



The International Journal of *Emotional Education*

ISSN: 2073-7629

Volume 5, Number 1, April 2013 pp 56-72www.um.edu.mt/edres/ijec

Increasing Emotional Intelligence through Training: Current Status and Future Directions

Nicola S. Schutte¹, John M. Malouff and Einar B. Thorsteinsson*University of New England, Australia*

Emotional intelligence consists of adaptive emotional functioning involving inter-related competencies relating to perception, understanding, utilising and managing emotions in the self and others. Researchers in diverse fields have studied emotional intelligence and found the construct to be associated with a variety of intrapersonal and interpersonal factors such as mental health, relationship satisfaction, and work performance. This article reviews research investigating the impact of training in emotional-intelligence skills. The results indicate that it is possible to increase emotional intelligence and that such training has the potential to lead to other positive outcomes. The paper offers suggestions about how future research, from diverse disciplines, can uncover what types of training most effectively increase emotional intelligence and produce related beneficial outcomes.

Key words: emotional intelligence; training; intervention; adaptive emotions

First submission November 1st, 2012; Accepted for publication March 11th, 2013.

The Nature of Emotional Intelligence

The competencies of perception, understanding, utilizing and managing emotions effectively in the self and others comprise the core of emotional intelligence (Maul, 2012; Mayer, Salovey & Caruso, 2004; 2008). Competency in perception of emotion involves recognizing emotion-related facial and voice cues of others and awareness of one's own body states relating to emotion. Competency in understanding one's own and others' emotions consists of knowing the causes and consequences of different emotions as well as being able to differentiate between varying emotions. Utilizing emotions involves harnessing the effects of emotions, for example by drawing on positive mood to enhance creative thought. Managing emotions in the

¹ Corresponding author: nschutte@une.edu.au

self and others consists of regulating emotions so that they are compatible with the requirements of a situation or the goals of individuals. Some conceptualizations of emotional intelligence, including those of Goleman (1995) and Bar-On (2000), include competencies, such as social skills, that build on these basic competencies.

Salovey and Mayer (1990) developed the original theory of emotional intelligence, and Goleman (1995) popularized the concept. The concept of emotional intelligence is being increasingly drawn upon in research and practice. Google Scholar shows 57,000 references to emotional intelligence in scientific work during the years 1995 to 2000, 121,000 references during the years 2001 to 2006, and 162,000 references in the years 2007 to 2012.

Emotional intelligence has been conceptualized both as an ability best assessed through test measures of maximal performance (Mayer et al., 2004, 2008) and as a trait or typical functioning (Neubauer & Freudenthaler, 2005; Petrides & Furnham, 2003; Schutte, Malouff & Bhullar, 2009) that is generally assessed through self-report or observer ratings. Tests of maximal performance present respondents with tasks such as identifying the emotion expressed in a photograph of a face. Self-report and observer-report measures ask for information on what an individual typically does, such as whether an individual is usually able to manage his or her emotions. Factor analytic studies (e.g., Fan et al., 2010; Rossen, Kranzler, & Algina, 2008; Saklofske, Austin & Minski, 2003) suggest that emotional intelligence, both conceptualized as an ability assessed by a performance test and typical or trait emotional intelligence assessed by self-report, is a unified concept represented by sub-competencies, though not all factor analyses have supported an identical structure of sub-competencies (see Fan et al., 2010). The relationship between ability and trait emotional intelligence is only moderate (Joseph & Newman, 2010) and some researchers consider these two conceptualisations to be different constructs (Petrides, 2011). Thus, in the intervention study section of this review, mention is made of whether ability emotional intelligence was assessed via a performance test or whether trait emotional intelligence was assessed.

Emotional Intelligence as an Interdisciplinary Construct

The emotional intelligence construct has become widely researched and applied in various fields, including psychology, psychiatry, business, education, medicine, sports science and computer science (Arora et al., 2010; Ashkanasy & Humphrey, 2010; Crombie, Lombard & Noakes, 2009, 2011; Joseph & Newman, 2010; Kumar & Sharma, 2012; O'Boyle, Humphrey, Polack, Hawver, & Story, 2011; Mayer et al., 2008; Martins, Ramalho & Morin, 2010; Picard, Vyzas & Healey, 2001; Song et al., 2010).

Many correlational studies provide information regarding variables associated with emotional intelligence. For example, meta-analyses (Martins et al., 2010; Schutte et al., 2007) have summarized the relationship between higher emotional intelligence and better mental and physical health across numerous studies. The Martins et al. (2010) meta-analysis included 19,000 participants and reported significant associations of emotional intelligence with mental health, $r=.36$, psychosomatic health, $r=.33$, and physical

