytic model, depicted in Fig. 1, in which emotional intelligence affects transformational leadership; and in which this style is subsequently linked to three perceptual outcome variables, namely, leadership effectiveness, team effectiveness, and service climate. Accordingly, the hypotheses of this study are:

Hypothesis 1. The emotional intelligence of a team leader is positively related to transformational leadership.
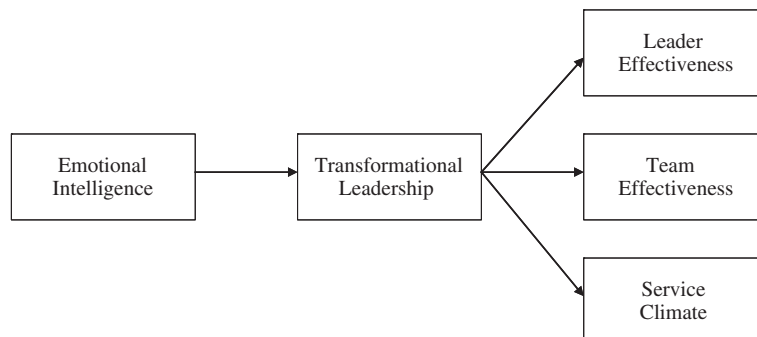

Fig. 1. Hypothesized research model.

Hypothesis 2. Transformational leadership is positively related to (a) leader effectiveness, (b) team effectiveness, and (c) service climate.

Hypothesis 3. Transformational leadership mediates the relationship between emotional intelligence and (a) leader effectiveness, (b) team effectiveness, and (c) service climate.

3. Method

3.1. Participants and procedures

The data were collected from full-time personnel in a South Korean public-sector organization. We distributed questionnaires to 1411 non-managerial employees and a total of 859 usable surveys (61% response rate) were returned. The employees worked in 55 departments, referred to as teams in this study, with a range of between 11 and 50 members per team, and an average of 32 members. They had an average job tenure of 9.92 years (SD = 7.99) with the organization and 72.5% had been working with their team leaders for more than half a year. On average, employees were 37.18 (SD = 7.46) years old, 71% had a bachelor's degree, and 74% were male.

Questionnaires were emailed to participants via the organization's internal electronic mail system and included an introductory letter from the authors as well as a personal endorsement from the organization's director. The confidentiality and anonymity of the answers were guaranteed and it was emphasized that the organization would receive only aggregated results. Employees completed the questionnaire on the job and reminder notices were emailed one week later. Each questionnaire was assigned to one of the 55 teams through the use of an automatic coding scheme to avoid data input errors.

The Korean government has been introducing major reforms since 2002 to maximize citizen satisfaction through high-quality public service. The government employees involved in this study provided legal services to Korean citizens across 18 separate districts in the country. Employees who interacted with the public or worked as internal support staff received extensive customer service training and were recognized and rewarded when they performed very well. Telephone and on-site customer satisfaction surveys were conducted by an independent survey company twice a year and the 18 districts were rank ordered from high to low based on the survey results. Hence, team leaders were expected to manage the work of their teams effectively as well as to pay attention to their service quality.

Each of the 18 districts is consisting of three functionally different departments: Case, Enforcement, and Administration, yielding 54 teams. The office in Seoul has one additional Enforcement Department, hence a total of 55 teams. The Case Department provides intake services for citizen complaints, suits, filing of charges, and controversies regarding criminal matters with the ultimate goal of prosecuting cases when necessary. It also updates the press and citizenry on the status of impending investigations. The Enforcement Departments imposes and collects monetary penalties. The Administration Department provides internal administrative support to the other departments within a district.

The questionnaire was originally prepared in English and was translated using the standard backward translation method (Brislin, 1980). The final Korean version was then pretested with eight human resource employees who worked at the headquarters and who were not members of the 55 focal teams. Although they were asked to comment on items that were ambiguous or difficult to understand only minimal changes were made toward the final version.

