

The impact of a training programme designed to target the emotional intelligence abilities of project managers

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Abstract

Emotional intelligence (EI) has been suggested as underpinning a number of behaviours considered important for project management however few studies have been conducted to date examining whether training can improve EI. A sample of project managers in the UK attended one of three 2-day EI training programmes and the effects of the training evaluated to determine its impact on emotional intelligence abilities, empathy, and the project manager competences of teamwork and managing conflict considered to be underpinned by EI. Using a pre/post test research design, positive effects were found 6 months later in the emotional ability, understanding emotions as well as the two project manager competences. Data collected 1 month post training showed no significant changes. The results suggest that training can have an impact on the emotional intelligence of project managers but that other conditions following attendance on training may also be necessary.

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1. Introduction

Over the past two decades the “human side” of project management has increasingly been identified as a critical component of the project manager’s role associated with project management success (Cleland, 1995; Cooke-Davies, 2002; Cowie, 2003; El-Sabaa, 2001). Given that project management involves attempting to get the best input from a wide range of technical specialists and experts, many authors have identified a large part of that role as constituting leadership and effectively managing relationships between all the parties involved in a project (Milosevic et al., 2001; Strohmeier, 1992). Baker et al. (1983) showed that of the seven factors they identified which together accounted for 91% of the variance between projects that succeeded and those that failed, one factor, co-ordination

and relations accounted on its own for 77% of the variance perceived in project success. Yet more recently, Rudolph et al. (2008) also found the behavioural dimension of project management, which included communication, involvement, motivation and identifying conflicts, played a large part in contributing to greater project success.

It is against this background that a number of authors have suggested that the concept of emotional intelligence (EI) may be an important area of individual difference that may distinguish project managers’ effectiveness in performing these important “human skills” or behaviours (Druskat and Druskat, 2006). To date, five studies have appeared in the literature specifically investigating emotional intelligence in project contexts. These examined relationships between emotional intelligence and either leadership or project management competences associated with “human skills”, and have found some promising positive results (Butler and Chinowsky, 2006; Leban and Zulauf, 2004; Mount, 2006; Muller and Turner, 2007; Sunindijo et al., 2007). With increasing evidence suggesting that emotional

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intelligence is able to predict a wide range of key behaviours associated with effectively working in, and managing projects, the question of whether emotional intelligence can be developed is becoming of far greater interest to the project management community. The expectation being that by developing the emotional intelligence of those working in projects, gains should eventually be seen in terms of improvements in those project management behaviours deemed important to successful projects (Turner and Lloyd-Walker, 2008).

This study therefore aims to make a contribution specifically to the project management field by examining the effects of training on a sample of project managers in the UK, and identifying whether changes occur in their emotional intelligence and relevant project management competences. The results show some positive effects for training. The findings are therefore of particular significance for those considering how best to design development strategies to enhance project management performance with emotional intelligence as a key focus.

2. The concept of emotional intelligence and its development

Throughout the 1990s a number of differing conceptualizations of emotional intelligence or models have been proposed, igniting considerable debate as to the theoretical validity of the concept (Conte, 2005; Locke, 2005). Although there is some degree of overlap between a number of these models (for example most include an emphasis on emotional awareness), essentially they differ quite markedly in how they perceive the EI construct, how it is measured and the relationships the construct potentially has to other relevant aspects of human functioning. Generally these differing models can be categorized as either ability-based conceptualizations of EI, mixed-model conceptualizations and competence-based approaches, although some models do not always fit neatly into either grouping. The ability model of emotional intelligence (Salovey and Mayer, 1990) is widely regarded as the most scientifically robust model of emotional intelligence in that it meets the criteria far more closely than others, for what might be termed an independent intelligence. The four abilities are cognitive in nature and are argued as developing from early childhood onwards. These four abilities are arranged in a hierarchical fashion in the following order: (1) the ability to perceive emotion; (2) the ability to integrate emotion to facilitate thought; (3) the ability to understand emotions; and (4) the ability to manage emotions.

Over the past 15 years there has been considerable work undertaken in developing an appropriate measure and establishing its validity with some promising results. For example, the ability measure of EI correlates only modestly with other forms of cognitive ability (e.g. verbal and perceptual reasoning (Mayer et al., 2008), and aspects of personality such as openness and agreeableness (Day and Carroll, 2004; Lopes et al., 2003), thereby offering some support for the independent nature of the construct. By

contrast both mixed (Bar-On, 1997) and competence (Goleman, 1995, 1998) models of emotional intelligence include a range of non-cognitive capabilities or personality traits as part of their overall conceptualization of the construct. As a result, many of the measures used to assess emotional intelligence from this perspective have received some degree of criticism as sharing an extensive degree of overlap with existing measures of personality such that the independent and unique nature of the construct is compromised (Davies et al., 1998). This is important since it suggests such measures of EI may not be offering anything new in terms of accounting for differences in individuals' performance, whereas the ability model may be explaining something more distinctive.

