Developing Emotional Intelligence Abilities Through Team-Based Learning

Nicholas Clarke

A few studies have appeared in the literature suggesting that team learning might be an effective means for developing emotional intelligence (EI) abilities in the workplace. This study investigated the effects of attending a one-day emotional intelligence training session followed by participating in team-based learning on ability-based measures of emotional intelligence in a sample of MBA students. Training alone had no effect but when followed by participating in team-based learning positive effects were found, but only for those who were categorized as participating more intensively in team learning and only on one specific emotional ability. The findings suggest that greater participation in team-based learning may create stronger relational bonds that support the development of emotional abilities once individuals have gained personal insights into their own emotional intelligence.

Although initially popularized by Goleman (1995), the concept of emotional intelligence (EI) has since become a confusing area for many managers and practitioners, because of the increasing number of models that can now be found in the literature. These have been categorized as (a) ability (Salovey & Mayer, 1990), (b) personality (Petrides & Furnham, 2001), (c) competence (Goleman, 1995), and (d) mixed models (Bar-On, 1997; Dulewicz, Higgs, & Slaski, 2003). Although the term emotional intelligence collectively can refer to all these models, they in fact each represent very different perspectives on what is to be included within the concept. This gives rise to competing definitions of EI and, consequently, very different approaches for its measurement. One of the central problems to arise is that despite using the same term, authors are often measuring very different things, such that the predictive power of the
construct for explaining behavior, particularly in work settings, will vary according to the particular model being used.

Many practitioners will be familiar with the competence model of emotional intelligence that was initially developed by Goleman (1995, 1998). However, this has been subject to considerable criticism for lacking construct validity (Zeidner, Matthews, & Roberts, 2004). For example, Goleman includes many competences, such as assertiveness and motivation, that many argue lay outside the construct’s domain. Mixed models, such as that developed by Bar-On (1997), also include aspects such as stress management and general mood that have been criticized on similar grounds. By contrast, increasing evidence for the construct validity of the ability model has grown over the past decade (Daus & Ashkanasy, 2005; Mayer, Roberts, & Barsade, 2008; Zeidner et al., 2004). The ability-based model of EI views emotional intelligence as integrating four distinct cognitive abilities that involve differences in how individuals process emotional information. In this respect the construct is defined far more narrowly, and shares little overlap with other existing measures for assessing individual difference, such as personality. The four emotional abilities that comprise the ability model of EI are (a) Accurately perceiving emotion in oneself and others, (b) Using emotions to facilitate thinking, (c) Understanding emotion, and (d) Managing emotions in oneself and others (Mayer et al., 2008). Empirical findings have found the ability model of emotional intelligence to be directly associated with a wide range of important work-related outcomes, including decision making and negotiation (Day & Carroll, 2004; Mueller & Curhan, 2006) and leadership (Kerr, Garvin, Heaton, & Boyle, 2006; Leban & Zulauf, 2004). These abilities may also be indirectly related to other important work-related criteria, as they seem to influence an individual’s capacity to form effective social relations (Brackett, Rivers, Shiffman, Lerber, & Salovey, 2006; Lopes, Salovey, & Straus, 2003) and are linked to aspects of psychological well being (Brackett & Mayer, 2003; Brackett et al., 2006). Importantly, a considerable body of research over the past decade has also focused on developing and refining an appropriate instrument (the MSCEIT) for measuring these emotional intelligence abilities, an instrument that is widely recognized as possessing sound psychometric properties (Mayer et al., 2008).

This background illustrates why development of these EI abilities is of interest to managers and human resources (HR) specialists alike (Clarke, 2007; Ku Fan & Cheng, 2006; Weinberger, 2002). Although interventions for developing emotional capabilities in children have been undertaken for some time and have met with some positive results (Zins, Travis, & Freppon, 1997), interventions aimed at developing emotional capabilities in adults are a much more recent activity spurred by the growing interest in the concept of emotional intelligence commercially and within organizations themselves (Cherniss & Caplan, 2001). Importantly, a recent study by Wong, Foo, Wang, and Wong (2007), using the ability model of emotional intelligence, found that significant amounts of variance in an individual’s EI were left unaccounted for after...
controlling for both personality and parental levels of emotional intelligence. This led these authors to suggest that there was some scope for developing these emotional abilities beyond childhood and into later life.