3.2. Measures

3.2.1. Emotional intelligence

Emotional intelligence was measured using the 16 items from the Wong and Law Emotional Intelligence Scale (WLEIS: Wong & Law, 2002). Whereas most of the currently available measures of emotional intelligence have been developed in Western countries, the WLEIS was developed expressly for Asian contexts and is consistent with Mayer and Salovey's (1997) conceptualization of emotional intelligence. Similar to Wong and Law's (2002) comment about how Chinese fail to display overt emotions in the workplace, also Koreans tend to suppress their emotions in the workplace when compared to the more expressive Westerners (Choi & Kim, 2006). A non-reactive, quiet response, when faced with an unreasonable request, may be regarded as a highly emotional response in Korea whereas it would be less so in Western cultures (Choi & Kim, 2006; Renjun & Zigang, 2005). Whereas the original Mayer–Salovey–Caruso Emotional Intelligence Test scale (Mayer et al., 2002) consisted of 141 items and required approximately one hour to complete by non-English respondents, the WLEIS has only 16 short items and is therefore more practical for survey purposes. The WLEIS has demonstrated high internal consistency, convergent and discriminant validity, and incremental validity, beyond personality factors, when predicting dependent variables (Law, Wong, & Song, 2004; Sy et al., 2006; Wong & Law, 2002).

The WLEIS consists of four dimensions, namely, *Self Emotion Appraisal, Others' Emotion Appraisal, Regulation of Emotion (of the self)*, and *Uses of Emotion to Facilitate Performance*. The *Self Emotion Appraisal* (SEA) dimension measures the ability to understand and express one's own emotions (e.g., "Has a good understanding of his/her own emotions"). The *Others' Emotion Appraisal* (OEA) measures an individual's ability to perceive and understand the emotions of others (e.g., "Is a good observer of others' emotions"). The *Use of Emotion* (UOE) refers to one's ability to channel one's emotions toward constructive activities that facilitate performance (e.g., "Always sets goals for himself/herself and then tries his/her best to achieve them"). And lastly, the *Regulation of*

Emotion (ROE) dimension measures the ability to regulate one's emotions (e.g., "Is able to control his/her temper and handle difficulties rationally").

Four items were added to the Use of Emotion dimension. Two items were taken from the Wong, Law, and Wong (2004) scale (e.g., "Motivates himself/herself to face failure positively"), and the other two items came from the Emotional Competency Inventory (Sala, 2002) (e.g., "Spots potential conflicts and brings disagreements into the open and helps deescalate"). Factor analysis on these 8 items at the individual level indicated a single factor which explained 69.5% of the variance. Employees responded to each item using a 5-point Likert scale ranging from 1 (*strongly disagree*) to 5 (*strongly agree*).

In the current study, the overall Cronbach's alpha of emotional intelligence was .97 and the alphas for the four dimensions were SEA (.94), OEA (.92), UOE (.82), and ROE (.97), which are quite similar to the reliability estimates reported by Wong and Law (2002).

3.2.2. Transformational leadership

The Multifactor Leadership Questionnaire (MLQ-Form 5X-Short; Bass & Avolio, 2000) was used to assess the transformational leadership style of team leaders. The questionnaire instructed employees to judge how often team leaders displayed each of 20 different transformational leadership behaviors along a 5-point rating scale ranging from 1 (*not at all*) to 5 (*frequently, if not always*). Sample items for each of the five dimensions of transformational leadership include: (a) *Idealized Influence (Attributed),* "Displays a sense of power and confidence"; *(b) Idealized Influence (Behavior),* "Emphasizes the importance of having a collective sense of mission"; *(c) Inspirational Motivation,* "Articulates a compelling vision of the future"; *(d) Intellectual Stimulation*, "Suggests new ways of looking at how to complete assignments"; and *(e) Individual Consideration*, "Spends time teaching and coaching." Judge and Piccolo (2004), in a meta-analysis, reported that these dimensions of transformational leadership exhibited high reliability as well as validity. Results of a factor analysis at the team-level confirmed a one-factor solution with an eigenvalue of 4.47 and a factor that explained 91.33 of total item variance. Cronbach's alpha for this overall transformational leadership measure was .97.