Seven studies have to date reported evaluations of interventions designed to develop emotional intelligence. Two of these studies used competence based measures of emotional intelligence drawn from Goleman's Emotional Competence Inventory (Sala, 2006; Turner and Lloyd-Walker, 2008). Sala (2006) reported positive effects for training on 8 of the 20 emotional intelligence competence areas he examined. Turner and Lloyd-Walker (2008) evaluated the impact of a training programme on 42 project management employees based in a US defence project. Emotional intelligence was assessed through self and peer ratings again using Goleman's (1995, 1998) Emotional Competence Inventory. Measures of job satisfaction and job performance were also collected, with all post course measures collected 6 months following training. Generally they concluded positive effects for the training intervention in terms of self-ECI ratings but no effects for peer ratings of ECI competences. Slaski and Cartwright (2003) evaluated the impact of five training programmes delivered one day a week over four weeks, with 12 managers attending each programme. A pre/post test research design with a comparison group was used where training participants completed two measures of emotional intelligence, the EQ-i (Bar-On, 1997) and the EIQ (Dulewicz and Higgs, 2003) as well as three measures of health and well-being, pre-training and then again 6 months later. A positive impact for the training was reported with statistically significant improvements found in the EI measures used (the overall EQ-i score and a number of its subscales, and similarly in the overall EIQ score and all except two of its subscales).

The remaining four studies all evaluated EI development interventions based upon Mayer and Salovey's (1997) ability model of emotional intelligence. Two of these however used self and peer assessed measures of emotional abilities. Moriarty and Buckley (2003) reported positive findings for the impact of the intervention on EI. Using a pre/post test research design and a team based measure of emotional intelligence, significant positive changes were found in one of the two self assessed EI measures of EI abilities and both peer assessed measures. Similarly, Groves et al. (2008) again using a self-report measure of EI abilities developed specifically by the authors (the emotional intelligence self description inventory (EISDI), reported statisti-

cally significant improvements in all four EI ability scores and overall EI score as part of a student EI development programme. By contrast, both Mayer et al. (2008) and Clarke (2007) used an ability performance-based test to assess emotional intelligence (the Mayer–Salovey–Caruso–Emotional Intelligence Test (MSCEIT) and reported mixed results with positive effects found only in a few of the emotional abilities examined.

Based upon the studies above, it would seem that developmental interventions can have an impact on emotional intelligence, but that the criterion measure used to assess emotional intelligence would appear to make a difference. Far more positive results are found for those studies using self and peer assessed measures of emotional intelligence irrespective of the EI model used (Groves et al., 2008; Moriarty and Buckley, 2003; Sala, 2006; Slaski and Cartwright, 2003; Turner and Lloyd-Walker, 2008), but these suffer with validity problems due to the social desirability effects of self reporting. Despite suggestions in the literature then, that training may have a positive effect on emotional intelligence (Bagshaw, 2002; Cherniss and Caplan, 2001), there is in effect a paucity of data available to reach any confident conclusions.

Given that only two EI development studies have to date appeared in the literature using more objective performance-based ability test measures of EI, further studies using this measure are clearly needed. From a project management perspective, there is also a need for studies that examine EI development interventions and identify whether these can be tracked to improvements in the attitudes and behaviours necessary for project management. Despite significant interest in the concept of emotional intelligence within project management (Druskat and Druskat, 2006; Leban and Zulauf, 2004; Muller and Turner, 2007) this is still a relatively unexplored concept within the field and research examining interventions for developing emotional intelligence in project managers is very much embryonic.