However, despite claims that emotional intelligence more generally can be developed through organization-sponsored activities such as training (Bar-On, 2003; Dulewicz & Higgs, 2004), actual evidence is meager at best. The results of training evaluation studies to date also remain far from convincing (Clarke, 2006a). A significant limitation is that many of these studies often rely on self-report measures of emotional intelligence that can be susceptible to both social desirability effects and faking (Spector, 1994; Whitman, Van Rooy, Viswesvaran, & Alonso, 2008). In his review, Clarke (2006a) concluded that there was minimal evidence to support claims that many short-course training programs are actually effective. A further limitation he highlighted was the dearth of both theoretically informed and empirically tested studies to underpin interventions focusing on EI abilities rather than alternative conceptualizations of EI (e.g., Dulewicz & Higgs, 2004; Sala, 2006; Slaski & Cartwright, 2003). As an alternative to using stand-alone short-course training programs, two studies have appeared in the literature that have evaluated the effects of team-based learning interventions for developing emotional intelligence abilities (Groves, McEnrue, & Shen, 2008; Moriarty & Buckley, 2003). Both of these studies showed some positive effects; however, a limitation was that both assessed EI abilities with the use of performance peer ratings rather than an objective ability-based test, such as that offered by the MSCEIT. It is possible then that these positive findings reflect improvements in the motivation of individuals to use their EI abilities rather than any actual development in the EI abilities themselves. Team-based learning might simply then only be increasing individuals’ motivation to use their current EI abilities.

This study therefore aims to make a contribution to the literature in two major ways. First, through using an objective ability-based test of EI, it attempts to identify the effects of a team-based learning intervention on actual EI abilities themselves, thereby minimizing the confounding effects of participant motivation to use EI abilities. Second, it is the first study to appear in the literature that seeks to broaden the literature on EI development through investigating additional factors that may be associated with the effectiveness of the intervention, rather than merely evaluating its impact. This is accomplished through examining whether the development of EI abilities through team-based learning is influenced by a participant’s age, gender, or the extent of his or her involvement in team-based learning itself.

The article is now structured as follows. First, a synthesis and review of the relevant literature is provided that puts forward a clear theoretical rationale to explain why team-based learning is likely to influence the development of EI abilities. This is followed by the specific research questions and hypotheses that directed the study, and a description of the sample of UK MBA students on which the study is based. Details of the development intervention are
then provided in order to inform comparisons with the effects of differing interventions in any future studies. The results are then presented, showing some partial support for the positive impact of the intervention on participants’ EI abilities. However, this was found to be dependent upon the extent of participation in team-based learning. An explanation is then offered to explain these findings before considering their implications for the design of future development interventions in this area.

Developing Emotional Intelligence Abilities Through Team-Based Learning: Theory Development and Hypotheses

A number of authors have suggested that workplace learning interventions may be effective in developing individuals’ emotional intelligence (Clarke, 2006b; Freshwater & Stickley, 2004). These refer to opportunities for learning and development that occur specifically in the workplace milieu and include learning that arises while performing the job itself (Clarke, 2004; Van der Sluiss, Williams, & Hoeksema, 2002), as well as through participating in teams, projects, special assignments, and coaching (Baron et al., 1999; Blumenfield, Soloway, Marx, Krajcik, & Palincsar, 1991; Evered & Selman, 2001; Vince, 2004). Clarke (2006b) argued that workplace learning methods might be effective in developing emotional abilities, based upon qualitative findings he obtained from a study of hospice workers. He showed how the ongoing use of emotional knowledge within teams and arising from performing the job itself was connected to the exercise of these emotional abilities, and this meant that they improved over time. For a number of these workers, this occurred through emotions being a focus of dialogue and reflection with their colleagues, peers, and supervisors. In some instances this development also seemed to occur through a more tacit form of learning, but through reflection and dialogue in the workplace a more conscious awareness of these abilities became possible. A number of key propositions regarding the development of emotional abilities in the workplace arose from that study.

**Proposition 1:** According to social learning theory and specifically the concept of communities of practice (Lave & Wenger, 1991), individuals are likely to make sense of emotional abilities and negotiate their meanings through participation in workplace social structures. It is through participation in these learning communities, particularly in joint problem solving, that opportunities are provided for experiential learning relating to emotional experiences, and these occur far more frequently in the workplace than in training programs.

**Proposition 2:** Reflection and dialogue within social structures such as teams should enable individuals to share and develop their understanding of emotions, thereby offering them an opportunity for exercising and developing specific emotional
abilities. This results in a form of neuroplasticity, where the increased use of these abilities results in strengthening neural connections, which leads to the further strengthening of these abilities (Edelman, 1987; Zull, 2002). Clarke (2006b) referred to this latter process, specifically in this context, as “emotional knowledge work.”

**Proposition 3:** Through a greater identification with workplace communities, participation in these social structures increases, thereby facilitating more opportunities for the exchange of emotional knowledge and reflection (Brown & Duguid, 1991; Gheradi, Nicolini, & Odella, 1998), and consequently the development of these emotional abilities.

**Proposition 4:** Workplace learning approaches also provide greater opportunities for tacit learning (Eraut, 2000) such that there is a greater chance for individuals to develop these emotional abilities through more intuitive and unconscious learning processes, as well as through conscious processes such as modeling and observation.