3.2.3. Leader effectiveness

Four items from the Multifactor Leadership Questionnaire (Bass & Avolio, 2000) were used to measure perceived leader effectiveness (e.g., "Is effective in meeting my job related needs"). Items were rated on a 5-point scale, ranging from 1 (*not at all*) to 5 (*frequently, if not always*) and Cronbach's alpha was .94.

3.2.4. Service climate

Service climate was assessed using an eight-item scale developed by Schneider et al. (1998), called the Global Service Climate Scale. All items were scored on a 5-point rating scale, ranging from 1 (*poor*) to 5 (*excellent*). An example is: "How would you rate the overall climate for service in your department?" Cronbach's alpha for this scale was .90.

3.2.5. Team effectiveness

Eight items from among three extant effectiveness scales were selected to capture the full range of team effectiveness: three items were taken from a scale originally developed by Hackman (1987) which was further validated by De Dreu (2007); three items were adopted from Schaubroeck et al. (2007); and two items came from Tsui, Pearce, Porter, and Tripoli (1997). The phrasing of the latter two items was changed slightly in an effort to fit the particular South Korean public-sector setting and to highlight the innovative aspects of team functioning. Items were scored on a 5-point scale, ranging from 1 (*strongly disagree*) to 5 (*strongly agree*). Sample items include: "The employees of our team are good in coming up with ways to complete their tasks" and "The employees of our team get their work done very effectively." Cronbach's alpha for the index was .80.

3.2.6. Control variables

In addition to the substantive measures described above, we included several control measures using data from the organization's human resource records. Because demographics might account for variance in emotional intelligence (Mayer, Salovey, & Caruso, 2004), we controlled for age and education level of the focal 55 team leaders. Actual team size ($M = 32$, range $= 11$–50) was included as a team-level control variable. Coding for the categorical control variables is shown in Table 2.

3.3. Analytical procedures

Because the data were based on perceptions of employees, we wanted to mitigate same-source contamination as much as possible. As suggested by Ostroff, Kinicki, and Clark (2002), we randomly allocated the members within each of the 55 teams to one of three subgroups, A, B, or C. Subsequent emotional intelligence scores were then based on scores from subgroup 'A' aggregated across the 55 teams ($N = 287$), transformational leadership scores were based on scores from subgroup 'B' ($N = 286$), and lastly, the three outcome variables (e.g., leader effectiveness, team effectiveness, and service climate) were based on scores from subgroup 'C' ($N = 286$).

Although most of the scales in this study have been validated in previous studies, one may question whether they were empirically distinct in our study. Therefore, we conducted LISREL confirmatory factor analyses to verify the fit of the hypothesized five-factor model (see Fig. 1). These tests were conducted at the individual level ($N = 859$) and results showed that the hypothesized five-factor model fit the data reasonably well. The chi-square and fit indexes were $\chi^2 = 14,595$, $df = 1700$; the root-

Table 2
Means, standard deviations, and correlations at the team level. [a]

	M	SD	1	2	3	4	5	6	7	8
1. Age	53.11	4.73	–							
2. Education [b]	1.71	.46	−.36**	–						
3. Team size	25.65	7.68	.01	−.19	–					
4. Emotional intelligence	3.41	.49	−.02	−.10	−.01	(.97)				
5. Transformational leadership	3.44	.53	.07	−.27*	.06	.46***	(.97)			
6. Leader effectiveness	3.58	.51	.05	−.17	−.09	.35**	.66***	(.94)		
7. Team effectiveness	3.81	.27	−.27	.07	.04	.14	.25	.48***	(.80)	
8. Service climate	3.63	.31	−.11	−.01	−.11	.31*	.38**	.64***	.73***	(.90)

[a] $N = 55$. Internal consistency reliabilities are in parentheses along the diagonal. The correlations were derived from the split samples.
[b] The levels of education of team leaders were coded: 1 = high school, or college school, 2 = Bachelor degree, or above.
   * $p < .05$.
  ** $p < .01$.
 *** $p < .001$.

mean square error of approximation (RMSEA) = .09; comparative fit index (CFI) = .83; and standardized root mean square residual (SRMR) = 0.10. These results indicated a marginal model fit and supported the discriminant validity of the key measures in this study.

