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Using Emotional Intelligence in Coaching High Performance Athletes: A Randomised  
Controlled Trial

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## **Abstract**

Emotional intelligence is an important and popular concept within coaching. This randomised controlled trial investigated the short term impact of coaching using emotional intelligence on three factors related to performance in athletes: anxiety, self-efficacy and team identification. Twenty high performance netball players were divided into coaching and control groups. The coaching group completed the Bar-On EQ-i to produce emotional intelligence profiles that formed the basis of the solution-focused coaching session. Coaching improved self-efficacy and anxiety but not team identification. There was no change in the control group. Self-efficacy and anxiety are directly linked to scales on the EQ-i whereas team identification is not directly linked. The findings indicate that solution-focused coaching using emotional intelligence is effective, but only when a direct link is identified between a particular component of emotional intelligence and a particular outcome.

*Keywords:* emotional intelligence; coaching; randomised controlled trial

## Using Emotional Intelligence in Coaching High Performance Athletes: A Randomised Controlled Trial

Emotional intelligence plays an important role in coaching in a number of domains, principally organisations (Maddocks, 2009), but the benefits have been highlighted elsewhere such as medicine (Weng, Chen, Chen, Lu, & Hung, 2008) and sport (Chan & Mallet, 2011). The rationale for applying emotional intelligence is strong. There is considerable meta-analytic evidence that emotional intelligence is associated with positive outcomes such as better work performance (Joseph & Newman, 2010) and improved health (Martins, Ramalho & Morin, 2010). Emotional intelligence has also been positively associated with performance in sport (e.g. Crombie, Lombard, & Noakes, 2009; Zizzi, Deaner, & Hirschhorn, 2003). These studies propose that the capacity to recognise and regulate emotions enables athletes to perform better. For example, Crombie et al. suggests that regulating emotions under pressure helps athletes avoid problems such as ‘choking’ (poor task execution under stress). Given the benefits of applying emotional intelligence in sport, the aim of this research is to investigate the effectiveness of using emotional intelligence within a solution-focused coaching intervention to influence three psychological factors that have been linked to performance in athletes: anxiety, self-efficacy and team identification.

Emotional intelligence refers to a person’s competence in processing emotional information. There is no consensus on the precise conceptualisation, with some viewing it as an ability (e.g. Mayer, Salovey, & Caruso, 2004) and others viewing it as a trait (e.g. Petrides & Furnham, 2003). The present study is based on Bar-On’s model of emotional-social intelligence (Bar-On, 2006). This model defines emotional-social intelligence as “a cross-section of interrelated emotional and social competencies, skills and facilitators that determine how effectively we understand and express ourselves, understand others and relate with them, and cope with daily demands” (Bar-On, 2006, p. 14). It is operationalized by the EQ-i, a self-report measure assessing five

components: intrapersonal (self awareness and self expression); interpersonal (social awareness and interpersonal relationship); stress management (emotional management and regulation); adaptability (change management); and general mood (self-motivation) (Bar-On, 2004). In 2011 the second version of the Baron EQ-i was released, the EQ-i 2.0. The revision saw a modernisation of the reports with minor changes to the tool. Some items were removed to make it more applicable for occupational settings as the original contained some items which had strong links to clinical settings. At the time of the study the EQ-i 2.0 had not been released, so this study used the original version.

Three psychological factors were chosen for the study that are linked to performance in athletes and have the potential to be positively influenced by coaching based on emotional intelligence. The first factor is anxiety. Stress and anxiety have detrimental effects on performance in competitive sport (Woodman & Hardy, 2003). [Crombie et al. \(2009\)](#) propose that emotional intelligence could influence performance through managing emotions under stress, and emotional intelligence has been linked to reduced stress in sport (e.g. Laborde, Brüll, Weber, & Anders, 2011; Laborde, Lautenbach, Allen, Herbert, & Achtzeh, 2014). The EQ-i includes a stress management scale with emotional management and regulation subscales. Therefore it is predicted that using information about the athletes' stress management during coaching will help identify ways to reduce stress and anxiety through improved emotional management and regulation. Anxiety will be measured with the State-Trait Anxiety Inventory ([Spielberger, 1983](#)).