Offering some cautious support for Propositions 1 and 2 are two additional studies that have reported positive findings for individuals who have participated in team-based learning interventions. Moriarty and Buckley (2003), using a team-based ability measure of EI, showed how 80 undergraduates participating in a 12-week experiential learning program on effective teamwork showed statistically significant improvements in a number of self- and peer-assessed team-ability EI dimensions compared with a comparison group. Participants were divided into teams who attended 24 hours of teaching over the 12-week period. Most of this time was spent in problem-based, self-directed experiential learning. In addition, these teams also met independently once a week on their own time. They found significant changes in a number of dimensions of a team-based ability measure of EI (WEIP; Jordan et al., 2002) on measures taken before and after the team learning intervention.

More recently, Groves et al. (2008) also found that emotional intelligence abilities increased in a sample of 75 undergraduate management students participating in an 11-week leadership development program compared with a comparison group. With the use of a measure of emotional abilities that the authors had constructed specifically for use in management development, the emotional intelligence self-description inventory (EISDI), improvements were demonstrated in all four EI dimensions and the total EI score. An important feature of the intervention was that these students used the results they had received from their initial scores on the EISDI to plan goals for developing differing EI abilities. According to the authors, this was used as a basis for individuals to then engage in ongoing dialogue with their instructor, peers, a coach, and an external source of support (e.g., boss, spouse, coworker), as they reflected upon the EI development process.
Together the findings from these few studies (Clarke, 2006b; Groves et al., 2008; Moriarty & Buckley, 2003) offer some initial empirical support suggesting that team-based learning interventions may offer a means for developing EI within organizational settings. However, additional empirical studies are needed to build and further develop our theoretical knowledge in this area. In particular, studies need to be extended to compare alternative approaches to developing these emotional intelligence abilities and to identify whether participant characteristics influence the effectiveness of alternative approaches. Given these concerns, the study sought to address the following objectives: (a) to compare the effects of participation in a 1-day EI training program with participation in training followed by team-based learning on emotional intelligence abilities, and (b) to determine whether the effects of the two interventions are moderated by either gender or age.

Specific hypotheses and their rationales follow.

**EI Development and Intensity of Participation in Team-Based Learning.**
Drawing upon social theories of learning (Billet, 1994; Gheradi, Nicolini, & Odella, 1998) and the Lave and Wenger (1991) theory of legitimate peripheral participation in particular, opportunities for learning, development, and knowledge exchange are thought to increase the more an individual participates in different social groupings. Social loafing in teams has been found to have detrimental effects on team performance and effectiveness (Erez & Somech, 1996; Mulvey, Bowes-Sperry, & Klein, 1998) and has been suggested as affecting team learning (Robbins & Finley, 2000). Specifically in relation to team-based learning, empirical research has found that the increased frequency of team meetings is associated with greater learning, especially where complex knowledge is involved (Madhavan & Grover, 1998). Other studies have shown that both the level (De Dreu & Weingart, 2003) and nature (Lovelace, Shapiro, & Weingart, 2001) of individuals’ participation in teams does indeed affect team-based learning outcomes. Given these findings and based on Proposition 2, that emotional abilities develop as a result of ongoing emotional knowledge work, the development of emotional abilities through team-based learning would seem likely influenced by the level of participation in team learning. Elsewhere a number of authors have defined this varying level of participation as individuals differing in their intensity of participation (Issel & Anderson, 2001; Wollebaek & Selle, 2002). This led to the first and second hypotheses.

**HYPOTHESIS 1:** *The emotional intelligence abilities (a) perceiving emotions, (b) using emotions to facilitate thinking, (c) understanding emotions, and (d) managing emotions will develop as a result of participation in training plus team-based learning, but not from participation in training alone.*

**HYPOTHESIS 2:** *The emotional intelligence abilities (a) perceiving emotions, (b) using emotions to facilitate thinking, (c) understanding emotions, and (d) managing emotions will develop more significantly as a result of more intensive participation in team-based learning.*
**EI Development and Participant Characteristics.** Specifically in relation to the development of emotional intelligence, gender and age have been suggested as potentially significant. For example, women have been found to be more emotionally perceptive (Brody, 1999), and it is widely held that emotional intelligence covaries with gender (Ciarrochi, Chan, & Caputi, 2000; Goldenberg, Matheson, & Mantler, 2006; Palmer, Gignac, Manocha, & Stough, 2005). The emotional abilities contained in the ability model of emotional intelligence, similar to other forms of intelligence, are also suggested to develop with age (Mayer et al., 2008). However, studies that have examined relationships between age and emotional intelligence have produced mixed results (Hemmati, Mills, & Kroner, 2004; Kafetsios, 2004; Mayer, Salovey, & Caruso, 2002). As yet no studies have investigated whether gender or age might influence the potential effectiveness of EI development programs. Together these observations led to the third hypothesis.