Ratings of team leaders were aggregated at the team level because we were interested in the collective perceptions of leader behaviors and leader emotional intelligence. Mean scores for subgroups A and B, within a particular team, were used to calculate emotional intelligence and transformational leadership scores respectively for the leader of that team and subgroup C scores were used to calculate scores for the various outcome variables. Aggregating emotional intelligence and transformational leadership scores was deemed justifiable in this study because of significant intra-class correlations (ICC1 and ICC2) as well as within-group agreement indexes (r_{WG}). The ICC1 and ICC2 values for emotional intelligence were .17 ($p < .01$), and .80, respectively. Transformational leadership showed an ICC1 value of .16 ($p < .01$) and an ICC2 value of .76. Bliese (2000) has stated that ICC1 values close to .20 indicate that group-level analyses are appropriate. Ostroff and Schmitt (1993) have suggested that ICC2 values of .60 or above indicate that group means are reliable and that subsequent analyses are warranted. In addition, the average $r_{WG(J)}$ of emotional intelligence and transformational leadership across the 55 teams was .80 and .85, respectively. Generally, an $r_{WG(J)}$ greater than .70 is desirable and higher values of $r_{WG(J)}$ reflect stronger within-group agreement (James, Demaree, & Wolf, 1984).

Ratings of leader effectiveness, team effectiveness, and service climate were also aggregated across employees within each of the 55 teams. According to Chan's (1998) referent-shift consensus model, aggregating individual perceptions can be justified when survey items have been written in such a way that they refer to the team as a whole, instead of to individuals. Kozlowski and Klein (2000) have argued that this is consistent with the conceptual underpinnings of unit-level constructs such as climate and group-wide efficacy.

To justify further the aggregation of ratings for all variables in the model, we calculated inter-rater agreement by computing James et al.'s $r_{WG(J)}$. The mean $r_{WG(J)}$ values for leader effectiveness was .80 whereas the values for team effectiveness and service climate were .84 and .83, respectively. We then conducted one-way analyses of variance (ANOVA) to examine between-group variances for the variables of leader- and team-effectiveness, and service climate. All of the ANOVAs had significant between-team effects ($p < .01$). The respective ICC1 and ICC2 values obtained from these analyses were as follows: leader effectiveness, .17 and .79; team effectiveness, .18 and .83; and service climate, .15 and .80. Thus, data aggregation was justified for testing the hypotheses. Methods of testing the hypotheses included hierarchical regression analyses and structural equation modeling.

4. Results

4.1. Descriptive statistics

Table 2 presents the means, standard deviations, and group-level zero-order correlations for all variables and shows that most variables in our model were significantly and positively correlated. Table 3 presents the intercorrelations among the subdimensions of the constructs of emotional intelligence and transformational leadership. Of the four dimensions of emotional intelligence, Regulation of Emotion (ROE) was the most highly correlated with the dimensions of transformational leadership (see Table 3).

4.2. Hypotheses testing

Consistent with Hypothesis 1, emotional intelligence was positively related to transformational leadership ($r = .46$, $p < .001$), where $N = 55$. Emotional intelligence still accounted for a significant amount of variance in transformational leadership even after controlling for age, level of education of team leaders, and team size; $\beta = .43$, $p < .01$, $\Delta R^2 = .19$; $\Delta F (1, 50) = 12.95$, $p < .001$.

Hypothesis 2 predicted that transformational leadership would be positively associated with leader effectiveness (2a), team effectiveness (2b), and service climate (2c). Group-level zero-order correlations were $r = .66$, $p < .001$; $r = .25$, $p = $ ns; and $r = .38$, $p < .01$, respectively. Again we controlled for age, education of team leaders, and team size, as well as for emotional intelligence. The

Table 3
Correlation coefficients between four components of emotional intelligence and five dimensions of transformational leadership.