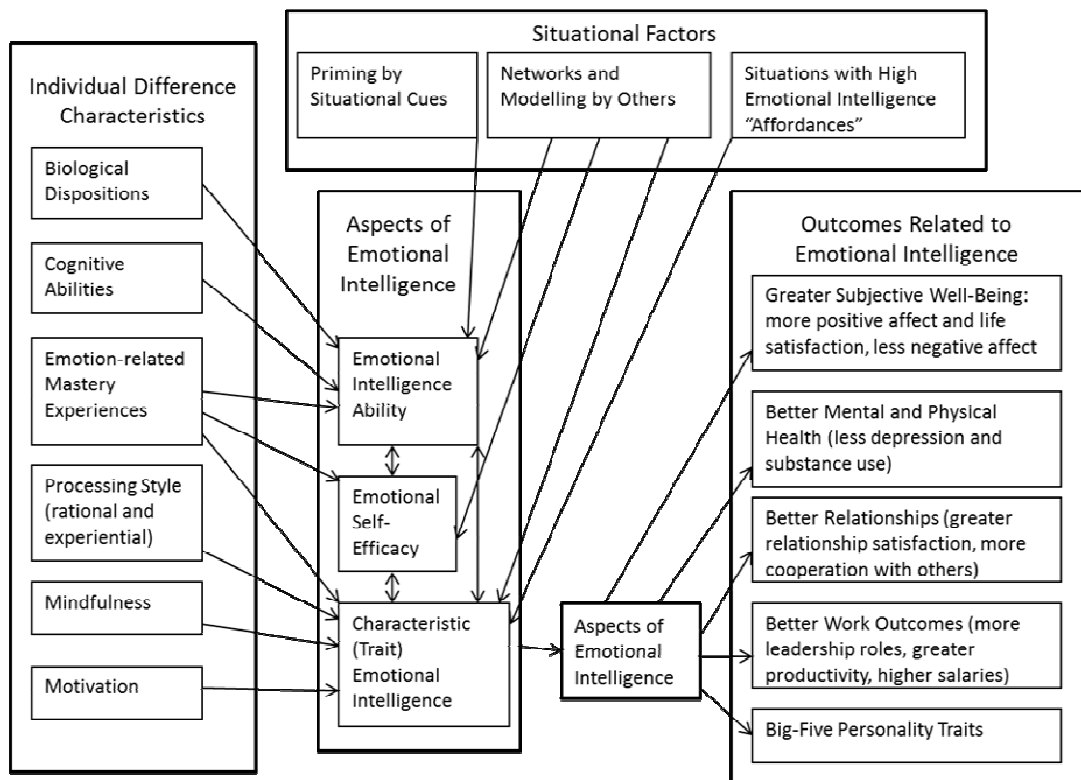


Figure 1: Dimensional Model of Emotional Intelligence (reprinted with permission of N. Schutte and J. Malouff).

health, $r=.27$. In the area of relationships, a meta-analysis of results based on 1188 participants found an overall association of $r=.23$ between higher emotional intelligence and greater romantic relationship satisfaction (Malouff, Schutte & Thorsteinsson, 2012). A meta-analysis of emotional intelligence and work performance (Joseph & Newman, 2010) reported an association between higher ability emotional intelligence and better performance of $r=.18$ across 10 samples and an association between higher trait emotional intelligence and better performance of $r=.47$ across 9 samples. Another meta-analysis of 43 effect sizes for the relationships between emotional intelligence and work performance (O'Boyle et al., 2011) found associations of $r=.24$ for ability measures of emotional intelligence and $.30$ for self-report and peer report based trait measures of emotional intelligence.

As correlational research indicates that emotional intelligence is associated with a variety of useful characteristics and outcomes, researchers in various fields have begun to investigate whether it is possible to increase emotional intelligence.

Interventions Intended to Increase Emotional Intelligence

Building on the results of correlational research, systematic experimental research is emerging on the results of interventions designed to increase emotional intelligence and characteristics that may be associated with higher emotional intelligence. Such research is important in addressing the questions of (1) whether emotional intelligence can be increased through training and (2) whether emotional training leads to increases in beneficial characteristics that have been found to correlate with emotional intelligence in other research.

The possibility of increasing emotional intelligence has been of interest to researchers and practitioners in fields ranging from organizational management to sports science. Following is a review of studies spanning different fields and contrasting the results of emotional intelligence training between experimental and control groups. Only studies employing a comparison group are reviewed because studies employing other designs, such as use of pre and post intervention measures with no comparison group or a case study method, tend to provide less information regarding the causal impact of training.

Organizational Studies

In an early organizational study, Slaski and Carwright (2003) compared managers who received emotional intelligence training for one day per week for a period of four weeks with a matched group of managers assigned to a control comparison condition. The managers in the training group scored significantly higher on typical or trait emotional intelligence and also had significantly better scores for self-rated mental health and work morale, when compared to the managers in the control group. They showed an average increase of 10.5% in work morale and an average decrease of 11.1% in work related distress.

Groves, McEnrue, and Shen (2008) provided employees with an 11 week training program that presented information on emotional intelligence and modeled the competencies comprising emotional intelligence. They found that those in the training group had significantly higher typical emotional intelligence after the training period than employees in a non-random assignment comparison group. Kirk, Schutte and Hine (2011) provided emotional self-efficacy training to employees randomly assigned to the intervention condition. After the training, employees scored higher on emotional intelligence, emotional self-efficacy and workplace civility than employees in the control condition.

Education Studies

In an early study with university students, Schutte and Malouff (2002) provided beginning university students with information and skills training related to emotional intelligence as part of an introductory university class. The students who received emotional intelligence training scored significantly higher on trait or typical emotional intelligence at the end of the term and were more likely to complete their first year of university than control students with no intervention. The retention rate for the students in the emotional intelligence training group was 98%, while that of the students in the comparison group was 87%.

In a study with MBA students, Reuben, Sapienza, and Zingales (2009) found that those randomly

assigned to a 16-hour course designed to teach the abilities described by Mayer and Salovey's (2004, 2008) model, scored significantly higher on a performance test of emotional intelligence than those assigned to a placebo control group. In another study with medical students, Fletcher et al. (2009) found that a seven month-long workshop on emotional intelligence training resulted in participants scoring significantly higher on typical emotional intelligence than medical students in the control group. The authors pointed out that these results should be viewed with caution as the design used a non-equivalent control group, and there was a high dropout rate in the training group.

