Validity of the trait emotional intelligence questionnaire in sports and its links with performance satisfaction

Sylvain Laborde [a,b,]*, Fabrice Dosseville [a], Félix Guillén [c], Enrique Chávez [d]

[a] CESAMS, EA 4260, University of Caen, France
[b] German Sport University, Am Sportpark Müngersdorf 6, Institute of Psychology, Department of Performance Psychology, 50933 Cologne, Germany
[c] University of Las Palmas de Gran Canaria, Spain
[d] ESPE (Escuela Politécnica del Ejército), Quito, Ecuador

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ABSTRACT

Objective: This research project consisted of two studies aimed at validating the trait emotional intelligence questionnaire (TEIQue) in a sports sample.
Design: Study 1 used a confirmatory factor analysis (CFA) to investigate if the original 4-factor structure of the TEIQue could be replicated in a sample of athletes. In addition, we explored the relationship between trait emotional intelligence (trait EI) and the demographic variables age, sex, type of sport (individual vs. team), expertise, and years of training. Study 2 used a path analysis approach to explore if trait EI is related to performance satisfaction through stress appraisal and coping behaviors.
Method: In Study 1, 973 athletes completed the TEIQue and a demographic questionnaire. In Study 2, 291 athletes completed the TEIQue. Moreover, with a recent competition in mind, they completed the Coping Inventory for Competitive Sports, as well as items on perceived intensity of stress, perceived controllability of stress, challenge and threat appraisals, coping effectiveness, and performance satisfaction.
Results: Study 1 showed with a CFA that the original 4-factor structure of the TEIQue could be replicated in a sports sample. Of the demographic variables, only age showed a significant positive relationship with trait EI. Study 2 showed that trait EI was related to performance satisfaction through stress appraisal and coping variables.
Conclusions: This research showed that the TEIQue can be used with athletes and that trait EI is useful for understanding certain aspects of sports performance satisfaction.

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Emotions have been found to influence sports performance in a general way (Hanin, 2007) but also in more specific ways, affecting such components as attention (Nieuwenhuys, Pijpers, Oudejans, & Bakker, 2008) and decision making (Laborde, Dosseville, & Raab, 2013; Laborde & Raab, 2013). However, these studies considered emotions only as states. To better understand the influence of emotions on sports performance, they should also be considered at the trait level, as argued by Lazarus (2000). If emotional states reflect a transient influence, emotions at the trait level reflect stable dispositions of the individual that might influence the individual's behavior. One conceptualization of emotions at the trait level is emotional intelligence (EI), which is thought to reflect the way people usually deal with their own and others' emotions (Mayer,

Caruso, & Salovey, 1999; Petrides, 2009b). EI has been conceptualized both as an ability (Mayer et al., 1999), measured by performance tests, and as a trait, measured by self-report questionnaires (Petrides, 2009b). This paper focuses on the validity of the latter conceptualization in the sports domain.

Over the last decade, increasing empirical evidence has been collected regarding the role in sports of EI viewed as a trait, hereafter referred to as trait-based EI. Trait-based EI has been linked to several factors associated with sports performance in athletes, such as adaptive psychological states (Lane & Wilson, 2011), adaptive coping strategies (Laborde, You, Dosseville, & Salinas, 2012), and maximal voluntary contraction (Tok, Binboğa, Guven, Çatıkkas, & Dane, 2013), and is thought to have a protective influence on the physiological reaction to stress (Laborde, Brüll, Weber, & Anders, 2011; Laborde, Lautenbach, Allen, Herbert, & Achtzehn, 2014). Athletes are not the only actors concerned, given that trait EI has also been related to coaching efficacy (Chan & Mallett, 2011). However, despite this growing body of empirical evidence, the

* Corresponding author. German Sport University, Am Sportpark Müngersdorf 6, Institute of Psychology, 50933 Cologne, Germany.
E-mail address: sylvain.laborde@yahoo.fr (S. Laborde).

validity of trait EI has never been demonstrated in sports. This is an important issue (a) at the theoretical level, because it is still not known if a general model of EI can be applied to sports or if EI is domain specific, and (b) at the applied level, because it must be determined if the original EI questionnaires can be applied to athletes or if a sports-specific measure of EI is needed.