Emotional intelligence scores	Dimensions of transformational leadership				
	Idealized influence (attribute)	Idealized influence (behavior)	Inspirational motivation	Intellectual stimulation	Individual consideration
Total emotional intelligence score	.49 **	.38 **	.47 **	.44 **	.45 **
Self emotion appraisal (SEA)	.36 **	.27 *	.35 **	.31 *	.32 *
Others' emotion appraisal (OEA)	.45 **	.36 **	.46 **	.39 **	.40 **
Uses of emotion (UOE)	.43 **	.34 *	.43 **	.40 **	.39 **
Regulation of emotion (ROE)	.60 **	.47 **	.55 **	.55 **	.57 **

** $p < .01$.
* $p < .05$.

results presented in Table 4 show that both Hypotheses 2a and c were supported. Transformational leadership significantly predicted leader effectiveness (2a) ($\beta = .64$, $p < .001$), $\Delta R^2 = .30$; $\Delta F (1, 49) = 26.63$, $p < .001$ and service climate (2c) ($\beta = .33$, $p < .05$), $\Delta R^2 = .08$; $\Delta F (1, 49) = 4.79$, $p < .05$. However, Hypothesis 2b (team effectiveness) was not supported ($\beta = .27$, $p = .082$).

Hypothesis 3 predicted that the individual relationships between emotional intelligence and the three outcome variables: leader effectiveness, team effectiveness, and service climate would be mediated by transformational leadership. To test Hypothesis 3, we used the three-equation approach recommended by Baron and Kenny (1986) who note that a mediating effect is demonstrated when the following conditions apply: first the independent variable must be related to the mediator as well as to the dependent variable; second, the mediator must significantly predict the dependent variable while holding the independent variable constant; and third, when controlling for the effects of the mediating variable, the effect of the independent variable on the dependent variable should be reduced.

The first step in this approach was to show that the independent variable, emotional intelligence, was significantly related to the mediator of transformational leadership. Emotional intelligence predicted transformational leadership even after controlling for age, education, and team size ($\beta = .44$, $p < .001$). The second step was to show that emotional intelligence was significantly related to the dependent variables of leader effectiveness (3a), team effectiveness (3b), and service climate (3c), and the results partially supported these hypotheses (see Table 4). Hypotheses 3a (leader effectiveness) and c (service climate) were supported ($\beta = .34$ and $\beta = .31$, $p < .05$, respectively); however, Hypothesis 3b (team effectiveness) was not supported ($\beta = .14$, ns). The third step in Baron and Kenny's (1986) approach is to run a regression of both the independent variable and the mediator in relation to the dependent variable: full mediation is supported when the relationship between the independent variable and dependent variable is not significant once the mediator is controlled for. As shown in Table 4, once the effect of transformational leadership was controlled for, the relationships of emotional intelligence with leader effectiveness ($\beta = .06$, ns) and service climate ($\beta = .16$, ns) were lower and no longer significant, and the relationship between emotional intelligence and team effectiveness remained non-significant ($\beta = .02$, ns).

An additional requirement for mediation is the significance of the indirect effects. The tests of these effects were based on SEM. The advantages of SEM are that some unreliability in the measures can be controlled for and that the fit of the whole model can be tested. To test the mediation effects we first included a path that linked emotional intelligence to transformational leadership and paths from transformational leadership to leader effectiveness and service climate, as well as direct and mediated paths linking emotional intelligence to leader effectiveness and service climate. Because neither emotional intelligence nor transformational leadership was related to team effectiveness at $p < .05$, we excluded team effectiveness from the model. The path model is presented in Fig. 2. The data did not quite fit the model, $\chi^2(30, N = 55) = 45.81$ ($p = .032$), comparative fit index (CFI) $= .96$, root-mean square error of approximation (RMSEA) $= .099$, standardized root-mean-square-residual (SRMR) $= .06$. Because the paths from emotional intelligence to leader effectiveness and service climate were supposed to be non-significant, we deleted them. The fit indices of this fully mediating model are good: $\chi^2(32, N = 55) = 45.32$ ($p = .06$), CFI $= .96$, RMSEA $= .088$, SRMR $= .065$.