Early feedback from emotional intelligence training programs with school children (described by Brackett & Katulak, 2006) indicates beneficial effects for school-related performance as well as interpersonal relations. A number of school-based programs that focus on social and emotional learning have shown positive effects for children's social and emotional skills and well-being as well as for academic performance (Durlak, Weissberg, Dymnicki, Taylor & Schellinger, 2011). Social and emotional learning (SEL) training generally includes but extends beyond the competencies generally used to define emotional intelligence. Besides overlapping competencies such as recognition and regulation of emotions, they often include training in other areas such as setting and achieving goals and making responsible decisions. In their meta-analysis of 213 SEL intervention studies, Durlak et al. (2011) found significant mean effects for SEL interventions in improved social emotional skills (at $d = .57$) and positive social behaviour ($d = .24$), fewer conduct problems ($d = .24$) and emotional distress ($d = .24$), and better academic performance ($d = .27$). As SEL training tends to be broader than emotional intelligence training, caution should be used in interpreting these findings in relation to emotional intelligence training.

Mental Health Studies

In a large-scale, mental-health study, adolescents who participated in 24 emotional intelligence training sessions over two years, had higher emotional intelligence and experienced less depression and social stress compared to adolescents in a non-random assignment control group (Ruiz-Aranda et al., 2012). In another mental-health study, Saadi et al. (2012) found that female adolescents who received emotional intelligence training showed more emotional intelligence and less aggression after the training than female adolescents in a comparison group.

Sports Study

In a sports science study with cricketers, Crombie et al. (2011) found that the athletes randomly assigned to interactive emotional intelligence training through 10 three hour workshops, scored significantly higher on a performance test measure of emotional intelligence than athletes randomly assigned to a control group.

Studies Assessing Numerous Outcomes

Recent studies examining the benefits of emotional intelligence training (Kotsou et al., 2011; Nelis et al., 2011) with university students and general community members, present further evidence of the effectiveness of emotional intelligence training in increasing typical emotional as well as a variety of other desirable life outcomes. These studies provided participants in the intervention with information on emotional intelligence and skills training over a number of training sessions. The study by Kotsou et al. (2011) resulted in greater increases in self-reported as well as observer-reported typical or trait emotional intelligence among participants in the intervention condition than among participants in the non-random assignment comparison group. Participants in the intervention condition also showed greater increases in life satisfaction, lower self-reported stress levels and better cortisol levels as measured by saliva assays.

Two studies reported by Nelis et al. (2011) showed an increased self and other-reported trait emotional intelligence among the participants in the emotional intelligence intervention group than the control group. Participants in the intervention group also showed greater increases in life satisfaction, happiness, improved mental health, fewer somatic complaints, better social functioning, higher ratings of employability and increased extraversion, agreeableness and emotional stability.

A Beginning Estimate of the Effect Size of Emotional Intelligence Training for Adults

Emotional intelligence training studies include quasi-analytic studies with non-equivalent control groups as well as experimental studies with true random assignment to intervention and control groups. Some studies have assessed emotional intelligence as an ability through performance measures while others have assessed emotional intelligence as typical or trait functioning through self or peer report measures. To obtain an initial estimate of the effect of emotional intelligence training across different populations we used meta-analytic techniques to combine the findings of studies that used the same design, namely an experimental design with random assignment to intervention and control groups. We focused on experimental studies with random assignment as such a design can have advantages in reaching causal conclusions (Schultz & Grimes, 2002). There were not enough experimental studies to allow a search for moderators, but meta-analytic techniques do allow computation of an overall effect size for the impact of the training used in these studies on emotional intelligence.

Our review of the literature identified four studies (Crombie et al., 2011; Kirk et al., 2011, Reuben et al., 2009; Wing et al., 2006), comprising six effect sizes and 435 participants, that were clearly experimental intervention studies using true random assignment of participants to intervention and control conditions, and which had at least 50% retention of participants from pre to post assessment. These studies used performance measures of emotional intelligence (Crombie et al., 2011; Reuben et al., 2009), or self-report measures of typical or trait emotional functioning (Kirk et al., 2011, Wing et al., 2006) as outcome measures.

For each intervention to control group comparison, we calculated an effect size, unbiased Hedges' g , which is similar to d (Hedges, 1981), with correction factor J applied (Borenstein, Hedges, Higgins, &

Rothstein, 2009). Means and standard deviations for pre and post assessments were used to calculate g for all comparisons, and the Q statistic for homogeneity analyses was used as recommended by Lipsey and Wilson (2001). A random effects model was used rather than fixed effects model, due to the outcome of homogeneity analysis. The overall effect size for the impact of training on emotional intelligence was moderate, $g = 0.46$ [0.10, 0.83], $Q(5) = 16.76, p = .005$.

A comparison of the effect size for emotional intelligence training interventions with the effect size for other interventions intended to improve life skills and wellbeing, creates some context. The moderate meta-analytic effect size for emotional intelligence training interventions is similar to the moderate meta-analytic effect size for positive psychology interventions, including ones such as mindfulness training, on wellbeing outcomes such as happiness and life satisfaction (Sin & Lyubomirsky, 2009).

Based on our review of the literature, we conclude that there is preliminary evidence to suggest that emotional intelligence training can be effective in increasing the competencies comprising emotional intelligence. Further, the results of several studies indicate that emotional intelligence training may have the potential to improve functioning in realms such as work, academic functioning, life satisfaction, mental health, physical health and personal relationships. More research is needed to assess whether this assessment of preliminary information regarding the effect of emotional intelligence training is correct.

Future Directions in Interventions Intended to Increase Emotional Intelligence

Even though emotional intelligence training seems to show promise, theoretically-oriented as well as practically-oriented research, remains to be done both in the fields that have found emotional intelligence to be a useful construct, as well as in the fields that have not yet explored the utility of the construct. First, more intervention studies are needed to establish the extent to which emotional intelligence training is effective. Second, research might focus on specific aspects of training, such as the impact of training on different aspects of emotional intelligence and in component emotional competencies, the optimal type of training, and the populations most likely to benefit from emotional intelligence training. Fields of study such as sociology and anthropology might examine different perspectives and applications of the emotional intelligence construct.