**HYPOTHESIS 3:** The development of the emotional intelligence abilities (a) perceiving emotions, (b) using emotions to facilitate thinking, (c) understanding emotions, and (d) managing emotions is positively moderated by age and gender.

**Research Design and Method**

The study employed a pre-/posttest quasiexperimental design (Campbell & Stanley, 1963) with measures of emotional intelligence collected at the beginning of a 14-week team project (Time 1) and then again at the end of the 14-week period (Time 2). Similar to previous EI studies (Jordan et al., 2002; Moriarty & Buckley, 2003; Wolff, Pescosolido, & Druskat, 2002) the study was based upon MBA students participating in project teams. Eighty (80) full- and part-time, first-year MBA students registered to undertake a compulsory organizational behavior module were enrolled to take part in the study. In addition, 22 second-year part-time MBA students volunteered to take part in only the 1-day training component of the intervention, thereby acting as a suitable comparison group. Complete data sets were obtained from 77 of these MBA students (53 male). This was an international group of students; 36 described themselves as European, 20 as Chinese/Taiwanese, 9 as Indian, 5 as Japanese, 6 as Arabic, and 1 as African. The mean age of participants was 30.4 years (SD = 5.8); ages ranged from 21 to 47 years.

**Procedure.** Following both Moriarty and Buckley (2003) and Groves et al. (2008), all study participants (102) were initially provided with a 1-day EI training self-awareness session. Raising the self-awareness of individual participants has been suggested as important for directing attention to the nature of emotional abilities and where potential development of these abilities may be necessary (Clarke, 2006a; Lopes, Cote, & Salovey, 2006). This may be particularly critical where discussion and reflection on the emotional content of work is not characteristic of the way teams have worked together in the past.
The session began with students completing an ability-based test of EI, which was followed by four individual and group-based exercises where students considered different aspects of their own emotional intelligence abilities. An outline of the training awareness session is provided in the Appendix. Next, 80 of these students also participated in a team-based learning intervention that required them to work together in teams of four–six members to produce a written team report over a 14-week period. Students were told they could meet as often as they wanted in order to get the task done. They were also told that they should reflect on and discuss how the team was working together in order to get the task done, as well as focus on the task itself. At the end of the 14-week period, students were asked to state how often their team had met. Participants were then categorized into two groups—those who attended team meetings once a week or more over the period, and those who attended less than one meeting a week. Complete data sets were obtained from 64 MBA students participating in the experimental group (training plus team-based learning) and 13 MBA students from the comparison group (training alone). This latter group comprised four women. None of the participants taking part in the study received feedback on their test results following the first test administration, in order to minimize any confounding motivational effects.

**Measures.**

1. **Emotional Intelligence Scores.** A number of researchers suggest that ability testing of emotional abilities is far more preferable in studies than the use of self-report tests (Wong et al., 2007; Zeidner et al., 2004). The MSCEIT V2.0 is based on a cognitive model of EI that considers emotional intelligence to arise from an individual’s capacity to reason and problem solve with and about emotions (Mayer, Salovey, Caruso, & Sitarenios, 2003). The test contains 141 items that are grouped into eight tasks that correspond to the four branches of emotional abilities: (a) perceiving emotion (B1), (b) using emotion to facilitate thought (B2), (c) understanding emotions (B3), and (d) managing emotions (B4). Previously, reliabilities for each of the scales have been reported as 0.90, 0.76, 0.77, and 0.81 for each of the four branches in order and 0.91 for the full scale (Mayer et al., 2002). Scores for each of the branches are computed by the test administrators (MHSassessments.com). Reliabilities for these scales in this study were found to be satisfactory at 0.85 (B1), 0.82 (B2), 0.72 (B3), 0.68 (B4), and 0.75 for the total EI scale, respectively.

2. **Gender and Age.** Participants were required to write in their age and gender on the pen-and-paper test version of the MSCEIT. Measures of gender were obtained by a simple dichotomous categorical coding. Previous studies examining age have found mixed results for age where the participants on average were in their thirties (Hemmati et al., 2004; Kafetsios, 2004). Wong et al. (2007) suggested, however, that age was more likely to be a key factor influencing EI for individuals in their twenties, because of the considerable life choices people face at this age, and found some support for this. This would seem to suggest that an interaction between age and EI may more likely to be
found in individuals under 30 than those over 30. As a result it was decided to dichotomously code age as either (1) aged 30 and under and (2) aged 31 and over, in order to reflect these recent findings.

3. Intensity of Participation in Team-Based Learning. Similar to Wollebaek and Selle (2002), intensity of participation was operationalized as the amount of time spent participating. In the context of the current study this was seen as comprising how often an individual met with his or her team over the course of the 14-week period. Measures of frequency of attendance at team meetings were obtained by asking participants to indicate how often they managed to attend their team meetings outside class hours on a scale of 1–5, where 1 = less than once a fortnight, 2 = about once a fortnight, 3 = about once every 10 days, 4 = about once a week, and 5 = more than once a week. Individual scores were then subsequently dichotomized as either 1 = less than once a week and 2 = once a week or more.