3. Focus of the current study

The focus of the study was to determine whether training can result in improvements in project managers' emotional intelligence *abilities* using a performance-based measure of EI, and whether relevant project management competences also improve as a result of training. Three specific hypotheses tested in the study and their rationale were as follows: Findings from both quantitative and qualitative studies investigating the development of emotional abilities have suggested that development is more likely to occur over a relatively longer time period compared to training effects obtained generally, involving a number of months or more (Clarke, 2006, 2007; Groves et al., 2008; Moriarty and Buckley, 2003). Clarke (2007) has previously suggested that emotional intelligence training may provide trainees with an initial awareness of their emotional abilities, but that this is only a platform from which further development may then occur as a result of learning that

then occurs on the job (workplace learning). This gives rise to the first hypothesis:

Hypothesis 1. *Positive changes in the emotional intelligence abilities: (1) perceiving emotions, (2) using emotions to facilitate thinking, and (3) understanding emotions will not be found immediately after participants have attended training but will be found 6 months later.*

Although suggested as laying outside the ability construct of emotional intelligence, the dispositional tendency of empathy has been proposed as a characteristic of emotionally intelligence behaviour (Salovey and Mayer, 1990). Empathy involves a capacity for recognizing feelings in others which require a level of emotional awareness. We should therefore expect to see increases in participant measures of empathy as a result of increases in their emotional abilities. This gives rise to the following hypothesis:

Hypothesis 2. *Significant increases in participants' empathetic ability will be found 6 months following participants attending training but not immediately after training.*

A number of authors have suggested that emotional intelligence may be an important aspect of individual difference that is associated with the skills and competences necessary for working in and leading projects (Druskat and Druskat, 2006; Leban and Zulauf, 2004; Muller and Turner, 2007). Clarke (in press) previously found emotional intelligence abilities were associated with the project management competences of teamwork and conflict management. Significant changes in these two specific project management competences should therefore be expected as a result of improvements in participants' emotional intelligence abilities. This gives rise to the third and final hypothesis:

Hypothesis 3. *Positive improvements in the project management behaviours (competences) associated with teamwork and conflict management will be found 6 months following training but not immediately after training.*

4. The training intervention

This comprised a two-day training programme that was designed to improve a number of targeted emotional abilities and empathy among the participants specifically within a project management context. The training programme was delivered on three separate occasions to three groups of project managers. Two groups were drawn from two organizations that were approached to participate in the study. The third group comprised participants from the UK chapter of the Project Management Institute who responded to an advertisement to take part in the research project. The total population of trainees combined both those attending voluntarily and those requested to attend by their organizations. The design and content of the training programme was based on a detailed review of the literature in the area and is reported in Clarke and Howells

(2009). Key aspects included: (1) a sustained focus on developing self awareness of emotional intelligence amongst participants, (2) identifying the significance of emotional intelligence for understanding behaviour and interpersonal relationships, (3) participants receiving feedback on their own emotional abilities or competences, and (4) the use of structured exercises involving EI in order to provide participants with insights into aspects of their interpersonal behaviour or preferences.

5. The study and methods

The study employed a pre/post test quasi-experimental design (Campbell and Stanley 1963) with measures of emotional intelligence collected 1 month prior to participants attending the 2-day training programme (Time 1), again 1 month following training (Time 2), and then again 6 months post training (Time 3). Fifty-seven project managers enrolled to take part in the training study. In addition, 18 project managers volunteered to act as a comparison group. Major problems with participant attrition resulted in only 36 complete data sets being obtained (containing measures from all 3 time points). A larger number (53) of matched baseline and second post course (6 months later) were obtained however. In order to maximise the statistical power of the tests, it was decided to run two sets of independent tests. The first set examining differences between all baseline measures (Time 1) and those obtained 6 months later (Time 3) using the larger data set ($N = 53$). The second examining differences between baseline (Time 1) and the first set of post course measures collected 1 month following training (Time 2) from the smaller subset ($N = 36$). The characteristics of the larger sample of 53 training participants were as follows. The majority, 32 of these participants were female (60%) and 15 (28%) were certified project managers. The average age was 39.7 (SD 8.3) and ages ranged between 23 and 58. These participants indicated their job roles as follows: General Management 14 (26%), Marketing/Sales 2 (4%), HRM/Training 1 (2%), Finance 2 (4%), R&D 2 (4%), Technical 4 (8%) and Other 28 (52%). Significant attrition was also encountered with the comparison group with matched baseline (Time 1) and 6-month post course (Time 3) measures obtained from only 6 of the 18 project managers volunteering to take part. As a result, it was decided to exclude data from the comparison group from subsequent analyses.

6. Dependent measures

6.1. Emotional intelligence

The Mayer-Salovey-Caruso-Emotional Intelligence Test (MSCEIT V2.0) (Mayer et al. 2002) was used to assess the three emotional intelligence abilities perceiving emotions, using emotions to facilitate thinking and understanding

emotions. The MSCEIT V2.0 consists of 141 items divided into eight sections, or tasks that correspond with the four branches or abilities of Mayer and Salovey's (1997) ability model of emotional intelligence: (1) perceiving emotions (B1), (2) using emotions to facilitate thinking (B2), (3) understanding Emotions (B3), and (4) managing emotions in oneself and others (B4). Previously reliabilities for each of the scales have been reported as 0.90, 0.76, and 0.77 (Mayer et al., 2002). Reliabilities obtained for each of the three branches on the first administration was 0.88, 0.62, and 0.95, respectively.