Future Theoretically and Practically Oriented Research: The relationships suggested in the comprehensive Dimensional Model of Emotional Intelligence (Schutte & Malouff, in press, Figure 1) provide the basis for our suggestions on some construct-related theoretical research as well as practical research investigating how to increase the effectiveness of training. Such research might differentiate between different aspects of emotional intelligence, draw on individual-difference characteristics that are associated with emotional intelligence to maximize the effectiveness of interventions, and focus on situational factors that may influence emotional intelligence.

Aspects of Emotional Intelligence: Emotional intelligence may manifest itself in related aspects, including the underlying ability for emotional competence, trait or typical performance of emotional

intelligence, and emotional self-efficacy. Ability emotional intelligence consists of an individual's actual capacity for adaptive emotional functioning. The individual may or may not act on this capacity depending on factors such as the individual's motivation and the opportunities and demands of situations. Trait or typical emotional intelligence describes to what extent an individual actually displays emotional competencies in everyday life. Emotional self-efficacy describes an individual's confidence in displaying emotional competency. These three aspects of emotional intelligence are separate but related constructs (Kirk, Schutte & Hine, 2008; Schutte, Malouff & Hine, 2011).

All three aspects of emotional intelligence have been found to be influenced by interventions designed to increase emotional intelligence. For example, Reuben et al. (2009) and Crombie et al. (2011) found emotional intelligence training increased ability emotional intelligence as assessed by a performance test. Slaski and Cartwright (2003), Kotsou et al. (2011) and Nelis, et al. (2011) found that emotional intelligence training increased trait emotional intelligence as assessed by self-reports and observer reports. Kirk et al. (2011) found that training increased both emotional self-efficacy and trait emotional intelligence.

Future research might investigate the influence of interactions in increases between these aspects of emotional intelligence. For example, training most likely directly influences ability and trait emotional intelligence through expanding an individual's emotion-related knowledge and skills. Alternatively, it might be that training mainly impacts emotional self-efficacy, and that an increase in emotional-competence confidence leads over time to practice-related changes in emotional intelligence ability and trait emotional intelligence. If evidence is found for this second alternative, it would suggest that for maximum effectiveness, interventions should include training in emotional self-efficacy.

As well as having different aspects, emotional intelligence is comprised of related but somewhat distinct competencies, such as accurate perception of emotion and effective management of emotion. Future research might also focus on the effect of increasing each of these component competencies.

Individual Differences: Individual-difference characteristics that are associated with emotional intelligence and that one might expect to be sources of emotional intelligence, could influence the effectiveness of interventions or might suggest different intervention approaches. For example, individuals who have either a strong rational processing style or a strong experiential processing style, may respond differently to different types of emotional intelligence interventions. Experiential processing is effortless, rapid, and tied to emotion, while rational processing is intentional, logic-based, and relatively free of immediate emotional experience (Epstein, 1994). A high level of experiential processing is strongly associated with emotional intelligence, and a high level of rational processing is moderately associated with emotional intelligence (Schutte et al., 2010). Future research might explore whether individuals who predominately use experiential processing respond more favorably to interventions that emphasize emotional automaticity in acquiring emotional competency, while individuals who mainly use a rational processing style respond better to training that emphasizes cognitive deliberation on aspects of emotional competence.

Greater characteristic mindfulness is associated with higher emotional intelligence (Brown & Ryan,

2003; Schutte & Malouff, 2011), and mindfulness may be a platform for the development of emotional intelligence (Schutte & Malouff, 2011). Various interventions have been found to increase mindfulness and to increase beneficial outcomes associated with mindfulness (Hofmann et al., 2010). Future research might explore whether such mindfulness interventions also lead to increases in emotional intelligence, or whether elements of these interventions can be usefully incorporated in training programs tailored to increase emotional intelligence.

Situational Factors: Future research might investigate how situational factors can be harnessed to increase emotional intelligence. Such research might focus on creating environments that prime or prompt individuals to draw on their emotional intelligence ability to display emotional competence. For example, Schutte and Malouff (2012) provided participants in experimental intervention conditions with emotional competency-related reflection instructions. Participants who received primes intended to activate their emotional competency success self-schemas scored better on a performance test of emotional intelligence. Future research might investigate further which aspects of the environment optimally prompt individuals to display their emotional abilities. Such prompts might range from verbal or written instructions to subtle reminders or images imbedded in the environment. Other lines of research demonstrate how prompts embedded in the environment can have a large impact on behaviors ranging from academic performance to helping strangers to snacking on healthy foods (Bargh, 2006; Harris, Bargh & Brownell, 2009).

Future research drawing on situational factors might explore contexts that optimize the permanent acquisition of emotional competencies. Some previous correlational research indicates that contexts expected to facilitate the development of higher emotional intelligence, such as parental warmth and better family relationships, are associated with higher emotional intelligence (Brackett, Mayer, & Warner, 2004; Ciarrochi, Chan & Bajgar, 2001). Two recent studies (Schutte, 2012) that investigated social-network contexts of emotional intelligence, found that individuals' emotional intelligence was similar to the emotional intelligence of close others, and that over time individuals' emotional intelligence changed to become more similar to that of others in their social network. Social contexts in which others display emotional competencies may encourage the learning of emotional competency. Future research might investigate the impact of creating social contexts of high emotional intelligence, and purposely presenting what might be the means of transmission of emotional competency, such as the modeling of effective emotional skills.