Data Analyses. Participants were categorized into three groups: (a) those receiving only EI training, (b) those receiving EI training followed by participation in team meetings less than once a week (low participation), and (c) those receiving EI training followed by participation in team meetings once a week or more (high participation). Initial tests began with examining correlations between all variables involved in the study. This was followed by undertaking a multivariate analysis of variance with the use of a repeated-measures design (MANOVA). Time was entered as the within-subject factor name with two levels (pre- and posttest) with each of the EI branch and overall EI scores entered as measures. Treatment condition was then entered as a between-subjects factor with three levels (training, training plus low participation in teams, training plus high participation in teams). Both age and gender were entered as covariates in the model. This produced a 2 × 3 × 2 factorial design. Initial positive results suggested follow-up univariate analyses were necessary. The software program SPSS for Windows (Version 14.0; SPSS Chicago, IL, USA) was used for all statistical analyses.

Results. Means, standard deviations, and correlations between measures are presented in Table 1. The number of significant correlations between each of the four emotional abilities—B1, B2, B3, and B4—confirm that these abilities are related to one another within an overall construct, emotional intelligence. Initial MANOVA tests examined both between- and within-subjects effects.

Results indicated significant difference between EI measures only for gender, $F(5,72) = 4.41, p < 0.01$. Results for between-subject effects for both treatment condition, $F(5,72) = 2.10, p < ns$, and age, $F(5,72) = 0.58, p < ns$, were insignificant, suggesting no significant differences in EI distribution within each treatment condition. Within-subjects effects indicated significant differences between pre- and post-EI measures, $F(5,72) = 2.97, p < 0.05$, and for interaction effects between treatment condition and time, $F(5,54) = 2.87, p < 0.05$. Interaction effects between treatment condition and both age,
<table>
<thead>
<tr>
<th>Variable</th>
<th>Mean</th>
<th>SD</th>
<th>1</th>
<th>2</th>
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<th>10</th>
<th>11</th>
<th>12</th>
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<tbody>
<tr>
<td>1. B1 (pretest)</td>
<td>90.70</td>
<td>16.20</td>
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<td>2. B2</td>
<td>90.80</td>
<td>18.64</td>
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<td>0.62**</td>
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<td>3. B3</td>
<td>86.62</td>
<td>15.90</td>
<td>0.35**</td>
<td>0.49**</td>
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<td>4. B4</td>
<td>89.15</td>
<td>15.70</td>
<td>0.35**</td>
<td>0.50**</td>
<td>0.43**</td>
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<td>5. Total emotional intelligence (EI)</td>
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<tr>
<td>6. B1 (posttest)</td>
<td>93.42</td>
<td>12.70</td>
<td>0.59**</td>
<td>0.39**</td>
<td>0.28*</td>
<td>0.23</td>
<td>0.50**</td>
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<td>7. B2</td>
<td>93.15</td>
<td>15.98</td>
<td>0.46**</td>
<td>0.58**</td>
<td>0.35**</td>
<td>0.27*</td>
<td>0.50**</td>
<td>0.46**</td>
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<td>8. B3</td>
<td>87.45</td>
<td>15.22</td>
<td>0.26*</td>
<td>0.38**</td>
<td>0.75**</td>
<td>0.26*</td>
<td>0.52**</td>
<td>0.24*</td>
<td>0.48**</td>
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<td>9. B4</td>
<td>90.32</td>
<td>12.45</td>
<td>0.26*</td>
<td>0.43**</td>
<td>0.23</td>
<td>0.63**</td>
<td>0.50**</td>
<td>0.28*</td>
<td>0.29*</td>
<td>0.21</td>
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<td>10. Total EI</td>
<td>86.69</td>
<td>13.70</td>
<td>0.57**</td>
<td>0.60**</td>
<td>0.59**</td>
<td>0.43**</td>
<td>0.71**</td>
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<td>0.78**</td>
<td>0.72**</td>
<td>0.53**</td>
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<td>11. Age</td>
<td>30.4</td>
<td>5.8</td>
<td>-0.23</td>
<td>-0.31</td>
<td>-0.06</td>
<td>-0.08</td>
<td>-0.20</td>
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<td>-0.06</td>
<td>-0.12</td>
<td>0.18</td>
<td>0.02</td>
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<td>12. Frequency</td>
<td>3.9</td>
<td>0.85</td>
<td>0.37**</td>
<td>0.34**</td>
<td>0.30*</td>
<td>0.00</td>
<td>0.37**</td>
<td>0.25*</td>
<td>0.18</td>
<td>0.20</td>
<td>0.01</td>
<td>0.26</td>
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<td>13. Duration</td>
<td>4.5</td>
<td>1.08</td>
<td>0.15</td>
<td>0.10</td>
<td>0.04</td>
<td>0.06</td>
<td>0.10</td>
<td>0.23*</td>
<td>0.23*</td>
<td>0.07</td>
<td>0.10</td>
<td>0.23</td>
<td>0.14</td>
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</table>

*p < 0.05.