6.2. Empathy

Mehrabian and Epstein's (1972) 33-item of emotional empathy was used to assess empathetic tendency. Responses to each item are on a scale ranging from +4 (very strong agreement) to -4 (very strong disagreement). Scores on 17 items are negatively scored in that the signs of a participant's response on negative items are changed. A total empathy score is then obtained by summing all 33 items. Sample items include (1) (+) It makes me sad to see a lonely stranger in a group, and (24) (-) I am able to make decisions without being influenced by people's feelings. The scale authors previously reported the split-half reliability for the measure as 0.84. Here the Spearman-Brown split-half coefficient was found to be 0.86 suggesting good reliability.

6.3. Project management competences

The Teamwork competence was assessed using a self-report 7-item scale. Sample items included: (1) Built trust and confidence with both stakeholders and others involved on the project? (2) Helped to create an environment of openness and consideration on the project? The Conflict Management competence was assessed using a 6-item scale. Sample items included: (1) Recognized conflict and (2) Worked effectively with the organisational politics associated with the project. Development and validation procedures of both scales is reported in Clarke (in press). Reliabilities coefficients were found to be satisfactory at 0.82, and 0.79 for each of the two scales, respectively.

7. Data analyses

Initial tests began with examining correlations between all variables measured in the study collected at Time 1 and Time 3 months later. This was followed by undertaking a multivariate analysis of variance using a repeated measures design (MANOVA). Time was entered as the within subject factor name with 2 levels (pre and 6-month post test) alongside the six dependent variables assessed in the study (3 EI abilities, Empathy, and the two project manager competences). The software programme SPSS for Windows (Version 15.0; SPSS Chicago, IL, USA) was used for all statistical analyses.

8. Results

Means, standard deviations, and correlations between measures are presented in Tables 1 and 2. The number of significant correlations between each of the three emotional abilities perceiving emotions (B1), using emotions to facilitate thinking (B2), and understanding emotions (B3), confirm that these abilities are related to one another within an overall construct, emotional intelligence. Initial MANOVA tests were performed to identify whether any statistically significant changes had occurred in measures of the dependent variables between Time 1 and Time 3. Results indicated significant differences had occurred between the two time points, $F(6,47) = 4.45, p < .001$. Further follow up univariate analyses of variance tests were therefore conducted (Table 3). The results for both the emotional abilities, Perceiving Emotions ($F(6,47) = .08, p < n.s.$) and Using Emotions to Facilitate Thinking ($F(6,47) = .55, p < n.s.$) both failed to show any statistically significant changes. Significant effects were found however in relation to the emotional ability, Understanding Emotions ($F(6,47) = 7.76, p < .01$). Follow up t -tests on differences between Time 1 and Time 2 measures (1 month following training) showed no statistically significant changes in any of the three emotional abilities. Perceiving emotions, $t(35) = -0.1, p < n.s.$; using emotions $t(35) = .21, p < n.s.$, and understanding emotions, $t(35) = -.38, p < n.s.$ Hypothesis 1 was therefore partially supported.

Table 1
Means and standard deviations of dependent variables at Time 1, Time 2, and Time 3.

Variable	Time 1	Time 2*	Time 3**
Perceiving emotions (B 1)	93.77 (18.64)	95.77 (22.05)	94.39 (20.80)
Using emotions (B2)	95.78 (14.64)	97.70 (14.52)	94.54 (15.41)
Understand emotions (B3)	97.85 (9.37)	99.24 (9.30)	101.35 (8.5)
Empathy	30.16 (22.97)	28.52 (21.53)	26.0 (23.33)
Teamwork	5.63 (.64)	5.64 (.72)	5.81 (.55)
Managing conflict	5.53 (.69)	5.43 (.43)	5.59 (.70)

* $N = 36$.

** $N = 53$.

Table 2
Correlations between all variables (Time 1 and Time 3).