Situational factors research might also take into account the nature of the populations being trained. For example, it is possible that different situational factors impact training of adults and children differentially.

Outcomes of Emotional Intelligence Interventions: Intervention studies reviewed in the first section of this paper, suggest that emotional intelligence training can influence a variety of outcomes, including wellbeing, mental health, physical health, relationships, work performance, and even change in personality traits. Future research might investigate additional possible outcomes of emotional intelligence training. Previous correlational research may provide leads regarding promising outcomes to target. Such outcomes

might range from changes in individuals' maladaptive behaviors, such as binge drinking, to increasing the effectiveness of medical professionals in working with patients, to changes in emotional labor among employees, to increasing adherence to training schedules among athletes.

Parameters of Emotional Intelligence Training: Emotional intelligence interventions have used somewhat different approaches to training. For example, numerous interventions have used a combination of didactic and skills-based training (e.g., Kotsou et al., 2011; Nelis, et al., 2011; Schutte & Malouff, 2002; Slaski & Carwright, 2003; Ruiz-Aranda et al., 2012), while others have used techniques such as self-reflection (e.g., Wing et al., 2006). Future research might explore the optimal training components for different populations and for different types of outcomes. Interventions have also differed in terms of parameters such as length of training time, which has ranged from several hours (Kirk et al., 2011) to two years (Ruiz-Aranda et al., 2012). Future research might explore optimal training time for different populations and outcomes.

The Perspective of Different Fields on Emotional Intelligence Development

Fields of study such as psychology, psychiatry, business, education, medicine, sports science and computer science, have found the emotional intelligence construct useful. These fields are broad, and emotional intelligence research has been conducted within some specialty areas of these fields but not others. Following are suggestions regarding how different fields might provide additional perspectives and information on emotional intelligence.

In the field of psychology, emotional intelligence has been examined by different specialty areas, such as a manifestation of neurological functioning (Krueger et al., 2009; Takeuchi et al., 2011), an individual-difference characteristic (e.g., Mayer et al., 2008; Petrides & Furnham, 2003), and a predictor of mental health (Martins et al., 2010). Other specialty areas within psychology, such as evolutionary psychology (see Buss, 2007) or environmental psychology (see Gifford, 2007), might provide different perspectives on emotional intelligence that could be incorporated in research on emotional intelligence interventions.

Fields of study such as philosophy, sociology, political science, anthropology, and zoology might have perspectives on emotional intelligence that would increase the utility of the construct across fields, and suggest additional approaches to developing emotional intelligence. For example, Goldie (2007) called for more integration of emotion in philosophy. He argued that emotions are connected to individuals' views of their world (Goldie, 2009). The notion that emotions influence our perception of the world provides avenues for further exploring the development of emotional intelligence. For example, it may be that individuals low in emotional competency are less sensitive to demonstrations of emotional intelligence in the world around them, and are thus less influenced by models of emotional competency. Another fruitful confluence of philosophy and emotional intelligence might be in the area of moral reasoning (Mackie, 1990), and some initial research indicates a link between emotional intelligence and ethical perspectives (Grieve & Mahar,

2010; Joseph, Berry & Deshpande, 2009). This line of research could give rise to additional investigation of outcomes relating to ethical decision making resulting from emotional intelligence training.

As Fischer and Van Kleef (2010) pointed out, social context and social interaction are closely linked to emotion. Some research (Brackett, Mayer, & Warner, 2004; Ciarrochi, Chan & Bajgar, 2001; Schutte, 2012) indicates that the development of emotional intelligence can be better understood in light of social contexts. In turn, the emotional intelligence of individuals influences their social relationships (e.g., Nelis et al., 2011). Sociology may provide additional perspectives on the development of emotional intelligence. For example, the structural-functionalist perspective suggests that societies are interdependent systems exemplified by order and stability that create continuity in societies, while the social conflict perspective suggests that societies are marked by inequality between members of the society and this leads to conflict and social change (Macionis, 2009). The structural-functional perspective suggests investigating questions such as whether helping individuals responsible for critical components of a system, such as those in leadership positions, develop emotional intelligence might enhance the functioning of the system. The social conflict perspective suggests investigation of questions such as whether helping individuals develop emotional intelligence might lead to more effective conflict resolution and more beneficial social change.

International surveys show that social conditions such as economic conditions and equality of opportunity within a society, are related to collective wellbeing, assessed through measures of life satisfaction and happiness, of the society (e.g., Diener, Diener, & Diener, 1995). Such research could be extended to explore how conditions within a society relate to overall levels of emotional intelligence and attempts to facilitate the development of individual society member's emotional intelligence.

Characteristics such as emotional intelligence that are initially conceptualized as individual-difference characteristics can in some cases successfully be translated to collective group characteristics. Self-efficacy is an example of an individual difference characteristic that has been studied at the collective group level (Bandura, 2000). Sociologically-based group-level interventions targeting collective self-efficacy have brought about change in areas ranging from health habits to gender equality (Bandura, 2011). Future research might investigate the possible beneficial results of group-level emotional intelligence interventions.

Lutz and White (1986) pointed out that emotion is central to anthropological study, in that it is part of many aspects of a society, ranging from relationships to communication patterns. There are similarities and differences in how emotions are categorized in different cultures. For example, basic emotions may be pan-cultural, while subordinate emotion categories may be culture specific (Russell, 1991). An avenue of anthropological investigation might focus on the extent to which manifestation of emotional intelligence, as currently described, is pan-cultural versus culture specific. A related avenue of research might explore how different cultures define or perceive what comprises basic adaptive emotional competency. The results of such research could provide a platform for culturally appropriate emotional intelligence development efforts.