The second factor studied is self-efficacy. Self-efficacy is one of the most influential psychological constructs applied to explain performance in sport (e.g. Moritz, Fetz, Fahrback, & Mack, 2000). Self-efficacy is most closely related to the intrapersonal component of the EQ-i which refers to the assessment of the inner self, and this component of the EQ-i has been linked to success in ice hockey (Perlini & Halverson, 2006). Athletes who have lower self-regard and are less independent, measured using subscales of the intrapersonal component of the EQ-i, may

lack belief in their abilities to perform well, reducing their self-efficacy (Bandura, 1986).

Therefore it is predicted that using information about the athletes' self-regard and independence during coaching will help identify ways to raise self-efficacy. Self-efficacy will be measured with the New General Self-Efficacy Scale (Chen, Gully, & Eden, 2001). This measures one's belief in one's competence to perform well across a range of tasks.

The third factor is team identification. This refers to the extent to which individuals define themselves in relationship to their team. Identification with a group has been found to have positive implications at all levels: the individual, the group and the organization (Kreiner & Ashforth, 2004). Identification with the team leads to increased team cohesion (Hogg, 1993) and in sport team cohesion is related to team success (Carron, Colman, Wheeler, & Davis, 2002).

Emotional intelligence is associated with improved social relationships (Nelis et al., 2011). The interpersonal component of the EQ-i provides information about empathy and establishing relationships. It is predicted that using information about the athletes' empathy and capacity to establish relationships during coaching will help identify ways to improve relationships with the team and increase team identification. Team identification will be measured using Mael and Ashforth's (1992) organizational identification questionnaire, adapted in order to apply to teams. This measures how much one defines or categorises oneself as a member of the team.

The current study was conducted with a sample of high performance athletes. These athletes invest considerable time in coaching in order to maximise their performance and, given the benefits to athletes of emotional intelligence (e.g. [Crombie et al., 2011](#)), were receptive to coaching in this domain. A 2x2 factorial design was used for this randomised controlled trial to assess the changes in anxiety, self-efficacy and team identification as a result of the coaching compared to a control group. The EQ-i was used as a framework for the solution-focused coaching session. Athletes in the coaching condition completed the EQ-i and a profile of their scores on each of the scales was calculated. Where these were low the athlete received coaching to develop these areas. As the scales within the EQ-i that are described above are related to

anxiety, self-efficacy and team identification, it is predicted that this coaching session will lead to improvements in these performance-related psychological constructs.

## **Method**

### **Participants**

Twenty female netball players (aged 18-30) volunteered to participate in the study. Nine were professional players from a national Netball Superleague team and the remaining eleven amateurs played at a high level for a regional team.

### **Design**

The study used a 2x2 factorial, randomised controlled trial design. Participants were randomly allocated to either a coaching condition or a control condition. Participants in the coaching condition completed the EQ-i prior to the coaching session to identify areas for coaching. All participants completed the remaining quantitative measures at two time points to assess the impact of coaching. In the coaching condition participants completed these measures at pre-test, prior to the coaching session and again at post-test, after the coaching session. Participants in the control condition completed the quantitative measures twice across a similar time period but did not receive coaching.

### **Measures**

**Emotional intelligence.** Emotional intelligence was measured using the 133 item EQ-i (Bar-On, 2004). This produces an overall EQ-i score and five scales. The five scales are: intrapersonal; interpersonal; adaptability; stress management; and general mood ( $\alpha = .69 - .86$ ). An example

item is “It’s hard for me to understand the way I feel”. Responses were made on a five point scale from *‘very seldom or not true of me’* to *‘very often true of me or true of me’*.

**Anxiety.** Anxiety was measured using the twenty item ( $\alpha = .86$ ) state anxiety subscale of the State-Trait Anxiety Inventory ([Spielberger, 1983](#)). An example item is ‘I feel calm’. Responses were made on a four point Likert scale from 1 = *‘not at all’* to 5 = *‘very much so’*.