	1	2	3	4	5	6	7	8	9	10	11
1. (B1)Perceive											
2. (B2) Use	.57**										
3. (B3) Understand	.26	.49**									
4. Empathy	.11	.27	.27								
5. Teamwork	.24	.46**	.39**	.23							
6. Conflict management	.14	.38**	.36**	.04	.76**						
7. B1 (3)	.68**	.63**	.43**	.06	.29*	.18					
8. B2 (3)	.49**	.67**	.42**	.22	.38**	.35*	.39**				
9. B3 (3)	.02	.20	.47**	-.05	.47**	.41**	.17	.15			
10. Empathy (3)	.06	.27*	.23	.78**	.21	.09	.14	.27	.06		
11. Teamwork (3)	.23	.36**	.29**	.27	.48**	.31*	.22	.24	.11	.22	
12. Conflict management (3)	.15	.22	.21	.44**	.45**	.26	.06	.23	.13	.36**	.68**

* $p = .05$.

** $p = .01$.

Table 3
Results of univariate F tests on emotional abilities, empathy, and project management competences.

Variable	Type III sum of squares	DF	F	Sig.	Partial H squared
Perceiving emotions (B1)	10.41	1	.08	.78	.002
Using emotions (B2)	40.68	1	.55	.46	.01
Understand emotions CB3)	324.67	1	7.66	.008	1.28
Empathy	456.60	1	3.96	.05	.Q7
Teamwork	.813	1	4.34	.04	.08
Managing conflict	1.98	1	6.27	.01	.11

Significant differences were also found between Time 1 and Time 3 measures of empathy ($F(6,45) = 3.96, p < .05$). Follow up t -tests on differences between Time 1 and Time 2 measures (1 month following training) showed no statistically significant changes, empathy $t(35) = 1.84, p < n.s.$ However an examination of the mean scores obtained for Time 1 and Time 3 measures (Table 1) shows that empathy scores actually decreased over this time period. Hypothesis 2 was therefore not supported. Finally, significant positive changes were also found between Time 1 and Time 3 measures in both of the project management competences of Teamwork ($F(6,45) = 4.34, p < .05$), and Conflict Management ($F(6,45) = 6.27, p < .01$). Follow up t -tests on differences between Time 1 and Time 2 (1 month following training) showed no statistically significant changes in any of these competences, Teamwork $t(35) = 1.31, p < n.s.$; or managing conflict, $t(35) = .06, p < n.s.$ Hypothesis 3 was therefore supported.

9. Discussion

Findings here suggest that the emotional intelligence ability, understanding emotions can be developed in project managers as a result of a 2-day training intervention. However, the results suggest that this took place during the 6 months following attendance on training. Although

based on a subset of the total number of training participants, the data analyses found no statistically significant changes in this emotional ability 1 month post training. Changes were however detected 6 months following training in the larger data set. Although not conclusive, the results are strongly suggestive that whereas training may offer a platform to begin developing this specific emotional ability, additional factors subsequently play a role.

The failure to detect any changes in the two emotional abilities, perceiving emotions and using emotions to facilitate thinking was unexpected and contrary to that hypothesized. One possible explanation for the failure to find any positive changes in the emotional ability, perceiving emotions here may be that the content of training was not sufficiently matched to the content domain covered in the emotional intelligence test administered. Alternatively, it could be that the half day allocated on the training to develop this emotional ability was insufficient for trainees to gain increased mastery in this area. In relation to no statistically significant changes found in the emotional ability *Using emotions to facilitate thinking*, a major factor here could lie with the low reliability found for the measure of this ability in the study. This was low, with a coefficient alpha of only 0.62. To date, few studies have used the MSCEIT in field as opposed to experimental settings. It is possible then that differing testing conditions may have influenced the reliability of this scale.

The study also found statistically significant improvements in the self-assessed project management competences of teamwork and managing conflict. It is tempting to assume that the increase in the emotional ability, understanding emotions may have been associated with all these improvements. Especially since positive changes were not detected on month following training. However it may well be that training resulted in improvements in trainees' confidence in their competence in these areas which resulted in higher self ratings 6 months later.

Finally changes in empathy scores between baseline (Time 1) and 6 months post training (Time 3) were found to be statistically significant, but had actually decreased over the 6 month period following training. This was in the opposite direction to that hypothesized. One explanation might be that decreases in emotional empathy were linked to the significant improvements found in the ability, understanding emotions, as a result of the training. Previously Cliffordson (2002) investigated relationships between a multidimensional measure of empathy and social skills. In a study involving 127 applicants for nursing and social work degree programmes she found that the personal distress aspect of emotional empathy was negatively related to the emotional and social control dimensions found in the social skills measures she used. The ability, *understanding emotions* enables individuals to identify what circumstances cause different emotional responses and how more simple emotions blend to cause more complex emotional states. This knowledge is thought to be important in enabling individuals to under-

stand why they may be experiencing particular feelings which is pre-requisite for then considering how these feelings be best managed or controlled. It is possible then that improvements in this ability may have assisted trainees to moderate the levels of emotional distress they experienced in response to those items tapping personal distress in the affective empathy scale used in the study. This does offer a plausible explanation for the statistically significant decrease found in emotional empathy and offers further support for the training having had some impact on the development of this specific emotional intelligence ability.