Actions relating to political science, including governance, decision making, international relations, and political leadership, may relate to emotional intelligence. For example, some previous research has

connected emotional intelligence and leadership (Co[^]te et al., 2010; Harms & Credé, 2010; Joseph et al., 2010). This research might provide a platform for studies examining the possible benefits of emotional intelligence workshops for government officials.

Specific fundamental processes associated with basic emotions, such as brain arousal patterns and emotion-related behaviors, have been found in various animals (Panksepp & Watt, 2011). Animals such as chimpanzees and rats may also experience more complex emotional processes, such as empathy (Bartall, Decety, & Mason, 2011, Koski & Sterck (2009). Researchers might investigate whether some animal species display clusters of adaptive complex emotion-related behaviors that could be described as emotionally intelligent. If some animal species do show patterns of behavior resembling human emotional intelligence, this would be a useful contribution to the zoology field and would also suggest possible animal model approaches to studying the development of emotional intelligence.

Conclusion

Evidence from studies contrasting emotional intelligence intervention groups with comparison groups, suggests that training may increase emotional intelligence and improve outcomes related to emotional intelligence. These outcomes include mental and physical health, social relationships and work performance. Much work remains to be done to verify these initial findings and to uncover how training increases emotional intelligence, what specific training works best, and what important outcomes can be produced. Potential applications of training in emotional intelligence span many realms, from education to marriages to businesses, to better understanding of the functioning of societies, and many disciplines can contribute to examining the effects of targeted training on emotional intelligence.

References

- Arora, S., Ashrafian, H., Davis R., Athanasiou, T., & Darzi, A., & Sevdalis, N. (2010). Emotional intelligence in medicine: a systematic review through the context of the ACGME competencies. *Medical Education, 44*, 749-764.
- Ashkanasy, N. M., & Humphrey R. H. (2010). Current emotion research in organizational behavior. *Emotion Review, 3*, 214–224.
- Bandura, A. (2000). Exercise of human agency through collective efficacy. *Current Directions in Psychological Science, 9*, 75–78.
- Bandura, A. (2011). The social and polict impact of social cognitive theory. In M. M. Mark, S. I. Donaldson, & B. Campbell (Eds.), *Social psychology and evaluation* (pp. 31–70). New York: Guilford.
- Bargh, J. A. (2006). What have we been priming all these years? On the development, mechanisms, and ecology of nonconscious social behavior. *European Journal of Social Psychology, 36*, 147-168.
- Bar-On, R. (2000). Emotional and social intelligence: Insights from the Emotional Quotient Inventory, In R.

- Bar-On & J.D.A. Parker (Eds.), *The handbook of emotional intelligence* (pp. 363-388). San Francisco: Jossey-Bass.
- Bartall I. B. A., Decety J., & Mason P. (2011). Empathy and pro-social behavior in rats. *Science*, *334*, 1427–1430.
- Borenstein, M., Hedges, L.V., Higgins, J. P., & Rothstein, H. (2009). *Introduction to meta-analysis*. Hoboken, NJ: Wiley.
- Brackett, M. A., Mayer, J. D., & Warner, R. M. (2004). Emotional intelligence and its relation to everyday behaviour. *Personality and Individual Differences*, *36*, 1387-1402.
- Brackett M.A., Katulak, N.A. (2006). Emotional intelligence in the classroom: skill-based training for teachers and students. In *Applying Emotional Intelligence: A Practitioner's Guide*, ed. J. Ciarrochi, J.D. Mayer, pp. 1–27. New York: Psychol. Press/Taylor & Francis.
- Brown, K. W., & Ryan, R. M. (2003). The benefits of being present: Mindfulness and its role in psychological well-being. *Journal of Personality & Social Psychology*, *84*, 822-848.
- Buss, D. (2007). *Evolutionary psychology: The new science of the mind*. Boston: Allyn & Bacon.
- Ciarrochi, J., Chan, A. Y. C., & Bajgar, J., 2001. Measuring emotional intelligence in adolescents. *Personality and Individual Differences* *31*, 1105–1119.
- Co^te´, S., Lopes, P. N., Salovey, P., & Miners, C. T. H. (2010). Emotional intelligence and leadership emergence in small groups. *The Leadership Quarterly*, *21*, 496–508.
- Crombie, D. T., Lombard, C., & Noakes, T. D., (2009). Emotional intelligence scores predict team sports performance in a national cricket competition, *International Journal of Sports Science and Coaching*, *4*, 209-224.
- Crombie, D. T., Lombard, C., & Noakes, T. D., (2011). Increasing Emotional Intelligence in Cricketers: An Intervention Study. *International Journal of Sports Science and Coaching*, *6*, 69-86.
- Diener, E., Diener, M., & Diener, C. (1995). Factors predicting the subjective well-being of nations. *Journal of Personality and Social Psychology*, *69*, 851–864.
- Durlak, J. A., Weissberg, R. P., Dymnicki, A. B., Taylor, R. D., & Schellinger, K. B. (2011). The impact of enhancing students' social and emotional learning: A meta-analysis of school-based universal interventions. *Child Development*, *82*, 405–432
- Epstein, S. (1994). Integration of the cognitive and the psychodynamic unconscious. *American Psychologist*, *49*, 709- 724.
- Fan, H., Jackson, T., Yang, X., Tang, W., & Zhang, J. (2010). The factor structure of the Mayer-Salovey-Caruso Emotional Intelligence Test V 2.0 (MSCEIT): A meta-analytic structural equation modeling approach. *Personality and Individual Differences*, *7*, 781-785.
- Fischer, A. H., & Van Kleef, G. A. (2010). Where have all the people gone? A plea for including social interaction in emotion research. *Emotion Review*, *2*, 208-211.
- Fletcher, I., Leadbetter, P., Curran, A., & O'Sullivan, H. (2009). A pilot study assessing emotional