Table 4
Hierarchical regression analyses of control variables, emotional intelligence, and transformational leadership on outcomes.

	Leader effectiveness		Service climate		Team effectiveness	
	Step 1	Step 2	Step 1	Step 2	Step 1	Step 2
Age	.00	.00	−.12	−.12	−.27	−.26
Education	−.16	−.02	−.05	.02	.00	.06
Team size	−.12	−.14	−.12	−.12	.04	.03
Emotional intelligence	.34 *	.06	.31 *	.16	.14	.02
Transformational leadership		.64 ***		.33 *		.27
ΔR^2		.30 ***		.08 *		.06
R^2	.16	.45 ***	.12	.20 *	.09	.15

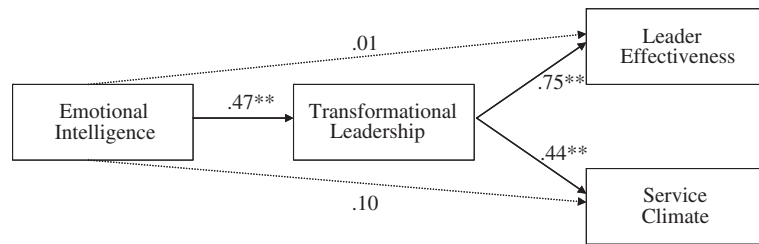*Note.* Coefficients presented are betas.
* $p < .05$.
*** $p < .001$.

Fig. 2. Hypothesized path model with standardized coefficients. The dotted lines are non-significant paths. **$p<.01$.

This model was compared with several alternative models and the results for these models are presented in Table 5. Model 1 is the fully mediating model mentioned above. A direct path from emotional intelligence to leader effectiveness was added in model 2; a direct path from emotional intelligence to service climate was added in model 3; and both direct paths were added in model 4. We were able to test if model 1 differed from the alternative models because model 1 was nested within models 2, 3, and 4. However, the results for $\Delta\chi^2$ were non-significant and low in each instance (see Table 5). Models 5 through 8 were tested to investigate the effects of changing the construct order. The fit statistics of these models were worse and some paths in models 6 and 8 were non-significant. Results of model 5 were particularly notable because the results showed that emotional intelligence was not a mediator between the outcome variables and transformational leadership. Therefore, we concluded that model 1 was the best model.

In support of Hypothesis 1, model 1 showed that emotional intelligence was positively associated with transformational leadership ($\beta=.47$, $p<.01$). Consistently, transformational leadership was positively linked to leader effectiveness (2a) ($\beta=.74$, $p<.01$) and to service climate (2c) ($\beta=.49$, $p<.01$).

We used the Sobel test to investigate if the indirect effects were significant. Significant indirect effects would indicate that the addition of transformational leadership to the model significantly decreased the direct effects of emotional intelligence. The results showed that emotional intelligence had an indirect effect through transformational leadership on leader effectiveness ($z=2.32$, $p<.05$) and on service climate ($z=2.05$, $p<.05$). Therefore, we concluded that Hypotheses 3a and b were fully supported.

5. Discussion

The most important findings of this study are that: a) emotionally intelligent team leaders are rated as more effective by their followers, b) they are also more effective in shaping better service climates; and c) they are more effective because they exhibit more transformational leadership behaviors. The mediating role of transformational leadership adds to the theory on emotional intelligence because the finding explains why leaders high on emotional intelligence are more effective. These leaders may sense employees' reactions and be more apt to integrate emotional consideration. Such an approach will lead them to intuitively show transformational leadership behaviors, such as active listening, appreciating and sharing the internal experience of followers and generating enthusiasm, and therefore contribute to positive organizational outcomes. The finding that transformational leadership mediates the relationship between emotional intelligence and service climate is intriguing. Zhou and George (2003) proposed that emotional intelligence of a leader could play an important role in promoting employee creativity through the behaviors the leader engages in. The results of the current study provide empirical evidence for this proposition by establishing transformational leadership as a mediator between emotional intelligence and team outcomes. Leaders' intrinsic ability in emotional intelligence enables them to channel their behaviors in the direction of transformational leadership which ultimately affects followers' perceptions of leader effectiveness and service climate.