This particular emotional ability is important since it relates to an individual's understanding of how different situations, behaviours and events can give rise to particular emotional responses in themselves and in others (Mayer and Salovey, 1997). It has been suggested as important in work contexts as emotional knowledge of this kind can assist individuals to better negotiate social encounters and to use this knowledge in the pro active building of inter-personal relationships (Lopes et al., 2003). It has also been suggested as important in leadership contexts for knowing when and how to use affect in order to stimulate creativity, optimism and generate excitement among followers in the pursuit of goals (George, 2000; Prati et al., 2003). Understanding how events in projects can trigger specific emotional responses that then impact on performance can assist project managers in planning, setting and communicating tasks (Jordan et al., 2002). A knowledge of how different emotions are generated and how they can influence attitudes and behaviours is also likely to offer project managers distinct advantages within contexts where they are dependent on building commitment and trust rapidly in order for individuals to work effectively together within projects (Burgess and Turner, 2000; Hartman, 2000). Elsewhere it has also been found that positive affect amongst construction project managers was a key factor associated with their coping and adjustment to dealing with stress thereby avoiding psychological problems (Haynes and Love, 2004). Beyond project effectiveness then, it would seem likely that there may well be other major gains that could be made from project managers attending training such as this, in terms of the wider health and well-being of those involved in projects. Together this suggests a rich vein of further research is needed to identify the various ways in which emotional intelligence might impact in projects.

The findings from the study suggest that certainly as far developing the emotional intelligence ability, *Understanding Emotions* is concerned, organizations wishing to develop project managers' ability in this area might achieve similar positive results if they adopt identical strategies to the design of the training programme to those used here. These included: (1) opportunities for participating in structured practice sessions that required participants to consider how emotional abilities may be used in their roles as project managers, (2) practicing EI associated behaviours and then receiving feedback, and (3) observing others

during role plays and simulations. The use of these specific development strategies have previously been found to promote learning and strengthen self-efficacy which seems important in the development of emotional intelligence abilities (Cherniss and Caplan, 2001). However the findings suggest a cautionary note in assuming that any developmental changes in EI are due to the effects of training alone. Previously Clarke (2006) has suggested that developing emotional intelligence abilities in unlikely to be achieved within short periods and findings from the few empirical studies to date (for a review see Clarke (in press)) point to periods of 2 months or more as being necessary. The finding that positive change occurred only in one emotional intelligence ability, understanding emotions would appear to underscore the limitations of the effectiveness of training alone to achieve this. What seems important now is to investigate the processes that occur outside the training environment which seem to have a subsequent impact on the development of EI.

10. Conclusions

This is the first study to appear in the literature that has investigated whether participation in a short training programme can affect the development of emotional intelligence abilities in project managers. The study found that participation in a 2-day training programme resulted in statistically significant improvements in one of the emotional intelligence abilities tested, the ability to understand emotions. Importantly this positive change was not found immediately following training (1 month later) but was found 6 months post training. The results indicate then, that the impact of training on this ability is unlikely to be seen immediately, requiring some months before any improvements can be detected. This would seem to suggest that although training can provide an initial self-awareness of the importance of emotions, the actual processes associated with the development of this emotional intelligence ability continue taking place after training has taken place, possibly through on-the-job learning mechanisms. This would seem to correspond with other studies that have found developments in ability-derived measures of EI within team learning contexts (Clarke, 2007; Groves et al., 2008; Moriarty and Buckley, 2003). However the limitations associated with the research design suggest that any conclusions should only be treated as tentative at this stage. The evaluation was based on a study comprising of a sample of only 53 participants. Although such sample sizes are commonly found within the training evaluation literature (Cromwell and Kolb, 2004; Lim and Morris, 2006) they do nonetheless pose problems with increasing dangers of type I errors (i.e. finding a positive result when in fact the reverse is true). The absence of a suitable comparison group also means that maturational factors cannot be ruled out as accounting for the positive results found. The use of self-ratings to assess project management competences is a further major limitation of the study given that self ratings

are generally far more lenient than those from observers (Atwater and Yammarino, 1992). A further problem concerned the significant participant attrition that was encountered particularly at 1 month post training (Time 2). This resulted in a smaller subset of data available for analyzing whether there had been in any change in trainees' emotional intelligence abilities 1 month immediately following training. It could be that the reduced sample here resulted in the failure to find any positive effects at this time point. Future studies should therefore aim to replicate this study involving larger populations and using more objective measures of project manager competences. Given criticisms that much training for project management has tended to overly focus on the technical and planning aspects of project management, potential gains in a wide range of key project management areas could well be achieved through the additional programmes described here.