- intelligence training and communication skills with 3rd year medical students. *Patient Education and Counseling*, 76, 376–379.
- Gifford, R. (2007). *Environmental psychology: Principles and practice*. Colville, WA: Optimal Books.
- Goldie, P. (2007). Emotion. *Philosophy Compass*, 2, 928–938.
- Goldie, P. (2009). Getting feelings into emotional experience in the right way. *Emotion Review*, 1, 232–239.
- Goleman, D. (1995). *Emotional Intelligence: Why it can matter more than IQ*. New York: Bantam Books.
- Grieve, R., & Mahar, D. (2010). The emotional manipulation-psychopathy nexus: Relationships with emotional intelligence, alexithymia and ethical position. *Personality and Individual Differences*, 48, 945–950.
- Groves, K. S., McEnrue, M. P., & Shen, W. (2008). Developing and measuring the emotional intelligence of leaders. *Journal of Management Development*, 27, 225-250.
- Harms, P. D., & Credé, M. (2010). Emotional intelligence and transformational and transactional leadership: A meta-analysis. *Journal of Leadership & Organizational Studies*, 17, 5-17.
- Harris, J. L., Bargh, J. A., & Brownell, K. D. (2009). Priming effects of television food advertising on eating behavior. *Health Psychology*, 28, 404-413.
- Hedges, L.V. (1981). Distribution theory for Glass's estimator of effect size and related estimators. *Journal of Educational Statistics*, 6, 107–128.
- Hofmann, S. G., Sawyer, A. T., Witt, A. A., & Oh, D. (2010). The effect of mindfulness based therapy on anxiety and depression: a meta-analytic review. *Journal of Consulting and Clinical Psychology*, 78, 169–183.
- Joseph, D. L., & Newman, D. A. (2010). Emotional intelligence: An integrative meta-analysis and cascading model. *Journal of Applied Psychology*, 95, 54–78.
- Joseph, J., Berry, K., & Deshpande, S. P. (2009). Impact of emotional intelligence and other factors on perception of ethical behavior of peers. *Journal of Business Ethics*, 89, 539–546.
- Kirk, B. A., Schutte, N. S., & Hine, D. W. (2008). Development and preliminary validation of an emotional self-efficacy scale. *Personality and Individual Differences*, 45, 432–436.
- Kirk, B. A., Schutte, N. S., & Hine, D. W. (2011). The effect of an expressive writing intervention for employees on emotional self-efficacy, emotional intelligence, affect, and workplace incivility. *Journal of Applied Social Psychology*, 41, 179-195.
- Koski, S. E., & Sterck, E. H. M. (2009). Empathic chimpanzees: a proposal of the levels of emotional and cognitive processing in chimpanzee empathy. *European Journal of Developmental Psychology* 7, 38–66.
- Kotsou, I., Nelis, D., Grégoire, J., & Mikolajczak, M. (2011). Emotional plasticity: Conditions and effects of improving emotional competence in adulthood. *Journal of Applied Psychology*, 96, 827-839.
- Kruegera, F., Barbeyb, A. K., McCabed, K., Strenziokb, M., Zambonie,G., Solomonf, J., Raymontg, V., & Grafma, J. (2009). The neural bases of key competencies of emotional intelligence. *Proceedings of*

the National Academy of Sciences of the United States of America, 106, 22486-22491.

- Kumar, S., & Sharma, M. (2012). Convergence of Artificial Intelligence, Emotional Intelligence, Neural Network and Evolutionary Computing. *International Journal of Advanced Research in Computer Science and Software Engineering, 2*, 141-145.
- Lipsey, M. W., & Wilson, D. B. (2001). *Practical meta-analysis*. Thousand Oaks, CA: Sage.
- Lutz, C., & White, G. M. (1986). The anthropology of emotions. *Annual Review of Anthropology, 15*, 405-436.
- Macionis, J. (2009). *Society: The basics* (10th ed.). Upper Saddle River, NJ: Pearson/Prentice Hall.
- Mackie, J. L. (1990). *Ethics: Inventing Right and Wrong*. London: Penguin.
- Malouff, J. M., Schutte, N. S., & Thorsteinsson, E. B. (2012). *A meta-analysis of the relationship between emotional intelligence and romantic relationship satisfaction*. Manuscript submitted for publication.
- Martins, A., Ramalho, N., & Morin E. (2010). A comprehensive meta-analysis of the relationship between emotional intelligence and health. *Personality and Individual Differences, 49*, 554–564.
- Maul, A. (2012). The validity of the Mayer–Salovey–Caruso Emotional Intelligence Test (MSCEIT) as a measure of emotional intelligence. *Emotion Review, 4*, 1-9.
- Mayer, J. D., Salovey, P., & Caruso, D. (2004). Emotional intelligence: Theory, findings, and implications. *Psychological Inquiry, 15*, 197-215.
- Mayer, J.D., Salovey, P., & Caruso, D.R. (2008). Emotional Intelligence: New ability or eclectic traits? *American Psychologist, 63*, 503-517.
- Nelis, D., Kotsou, I., Quoidbach, J., Hansenne, M., Weytens, F., Dupuis, P., & Mikolajczak, M. (2011). Increasing emotional competence improves psychological and physical well-being, social relationships, and employability. *Emotion, 11*, 354-366.
- Neubauer, A. C., & Freudenthaler, H. H. (2005). Models of emotional intelligence. In R. Schultz & R. D. Roberts (Eds.), *Emotional intelligence: An international handbook* (pp. 31-50). Cambridge, MA: Hogrefe.
- O'Boyle, E. H., Humphrey, R. H., Polack, J. M., Hawver, T. H., & Story, P. A. (2011). The relation between emotional intelligence and job performance: A meta-analysis. *Journal of Organizational Behavior, 32*, 788–818.
- Panksepp J., & Watt D. (2011). What is basic about basic emotions? Lasting lessons from affective neuroscience. *Emotions Review, 3*, 387–396.
- Petrides, K.V. (2011). Ability and trait emotional intelligence. In T. Chamorro-Premuzic, A. Furnham, S. von Stumm (Eds.), *The Blackwell-Wiley handbook of individual differences*. New York: Wiley.
- Petrides, K.V., & Furnham, A. (2003). Trait emotional intelligence: Behavioral validation in two studies of emotion recognition and reactivity to mood induction. *European Journal of Personality, 17*, 39-57.
- Picard, R.W., Vyzas, E., & Healey, J. (2001). Toward machine emotional intelligence: Analysis of affective physiological state. *IEEE Transactions on Pattern Analysis and Machine Intelligence, 23*, 1175–