**p < 0.01.
F(5, 72) = 2.04, p < ns, and gender, F(5, 72) = 0.73, p < ns, were not significant. Hypothesis 3 was therefore not supported.

Results from univariate analysis of variance (ANOVA) tests (Table 2) indicated differences between pre- and postscores only for one branch of emotional intelligence, using emotions to facilitate thinking, and this was significantly influenced by treatment condition, F(5, 72) = 6.18, p < 0.01.

Following these results, a series of tests were undertaken to determine which treatment condition had resulted in positive changes in this emotional ability. The mean scores with standard deviations obtained from each condition at pre- and posttest are presented in Table 3.

Here we can see that the mean EI ability scores for those who participated more intensively in team-based learning increased from 82.06 to 96.02 (Δ13.96), whereas the mean EI ability scores for those characterized as low participation increased only marginally from 92.84 to 95.31 (Δ2.47). Results of paired t tests showed changes were only significant for those categorized in the high team participation group, t(20) = 4.89, p < 0.001, but not for those in the low-participation group, t(42) = 1.18, p < ns, or in the training-alone group, t(12) = 1.043, p < ns. Both Hypotheses 1 and 2 were therefore partially supported.

Table 2. Results of Univariate Analyses of Variance on Effects of Time and Treatment Condition on Emotional Intelligence (EI) Measures

<table>
<thead>
<tr>
<th>Variable</th>
<th>Type III Sum of Squares</th>
<th>df</th>
<th>F</th>
<th>Significance</th>
</tr>
</thead>
<tbody>
<tr>
<td>Perceiving emotions</td>
<td>107.19</td>
<td>2</td>
<td>0.72</td>
<td>0.49</td>
</tr>
<tr>
<td>Using emotions</td>
<td>1,024.53</td>
<td>2</td>
<td><strong>6.18</strong></td>
<td><strong>0.01</strong></td>
</tr>
<tr>
<td>Understanding emotions</td>
<td>75.73</td>
<td>2</td>
<td>0.65</td>
<td>0.53</td>
</tr>
<tr>
<td>Managing emotions</td>
<td>3.41</td>
<td>2</td>
<td>0.02</td>
<td>0.98</td>
</tr>
<tr>
<td>Overall EI score</td>
<td>293.58</td>
<td>1</td>
<td>0.22</td>
<td>0.12</td>
</tr>
</tbody>
</table>

Table 3. Means and Standard Deviations of Emotional Ability (EI) Scores: Using Emotions to Facilitate Thinking, by Time and Treatment Condition

<table>
<thead>
<tr>
<th>Source</th>
<th>Baseline Measure</th>
<th>14 Weeks Later</th>
<th>ΔEI</th>
</tr>
</thead>
<tbody>
<tr>
<td>Training (N = 13)</td>
<td>86.60 (19.40)</td>
<td>85.20 (18.75)</td>
<td>−1.40</td>
</tr>
<tr>
<td>Training and low participation in teams (N = 43)</td>
<td>92.84 (15.33)</td>
<td>95.31 (16.17)</td>
<td>2.47</td>
</tr>
<tr>
<td>Training and high participation in teams (N = 21)</td>
<td>82.06 (18.71)</td>
<td>96.02 (17.81)</td>
<td>13.96</td>
</tr>
</tbody>
</table>

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Discussion

Findings from this study have offered further empirical support for the use of team-based learning for developing particular emotional intelligence abilities. Through using an objective ability-based test, developments in EI ability itself rather than merely motivation to use EI abilities were isolated. However, a statistically significant finding was only obtained with respect to one emotional ability, using emotions to facilitate thinking. Furthermore, this was shown only for those individuals who participated in a 1-day EI awareness session, followed by more intensive participation in team-based learning (defined here as participating in team-based learning more than 1 hour per week over 14 weeks). No statistically significant changes in any other EI scores were found for either training alone, nor for training followed by low participation in team-based learning. These findings lend support, then, to the notion that after being initially exposed to self-awareness of emotional intelligence concepts, participation in team-based forms of learning can offer a means through which EI abilities might then develop. However, the intensity of an individual’s participation in team-based learning appears to play a key role. Of note, this finding does appear to correspond with the previous findings of Moriarty and Buckley (2003), where statistically significant improvements in EI were found after students attended an EI self-awareness session followed by participation in team meetings once a week.