**Self-efficacy.** Self-efficacy was measured using the eight item ( $\alpha = .85$ ) New General Self Efficacy Scale (Chen, Gully, & Eden, 2001). An example item is ‘When facing difficult tasks, I am certain that I will accomplish them’. Responses were made on a five point Likert scale from 1 = *‘strongly disagree’* to 5 = *‘strongly agree’*.**Team identity.** We adapted [Mael and Ashforth’s \(1992\)](#) organizational identification questionnaire to measure team identity by replacing the word ‘organization’ with ‘team’. There were six items ( $\alpha = .87$ ). An example item is ‘When someone criticizes my team, it feels like a personal insult’. Responses were made on a five point Likert scale from 1 = *‘strongly disagree’* to 5 = *‘strongly agree’*.

## Procedure

At pre-test, all participants completed the anxiety, self-efficacy, and team identity measures and gave written informed consent. Participants in the coaching condition also completed the EQ-i. Within two weeks participants in the coaching condition had thirty minute one-to-one coaching sessions to discuss their EQ-i profile. Participants in the control condition received no coaching.

Solution-focused coaching was used to engage the participants and allow them to take ownership of the development methods they generated to improve areas of their emotional intelligence. The participant-lead coaching was conducted by the researcher. As the framework was based on the GROW model (Whitmore, 2009) each participant identified the outcome they desired, what the current situation was, the options they had to change it and finally what they will do. The structure of the coaching session consisted of a brief introduction to outline how



the Bar-On EQ-i works and what the scores mean. This was followed by a coach-led detailed feedback session including a brief description of each scale, their score on the scale and what it means, and finally a short discussion with the participants to validate the result and gain more understanding of their overall emotional intelligence. After the feedback at least two areas were identified for development. These were the focus of the coaching.

Initially, the participants were encouraged to reflect on differences between their current profile and their desired self as well as any problems they may experience as a result of low scores. By exploring the current situation it was possible to identify what might be holding the participant back and what the problem may be. This was then reframed from a possible problem to identifying solutions and room for improvement using their strengths in other areas and various resources available to them. Next, the participant developed their desired outcomes in this area by visualising how they would like to be and how they think someone with a higher score in this area would be. They were then encouraged to discuss how they differ from these images. Having identified the differences they were asked to consider what they can do to bridge the gap. This included identifying their current strengths, taking into consideration the progress they had made so far and the resources available to them. By exploring their expectations of what a higher score may look like for them it was possible to begin to develop options and possibilities for development based on the available resources. Participants were always prompted to consider what else they could do. By asking “what else?” several times the participant was able to create several options which could then be transformed into action steps that they could work on following the session.

For example, one of the participants chose their low Self-Regard as an area to improve. She recognised that by reflecting on successes and experiences she would start to see her strengths and contribution to the outcome rather than attributing the results to external factors. During the coaching she explained that she felt that people with a higher score on this scale would be more self-confident and aware of their own strengths and limitations. She decided that

identifying five positive outcomes that she contributed to each day by objectively evaluating situations would help to boost her self-regard and, in turn, her self-efficacy. The strategies developed through coaching help her identify times when she has been successful, which is a method that can increase self-efficacy.

At post-test, all participants completed the self-efficacy, anxiety and team identity measures. This occurred on average one day after the coaching session.

## **Results**

All data were assessed for skewness and kurtosis. In the coaching condition, anxiety was not normally distributed at pre-test with skewness of 1.48 ( $SE = 0.69$ ) nor at post-test with skewness 1.46 ( $SE = 0.69$ ). In the control condition self-efficacy was not normally distributed at pre-test with skewness -1.79 ( $SE = 0.69$ ) and kurtosis 4.42 ( $SE = 1.33$ ). Therefore non-parametric tests were used for all tests. Planned contrasts were conducted to compare pre-test and post-test using Wilcoxon signed-rank tests. A significance value of .05 was set for all tests.

### **Anxiety**

Table 1 presents the scores for anxiety in both conditions. In the coaching condition anxiety decreased from pre-test to post-test,  $Z = -2.09, p = .04$ . In contrast, in the control condition anxiety did not change from pre-test to post-test,  $Z = 0.00, p = 1.00$ .

### **Self-efficacy**

Table 1 presents the scores for self-efficacy in both conditions. In the coaching condition self-efficacy increased from pre-test to post-test,  $Z = -2.57, p = .01$ . In contrast, in the control condition self-efficacy did not change from pre-test to post-test,  $Z = -1.13, p = .26$ .