1191.

- Reuben, E., Sapienza, P., & Zingales, L. (2009). *Can we teach emotional intelligence?* Retrieved on 2nd April 2013 from: <http://www.ereuben.net/research/TeachMSCEIT.pdf>
- Rossen, E., Kranzler, J. H., & Algina, J. (2008). Confirmatory factor analysis of the Mayer–Salovey–Caruso Emotional Intelligence Test V 2.0 (MSCEIT). *Personality and Individual Differences, 44*, 1258–1269.
- Ruiz-Aranda, D., Castillo, R., Salquero, J. M., Cabello, R., Fernandez-Berrocal, P., & Balluerka, N. (2012). Short and midterm effects of emotional intelligence training on adolescent mental health. *Journal of Adolescent Health, 51*, 462-467.
- Russell, J. A. (1991). Culture and the categorization of emotions. *Psychological Bulletin, 110*, 426–450.
- Saadi, Z. E., Honarmand, M. M., Najarian, B., Ahadi, H. & Askari, P. (2012). Evaluation of the effect of emotional intelligence training on reducing aggression in second year high school female students. *Journal of American Science, 8*, 209-212.
- Saklofske, D. H., Austin, E. J., & Minski, P. S. (2003). Factor structure and validity of a trait emotional intelligence measure. *Personality and Individual Differences, 34*, 707-721.
- Salovey, P., & Mayer, J. D. (1990). Emotional intelligence. *Imagination, cognition and personality, 9*, 185-211.
- Schulz K. F., Grimes D. A. (2002). Generation of allocation sequences in randomised trials: chance, not choice. *Lancet, 359*, 515–9.
- Schutte, N. S., & Malouff, J. M. (2002). Incorporating emotional skills in a college transition course enhances student retention. *Journal of the First-Year Experience and Students in Transition, 14*, 7-21.
- Schutte, N. S., & Malouff, J. M. (2011). Emotional Intelligence Mediates the Relationship between Mindfulness and Subjective Well-Being. *Personality and Individual Differences, 50*, 1116-1119.
- Schutte, N. S., & Malouff, J. M. (2012). *Priming ability emotional intelligence*. Manuscript under review.
- Schutte, N. S., Malouff, J. M., Thorsteinsson, E. B., Bhullar, N., & Rooke, S. E., (2007). A meta-analytic investigation of the relationship between emotional intelligence and health. *Personality and Individual Differences, 42*, 921-933.
- Schutte, N. S., & Malouff, J. M. (in press). Adaptive Emotional Functioning: A Comprehensive Model of Emotional Intelligence. In N. Gotsiridze-Columbus (Ed), *Psychology of Emotions*. Hauppauge, New York: Nov Science Publishers.
- Schutte, N. S., Malouff, J. M., & Bhullar, N. (2009). The Assessing Emotions Scale. In C. Stough, D. Saklofske & J. Parker (Eds.), *The Assessment of emotional intelligence* (pp. 119-135). New York: Springer.
- Schutte, N. S., Malouff, J. M., & Hine, D. W. (2011). The association of ability and trait emotional intelligence with alcohol problems. *Addiction Research and Theory, 19*, 260-265.

- Schutte, N. S., Thorsteinsson, E. B., Hine, D. W., Foster, R., Cauchi, A., & Binns, C. (2010). Experiential and rational processing styles, emotional intelligence and well-being. *Australian Journal of Psychology*, 62, 14 - 19.
- Schutte, N.S. (2012). *Emotional intelligence through network transmission*. Manuscript submitted for publication.
- Sin, N. L., & Lyubomirsky, S. (2009). Enhancing well-being and alleviating depressive symptoms with positive psychology interventions: A practice-friendly meta analysis. *Journal of Clinical Psychology*, 65, 467–487.
- Slaski, M., & Cartwright, S. (2003). Emotional intelligence training and its implications for stress, health, and performance. *Stress and Health*, 19, 233–239.
- Song, L. J., Huang, G., Peng, K., Law, K., Wong, C., & Chen, Z. (2010). The differential effects of general mental ability and emotional intelligence on academic performance and social interactions. *Intelligence*, 38, 137–143.
- Takeuchi, H., Taki, Y., Sassa Y., Hashizume, H., Sekiguchi, A., Fukushima, A., & Kawashima, R. (2011). Regional gray matter density associated with emotional intelligence: evidence from voxel-based morphometry. *Human Brain Mapping*, 32, 1497-1510.
- Wing, J. F., Schutte, N. S., & Byrne, B. (2006). The effect of positive writing on emotional intelligence and life satisfaction. *Journal of Clinical Psychology*, 62, 1291-1302.