However, the impact of the intervention in producing positive changes in only one of the four emotional abilities, using emotions to facilitate thinking, was unexpected. There are a number of potential explanations for this. The first may be the content of the 1-day training awareness session. Although there was a session devoted to the ability perceiving emotions, this was relatively brief. Elsewhere Elfenbein (2006) has found positive results for the impact of training for improving the accuracy of emotion recognition; however, the training she reported appears to offer more intense and repeated feedback on emotional recognition accuracy than that offered on the training session here. In the absence of sufficient feedback regarding the accuracy of emotional recognition, this ability may simply not develop through further team-based learning, despite participants having been exposed to an increased awareness of emotional perception. Similarly, in relation to the ability managing emotions, the training session focused on impulse control and was designed to raise awareness of how individuals manage their emotions and to increase their understanding of how their emotions influence their behaviors. On closer examination, it seems likely that the exercise here may have simply increased awareness of participants’ own coping strategies rather than providing any new understanding of how to better manage emotions. Activities that are designed around using better relaxation techniques or cognitive behavioral restructuring combined with regular feedback, might instead offer a far better platform for increasing the behavioral response repertoire of participants to
their own and others’ emotions. These emotion management techniques could then be practiced through team-based learning, which then might potentially help them to develop further. The failure to provide new knowledge in the initial training session could therefore explain this result.

The significance of extent of participation in team-based learning in producing a positive change in the ability using emotions to facilitate thinking might be explained as follows. Social situations at work, particularly in team contexts (Barsade & Gibson, 1998; von Glinow, Shapirom, & Brett, 2004) and projects (Peslak, 2005) have been found to generate considerable emotional experiences. From a situated learning perspective, increased participation in team-based learning enables individuals to gain greater access to the emotional knowledge held by members of the community or, in this instance, their project team. More intensive participation is also likely to facilitate the development of stronger relational ties and bonds, which promotes enhanced knowledge exchange (Madhavan & Grover, 1998), which includes emotional knowledge. It may be that the intensity of participation reflects the additional time it takes to build strong relational bonds that then enable team members to feel comfortable in addressing the emotional content in their teams. These stronger relational bonds are likely to facilitate more open dialogue, reflection, and sharing of emotional knowledge. With an increased amount of information available regarding the emotional states of the team and individual team members, and having initially gained some awareness of the importance of emotions, it may be that individuals become more conscious of the need to take emotions into consideration when making decisions or action planning.

The emotional ability understanding emotions captures an individual’s ability to understand the antecedents that cause their differing emotions, how their emotions can combine to generate different, more complex emotions, and how their emotions influence their behaviors. Following the same line of argument above, it is more difficult to explain the failure to obtain any significant changes in this ability as a result of the intervention. However, the answer could lie in that individuals spent insufficient time together during team-based learning to support the development of emotionally competent group norms. These have been shown previously to enable a group to address and discuss emotions at a deeper level (Koman & Wolff, 2008). The four emotional abilities are arranged in a hierarchical fashion, in the sense that higher emotional abilities such as understanding emotions and managing emotions draw upon the two lower abilities. It may be that far more time is needed in participating in team-based learning before there is sufficient psychological safety to promote the deeper examination of individuals’ emotions that might be necessary in order for there to be any impact on these higher emotional abilities. Previously, Daft and Lengel (1986) have suggested that innovation teams need to meet more frequently in order to interpret and give meaning to highly uncertain and complex information. Reading emotional cues and giving meaning to emotions that arise in teams is complicated and can be exacerbated when team
members are from different cultural backgrounds, or where rules of emotional
display and emotional management differ (Elfenbein & Ambady, 2002). It may
be that it is only through achieving a certain level of proximity between indi-
viduals and awareness of these subtleties that individuals might then gain
increased mastery of these emotional skills.

Peslak (2005), for example, has highlighted how emotions increased in
intensity within information-technology project teams over a 15-week period.
He showed how these teams began their projects in a lower emotional state, but
that their level of emotional involvement increased over the lifetime of the pro-
ject. This could suggest that the development of higher-order emotional abilities
within team-based learning might be better facilitated through more extensive
team-based learning interventions than that examined here. Elsewhere, studies
on the effectiveness of social and emotional competence development for chil-
dren and young people have also found the duration of the program to be a key
factor, with sustained 2-year programs being far more effective than those of
1 year (Elias et al., 1997; Payton et al., 2000). Although awareness training fol-
lowed by more intense participation over 14 weeks was found to impact the abil-
ity relating to individuals becoming more conscious of their emotions and using
these in their decision making, it could be that far longer or more intense peri-
ods are necessary in order for these additional emotional abilities to change.