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References

- Atwater, L.E., Yammarino, F.J., 1992. Does self-other agreement on leadership perceptions moderate the validity of leadership and performance predictions? *Pers. Psych.* 45, 141–164.
- Bagshaw, M., 2002. Emotional intelligence – training people to be affective so they can be effective. *Indust. Commer. Train.* 32 (2), 61–65.
- Baker, B.N., Murphy, D.C., Fisher, D., 1983. Factors affecting project management success. In: Cleland, D.J., King, W.R. (Eds.), *Project Management Handbook*. Van Nostrand Reinhold, New York, pp. 669–685.
- Bar-On, R., 1997. Bar-on emotional quotient inventory: a measure of emotional intelligence. Technical manual. Multi-Health Systems, Toronto.
- Burgess, R., Turner, S., 2000. Seven features for creating and sustaining commitment. *Int. J. Project Manage.* 18 (4), 225–233.
- Butler, C.J., Chinowsky, P.S., 2006. Emotional intelligence and leadership behaviour in construction executives. *J. Manage. Eng.* 22 (3), 119–125.
- Campbell, D.T., Stanley, J.C., 1963. *Experimental and Quasi-Experimental Designs for Research*. Rand McNally College Publishing, Chicago.
- Cherniss, C., Caplan, R.D., 2001. Implementing emotional intelligence programs in organizations. In: Cherniss, C., Goleman, D. (Eds.), *The Emotionally Intelligent Workplace*. Jossey-Bass, San Francisco, San Francisco, pp. 132–155.
- Clarke, N., 2006. Developing emotional intelligence through workplace learning: findings from a case study in healthcare. *Hum. Res. Dev. Int.* 9 (4), 447–465.
- Clarke, N., 2007. Can we develop emotional intelligence in managers? In: *Proceedings of the Eighth University Forum for Human Resource Development Conference*, Oxford, UK.
- Clarke, N., in press. The relationship between emotional intelligence abilities, transformational leadership behaviour, and project management competences. *Project Manage. J.*
- Clarke, N., Howells, R., 2009. Emotional intelligence and projects: a pilot research project. Report to the Project Management Institute, US.
- Cleland, D.C., 1995. Leadership and project management body of knowledge. *Int. J. Project Manage.* 13 (2), 83–88.
- Cliffordson, C., 2002. The hierarchical structure of empathy: dimensional organization and relations to social functioning. *Scan. J. Psych.* 43, 49–59.