The relatively high correlations between Regulation of Emotion and the dimensions of transformational leadership provide further insight into the relationship between emotional intelligence and transformational leadership. Regulation of Emotion concerns the ability to recover rapidly from psychological distress or negative emotions and the ability to control one's temper and handle difficulties rationally (Wong & Law, 2002). An example of this is when a leader is confronted with a difficult situation and

Table 5
Comparison of structural equation models.

Model and structure	χ^2	df	$\Delta\chi^2$	RMSEA	CFI	SRMR
1. EI → TL → LE + SC	45.32	32		.088	.96	.06
2. EI → TL → LE + SC and EI → LE	45.72	31	.40	.094	.97	.06
3. EI → TL → LE + SC and EI → SC	45.72	31	.40	.094	.97	.06
4. EI → TL → LE + SC and EI → LE + SC	45.81	30	.49	.099	.97	.06
5. TL → EI → LE + SC	67.35	32		.140	.94	.16
6. LE + SC → TL → EI	45.32	31		.092	.97	.065
7. LE + SC → EI → TL	67.35	31		.150	.94	.16
8. EI + TL → LE + SC	45.72	30		.099	97	.06

Note. EI = emotional intelligence; TL = transformational leadership; LE = leader effectiveness; SC = service climate.

must suppress feelings of self-doubt in order to express a positive front to his or her employees. The ability to regulate one's emotions has been argued to have a substantial impact on the management function because those who can do so cope better with stress (George, 2000; Lopes et al., 2004). Moreover, negative emotional tone, set by a leader probably tends to ripple outward with remarkable power within the organization (Frost, 2004).

The majority of research in the domain of emotional intelligence focuses on the role of managerial emotional intelligence in leader–member dyadic relationships (e.g., Barling et al., 2000; Gardner & Stough, 2002; Wong & Law, 2002). However, Ashkanasy and Jordan (2008) have called for a multilevel perspective. To the best of our knowledge, our study is the first to relate leader emotional intelligence to team-level outcomes. Multi-level analysis is not required in our study because we are able to aggregate all ratings to the team-level.

The construct of emotional intelligence is relatively new to many Korean public-sector organizations. Nevertheless, our findings are consistent with emotional intelligence and leadership theories that have been developed and tested primarily in Western countries. Our study contributes to the literature by demonstrating the external validity of these theories in a non-Western setting. In this study, the correlation between transformational leadership and leader effectiveness is notably high (i.e., .66, $p<.001$) even when controlled for same-source bias. This correlation is somewhat in line with the meta-analysis by Judge and Piccolo (2004), and indicates that transformational leaders are also perceived as effective in South Korea. These results are all the more interesting when one considers that South Korean is often described as having a bureaucratic culture influenced by Confucianism (Frederickson, 2002) which may cause team leaders to maintain the status quo, rather than undertake transformational actions.

Contrary to expectations, neither emotional intelligence nor transformational leadership predicts team effectiveness in this study. There may be several explanations for this. First, the path is marginally significant at $p<.01$ and it is possible the effect is not detectable because of the sample size. Second, upon hearing the results, the senior Human Resource manager from corporate headquarters told us that the team leaders had been managing their current teams less than two years. Hence, we speculate that the relatively short working experience with their followers may have limited their influence. A third possibility concerns the wording of the survey items. Items in the current measures reflect more task- and results-oriented work competences and do not include interpersonal aspects of team performance. Sample items such as "Employees of our division are very competent" and "The employees of our division get their work done very effectively" illustrate this point. Future studies might focus on the effect of emotional intelligence on more varied aspects of team performance. Other studies show that individual-differences variables such as job satisfaction, affective commitment, and citizenship behaviors also predict team/group efficiency or effectiveness (see Kim, 2004; Koys, 2001). Thus, it is reasonable to expect that follower variables are related to team effectiveness. Additional variables that predict team effectiveness such as team values (Schaubroeck et al., 2007); team empowerment (Kirkman & Rosen, 1999); and team-level potency (Campion, Medsker, & Higgs, 1993) also need to be studied.