Finally, it is worthwhile commenting on the differences between the base-
line scores obtained for the emotional ability of using emotions to facilitate
thinking in the high- and low-participation groups (Table 3). These were
means of 92.84 (low) and (82.06) (high), respectively. MSCEIT scores are com-
puted as empirical percentiles, with an average score of 100 and a standard
deviation of 15. The high-participation group was thus more than one stan-
dard deviation below the mean, compared with a normative sample. This find-
ing may suggest that baseline emotional intelligence levels could play some
role in determining how effective development interventions might be, for
example, that some emotional abilities might be more susceptible to develop-
ment if baseline EI is initially fairly low. Alternatively, perhaps improvements
beyond these baseline levels are more sensitive to detection by the MSCEIT.
Given that no study has yet been published that has shown developments in
EI abilities using such a test, the significance of this finding is unknown but
clearly worth noting for future studies in the area.

The findings obtained here do need to be interpreted within the limita-
tions of the study, however. The most significant limitation is the relatively
small sample size. Complete data sets were obtained from only 77 MBA stu-
dents, and although this is comparable to the populations involved in the two
previous studies in this area (Groves et al., 2008; Moriarty & Buckley, 2003),
these population sizes do pose problems in so far as threats to validity and
dangers of increasing the probability of type-I errors. However, it should be
acknowledged that many exploratory experimental studies in the areas of train-
ing effectiveness have often begun with similar, relatively small sample sizes,
especially in the early stages of theory development (Cromwell & Kolb, 2004; Ibbertson & Newell, 1998; Lim & Morris, 2006; Sirriani & Frey, 2001). Nevertheless, the small number of individuals participating in the training intervention alone, as well as the lesser number of women taking part, may have influenced the findings obtained. Finally, whereas the use of a performance-based test of emotional intelligence ability arguably represents an advance over self-report testing measures used in previous EI development research, participants might well have discussed their initial answers to the test subsequently within their teams. This could therefore have influenced their responses at the second administration.

Implications and Future Research. The study contributes to the wider literature on EI development through offering a clearer theoretical basis for understanding the possible mechanisms by which emotional abilities might develop through learning based on a social perspective of learning. This should offer a platform for future research to enable us to understand better the causal mechanisms through which emotional intelligence abilities might be enhanced. Future studies could improve on this study through using more objective measures for capturing the intensity of participation in teams. A more formal means of observation for assessing attendance in teams could offer one such mechanism. Future research might also examine the relationships between participation in teams and the development in strength of social bonds, and whether this process determines the development of emotional abilities as one of the possible mechanisms suggested here. Studies that use videorecordings of team members interacting with each other during team learning over a period of time could also provide far greater insights into how reflection and dialogue within teams potentially play a role here in impacting on the development of emotional intelligence. Future research should also consider whether team diversity influences the results obtained, especially because evidence suggests that there are cultural differences regarding patterns of emotional expression (Elfenbein & Ambady, 2002). Field studies that examine the impact of team-based learning in actual work settings could also assist in identifying what additional contextual factors may be significant. Clarke (2006b), for example, suggested that aspects of the team’s climate relating to psychological safety may be a significant factor influencing opportunities for EI development amongst hospice workers. Team climate may therefore warrant further investigation as a potential moderator of the effectiveness of team-based learning.

Conclusions

The findings provide some indicative support for the effectiveness of team-based learning as offering a means by which the emotional ability of using emotions to facilitate thinking might be susceptible to development once individuals have been exposed to some form of EI self-awareness. This awareness may be important for focusing attention and increasing motivation to use and
exercise emotional abilities during the team learning experience. Importantly, however, the amount of time team members spend together during the team-learning intervention is a contingent factor in influencing the actual development of this ability. Similar to Moriarty and Buckley (2003), this study found team learning over a 14-week period with individuals meeting in their teams for at least 1 hour a week to have some positive effect. A team-learning intervention over a period longer than 14 weeks may well result in improvements in other emotional intelligence abilities. Neither gender nor age were found to be significant factors influencing EI development here; however, this may have been due to the small sample involved. The study offers little support for the effectiveness of a 1-day EI training session alone to have any effect. Human resources practitioners should therefore be cautious in assuming that investing in short training courses alone will necessarily produce any significant changes to participants’ EI abilities. Given increasing evidence that emotional intelligence abilities are associated with many of the key skills and competences required for operating successfully in today's organizations, studies that further our understanding of how emotional intelligence abilities can develop should have particular significance for a wide range of organizational settings.

References


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Appendix: Emotional Intelligence Training
Self-Awareness Session

Morning
(1) Participants to complete EI ability test (MSCEIT)
(2) Outline of session and objectives
(3) Emotional intelligence presentation 1: EI abilities and how we recognize them
(4) Exercise 1 (individual): Perceiving emotions: recognizing microexpressions
(5) Exercise 2 (individual): emotional self-awareness

Afternoon
(6) Exercise 3 (group): understanding emotions
(7) Emotional intelligence presentation 2: Emotional regulation and management exercise 4 (group)
(8) Impulse control—DVD: Overview of King Lear, Act 1, Scene 1
(9) Exercise 5 (individual and group): Impulsive behavior and control