- Conte, J.M., 2005. A review and critique of emotional intelligence measures. *J. Org. Beh.* 26 (4), 433–440.
- Cooke-Davies, T., 2002. The real success factors on projects. *Int. J. Project Manage.* 20 (3), 185–190.
- Cowie, G., 2003. The importance of people skills for project managers. *Ind. Comm. Train.* 35 (6), 256–258.
- Cromwell, S.E., Kolb, J.A., 2004. An examination of work-environment support factors affecting training transfer of supervisory skills training to the workplace. *Hum. Res. Dev. Quart.* 15 (4), 449–471.
- Davies, M., Stankov, L., Roberts, R.D., 1998. Emotional intelligence: in search of an elusive construct. *J. Pers. Soc. Psych.* 75 (4), 989–1015.
- Day, A.L., Carroll, S.A., 2004. Using an ability-based measure of emotional intelligence to predict individual performance, group performance, and group citizenship behaviors. *Pers. Ind. Diff.* 36, 1443–1458.
- Druskat, V., Druskat, P., 2006. Applying emotional intelligence in project working. In: Pryke, S., Smyth, H. (Eds.), *The Management of Complex Projects: A Relationship Approach*. Blackwell, Oxford, pp. 78–96.
- Dulewicz, V., Higgs, M.H., 2003. Design of a new instrument to assess leadership dimensions and styles. Henley Working Paper Series, HWP 0311. Henley Management College, Henley-on-Thames, UK.
- El-Sabaa, S., 2001. The skills and career path of an effective project manager. *Int. J. Project Manage.* 19 (1), 1–7.
- George, J.M., 2000. Emotions and leadership: the role of emotional intelligence. *Hum. Rel.* 53, 1027–1055.
- Goleman, D., 1995. *Emotional Intelligence*. Bantam, New York.
- Goleman, D., 1998. *Working with Emotional Intelligence*. Bantam, New York.
- Groves, K.S., McEnrue, M.P., Shen, W., 2008. Developing and measuring the emotional intelligence of leaders. *J. Manage. Dev.* 27 (2), 225–250.
- Hartman, F., 2000. *Don't park your brain outside*. Project Management Institute, Philadelphia.
- Haynes, N.S., Love, P.E.D., 2004. Psychological adjustment and coping among construction project managers. *Cons. Manage. Econ.* 22, 129–140.
- Jordan, P.J., Ashkanasy, N.M., Hartel, C.E.J., Hooper, G.S., 2002. Workgroup emotional intelligence. Scale development and relationship to team process effectiveness and goal focus. *Hum. Res. Manage Rev.* 12, 195–214.
- Leban, W., Zulauf, C., 2004. Linking emotional intelligence abilities and leadership styles. *Lead. Org. Dev. J.* 25 (7), 554–564.
- Lim, D.H., Morris, M.L., 2006. Influence of trainee characteristics, instructional satisfaction and organizational climate on perceived training transfer. *Hum. Res. Dev. Quart.* 17, 185–215.
- Locke, E.A., 2005. Why emotional intelligence is an invalid concept. *J. Occ. Beh.* 26 (4), 425–431.
- Lopes, P.N., Salovey, P., Strauss, R., 2003. Emotional intelligence, personality and the perceived quality of social relationships. *Pers. Ind. Diff.* 35, 641–658.
- Mayer, J.D., Salovey, P., 1997. What is emotional intelligence? In: Salovey, P., Sluyter, D.J. (Eds.), *Educational Development and Emotional Intelligence: Educational Implications*. Basic Books.
- Mayer, J.D., Salovey, P., Caruso, D.R., 2002. *Mayer–Salovey–Caruso Emotional Intelligence Test*. Multi Health Systems, Toronto.
- Mayer, J.D., Roberts, R.D., Barsade, S.G., 2008. Human abilities: emotional intelligence. *Ann. Rev. Psych.* 59, 507–536.
- Mehrabian, A., Epstein, N., 1972. A measure of emotional empathy. *J. Pers.* 40, 525–543.
- Milosevic, D., Inman, L., Ozbay, A., 2001. Impact of project management standardization on project effectiveness. *Eng. Manage J.* 13 (4), 9–16.
- Moriarty, P., Buckley, F., 2003. Increasing team emotional intelligence through process. *J. Eur. Ind. Train.* 27 (2/3/4), 98–110.
- Mount, J., 2006. The role of emotional intelligence in developing international business capability: EI provides traction. In: Druskat, V.U., Sala, F., Mount, J. (Eds.), *Linking Emotional Intelligence and Performance at Work*. Lawrence Erlbaum Associates.
- Muller, R., Turner, J.R., 2007. Matching the project manager's leadership style to project type. *Int. J. Project Manage.* 25, 21–32.
- Prati, L., Douglas, C., Ferris, G.R., Ammeter, A.P., Buckley, M.R., 2003. Emotional intelligence, leadership effectiveness, and team outcomes. *Int. J. Org. An.* 11, 21–40.
- Rudolph, T., Wagner, T., Fawcett, S., 2008. Project management in retailing: integrating the behavioral dimension. *Int. Rev. Ret. Dis. Cons. Res.* 18 (3), 325–341.
- Sala, F., 2006. Do programs designed to increase emotional intelligence at work-work? Available from: www.eiconsortium.org/research/doeiprogramswork.htm.
- Salovey, P., Mayer, J.D., 1990. Emotional intelligence. *Imag. Cog. Pers.* 9, 185–211.
- Slaski, M., Cartwright, S., 2003. Emotional intelligence training and its implications for stress, health and performance. *Str. Health.* 19 (4), 233–239.
- Strohmeier, S., 1992. Development of interpersonal skills for senior project managers. *Int. J. Project Manage.* 10 (1), 45–48.
- Sunindijo, R.Y., Hadikusumo, B.H.W., Ogunlana, S., 2007. Emotional intelligence and leadership styles in construction project management. *J. Manage. Eng.* 23 (4), 166–170.
- Turner, R., Lloyd-Walker, B., 2008. Emotional intelligence (EI) capabilities training: can it develop EI in project teams? *Int. J. Manage. Project* 1 (4), 1–25.