### **Team identity**

Table 1 presents the scores for team identity in both conditions. In the coaching condition team identity did not change from pre-test to post-test,  $Z = -1.44, p = .15$ . Similarly, in the control condition team identity did not change from pre-test to post-test,  $Z = -0.66, p = .51$ .

## Discussion

Emotional intelligence plays an important part in coaching in a number of domains. The aim of this research was to investigate the effectiveness of using emotional intelligence within a solution-focused coaching intervention to influence three psychological factors that have been linked to performance in athletes: anxiety, self-efficacy, and team identification. We applied this method and found coaching using emotional intelligence decreased athletes' anxiety and increased their general self-efficacy. The coaching had no impact on their team identification.

The stress management scale of the EQ-i includes stress tolerance. This scale refers to the extent that individuals become anxious when stressed. All participants in the coaching condition discussed the meaning of their score on this factor and, where beneficial, were further coached in techniques in stress management. The reduction in state anxiety suggests that discussing this aspect of emotional intelligence helped equip individuals with the skills to manage stress better.

The intrapersonal subscale of the EQ-i is most closely linked to self-efficacy. This scale relates to how individuals feel about themselves and their levels of independence and confidence, which all contribute to self-efficacy (Bandura, 1986). All participants in the coaching condition discussed the meaning of their score on this factor and, where beneficial, received further coaching to improve it. The improvement in self-efficacy suggests that discussing this aspect of emotional intelligence contributed to raising self-efficacy. Team identification was not influenced by coaching, and it is notable that it does not link directly to any of the EQ-i scales. The scales that relate to the team are linked with interactions and empathy with others. None of these tap into social identity, which underlies team identification (Kreiner & Ashforth, 2004). This lack of

direct connection between the scales and the construct measured may have contributed to the non-significant findings. If this explanation is correct this is a useful finding as it reveals a limitation of coaching using emotional intelligence. As coaching in this format is focused on individuals forming interpersonal relations it does not affect team identification, which is linked more closely to social factors such as social identity.

The study has four primary limitations that we have considered when interpreting the results. First, as the data did not meet the assumptions of ANOVA a non-parametric test was used to compare conditions. These tests do not provide an interaction term and so the interaction of coaching/control condition with pre/post time could not be directly tested. However, the approach chosen here is preferable to using a parametric test incorrectly. Second, the sample size is small compared to, for example, the one hundred plus participants that has been proposed as a standard elsewhere (Passmore & Fillery-Travis, 2011). However, the sample size has sufficient statistical power to detect a large effect which is, after all, the size of effect of most practical value ([Friston, 2012](#)). Third, the coaching intervention and post-test took place over a short time period. The study did not investigate longer term effects of coaching and so it is not known how long these changes were sustained for. Fourth, because the coaching intervention was relatively short term we did not expect to see an immediate measurable change in performance on the court and therefore we did not include measures of athletic performance. In future, a longer term study could look at performance across a season where such changes may be measurable.

There are several lines of future research suggested by these findings. First, to assess how long changes are sustained for, a longer follow up period than was possible here should be used. Second, although this study demonstrated change to anxiety and self-efficacy, we did not measure change to emotional intelligence itself. It would be useful to administer the EQ-i again after coaching to discover if these scores changed too.

Overall, the short term coaching intervention was effective when there was a direct link between a scale within the EQ-i measure and the outcome variable that was assessed. Detailed

information about specific aspects of emotional intelligence provided valuable input to the coaching session and led to positive benefits in the related outcome. However, when there was no direct link between emotional intelligence and the outcomes, no benefit was found. From this we conclude that coaching using emotional intelligence can be effective, but only when a direct link is identified between a particular component of emotional intelligence and a particular outcome.

Word count: 3743

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Table 1

Mean scores for coaching and control groups on pre and post-test measures of anxiety, self-efficacy, and team identification (standard deviations in parentheses)

	Anxiety		Self-efficacy		Team Identification	
	Pre	Post	Pre	Post	Pre	Post
Coaching	30.30 (10.11)	26.70 (7.13)	30.50 (4.91)	33.40 (4.12)	23.00 (3.53)	24.80 (3.29)
Control	31.90 (6.15)	31.80 (5.67)	31.20 (4.52)	32.60 (2.07)	22.50 (4.28)	23.90 (2.81)