5.1. On limitations and future research directions

Our methodology and data collection contain strengths as well as weaknesses. A strength is how same-source bias has been controlled. We acknowledge the cross-sectional nature of the data and the use of perceptual measures; however, perceptual measures are also helpful in that the ratings come through the lens of direct followers; those who have daily contact with, and ample opportunity to observe, their team leaders. Ratings of emotional intelligence and leadership style from followers are typically less biased than self-report measures. For example, research shows that self-report measures of ability and actual ability are only minimally correlated (Davies, Stankov, & Roberts, 1998).

The single organizational context in which we examined the hypothesized relationships permits us to control cross-industry and cross-firm variance (Bettencourt & Brown, 1997), although it limits the generalizability of the findings. Emotional intelligence may be more important to effective leadership for some occupations than for others (Humphrey, 2000; Wong & Law, 2002). It is plausible that jobs which require more contact with employees or customers, such as in the service sector, might create environmental pressures to increase one's emotional intelligence. Similarly, managers may find themselves in environments that hinder development of their emotional skills. It is important to understand how these potential contingencies affect the relationship between emotional intelligence and leader effectiveness.

This study does not consider the dynamic nature of emotional intelligence in the workplace because we did not collect longitudinal nor qualitative data. Therefore ratings of team leaders may be biased (Ostroff, Atwater, & Feinberg, 2004). Leader–Member Exchange (LMX) denotes the quality of the relationships between employees and their supervisors (Graen & Uhl-Bien, 1995) and evidence suggests that LMX can affect employees' perceptions of leaders (Wang et al., 2005). One may expect that followers rate team leaders with whom they have better relationships more leniently. Moreover, LMX is related to group, as well as individual performance (e.g., Liden, Erdogan, Wayne, & Sparrowe, 2006). Although response bias can not have affected the results at the individual level, the nature of leader–member interactions at the team level should be controlled for to rule out an alternative explanation of the findings.

5.2. Managerial implications

Understanding precisely how emotional intelligence relates to effective leadership and service climate has practical implications, particularly in the areas of selection and management development. Leaders need more than just technical and traditional managerial skills; they need well-honed transformational leadership competencies, which require having emotional intelligence. Our findings support the idea that organizations should select people who have high levels of emotional intelligence

because it is precisely those people who have the potential to become transformational leaders. In fact, in The Netherlands some recruiting firms make already a practice of testing for emotional intelligence. Organizations can also build emotional intelligence into their managerial training programs. Despite the evidence for seeing Emotional Intelligence as a personality trait, emotional intelligence as well as transformational leadership can be developed through training (e.g., Barling, Weber, & Kelloway, 1996; Riggio & Lee, 2007) and simultaneous training on both may offer considerable benefits to individual leaders and organizations. Pesuric and Byham (1996) report that after supervisors received training in emotional competencies (such as how to listen and how to help employees resolve problems on their own), lost-time accidents were reduced by 50%; formal grievances declined from an average of 15 per year to three per year; and that a manufacturing plant exceeded its productivity goals by a quarter million dollars.

Furthermore, a number of studies show that revenue growth can be increased by improving customer satisfaction (Schneider et al., 2005). Fostering customer satisfaction by improving service climate places demands upon team leaders who need to make clear that customer service is a priority (Schneider et al., 1998). A service climate can be cultivated and nurtured by the top management of an organization who typically design the organizational-wide compensation structure and set processes for interdepartmental communications and customer service policies (Hui et al., 2007). Along with recent studies on managerial personality as an antecedent of service (Salvaggio et al., 2007) and justice climate (Mayer, Nishii, Schneider, & Goldstein, 2007), this study underlies the importance of managerial emotional intelligence for developing a climate for service.

Given that service climate and transformational leadership style have been shown to make a difference in terms of team and organizational performance (Salanova et al., 2005; Schneider et al., 2005), our results may guide new research that aims to capture the potentially business-enhancing effects of combining emotional intelligence and transformational leadership style in service settings.

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