Different scales can measure trait-based EI. Those most frequently used in the literature are the Bar-On Emotional Quotient Inventory (Bar-On, 2004), the Schutte EI Scale (Schutte et al., 1998), and the Trait Emotional Intelligence Questionnaire (TEIQue, Petrides, 2009a). Attempts were made to validate the Schutte EI Scale (Lane, Meyer, et al., 2009) and the Bar-On Emotional Quotient Inventory (Stanimirovic & Hanrahan, 2012) in a sports sample. They both failed to support the hypothesized theoretical factor structure. Moreover, Petrides (2009a) argued that both scales were more limited regarding their predictive validity concerning behaviors in comparison to the TEIQue. The TEIQue is based on the trait EI theory (Petrides, 2009b) and has received empirical support in sports (Laborde et al., 2011; Laborde, Dosseville, & Scelles, 2010; Laborde et al., 2014, 2012). However, of these three scales, the TEIQue remains untested in terms of its validity in a sports sample. To remedy this was the aim of Study 1.

In addition to validity, a precise understanding of how EI influences sports performance and emotion-related variables such as stress appraisal, coping behaviors, and coping effectiveness is still lacking. A conceptual model detailing how EI might influence sports performance was proposed by Meyer and Zizzi (2007). However, this conceptual model, based on the ability view of EI, rejects the usefulness of EI as a trait in sports and suffers from ambiguities in its predictions (e.g., this model assumes that a higher EI would predict "rational cognitive appraisals," without clarifying what is meant by this term). In addition, to the best of our knowledge, this model has never been tested empirically. Therefore, a comprehensive model of EI in sports that allows clear predictions to be made based on established theories would be a useful tool for future research. Although studies have separately tested the influence of trait EI on stress appraisal (Mikolajczak & Luminet, 2008), coping strategies (Laborde et al., 2012), and performance (Laborde et al., 2010; Perlini & Halverson, 2006), no study has yet proposed an integrated view of how trait EI is related to these variables. Therefore, in Study 2 we took a path analysis approach to see how trait EI, stress appraisal, coping strategies, and performance relate to each other.

In summary, this research project aimed to fill two major gaps in the literature concerning EI in sports. In Study 1, we sought to establish the validity of a self-report EI instrument (i.e., the TEIQue) in a sports sample. In Study 2, because the existing knowledge about the relationship of trait EI and stress appraisal, coping strategies, and sports performance is currently a collection of disparate findings, we used path analysis to explain the relationship between these variables.

Study 1

In addition to investigating the validity of the TEIQue, in Study 1 we also explored the relationships between trait EI and the demographic variables age, sex, type of sport (individual vs. team), expertise level, and years of training, given that these relationships have so far been unclear. The existing findings linking trait EI and these variables are now reviewed.

Trait EI is usually found to be weakly positively correlated with age (Mikolajczak, Luminet, Leroy, & Roy, 2007). It seems that age is positively correlated with the experience of positive emotions and more adaptive emotion regulation strategies (Yeung, Wong, & Lok,

2011), two characteristics of trait EI that probably improve through life experiences.

Regarding sex, findings with the TEIQue consistently show that men achieve higher global scores than women (Mikolajczak, Luminet, et al., 2007), which goes against findings obtained with other EI scales (e.g., the Schutte EI scale): found no differences between men and women and (Chan, 2003; Schutte et al., 1998) found women scored higher. It is of interest to know if male athletes score differently from female athletes, for example, when establishing norms.

Concerning the type of sport (i.e., individual vs. team), emotion-related variables might differ according to the type of sport considered. For example, the specificity of emotion-related variables in team contact sports has been described by Campo, Mellalieu, Ferrand, Martinent, and Rosnet (2012). However, because previous research showed no differences in EI between athletes from individual and team sports when using the Bar-On Emotional Quotient Inventory (Kajbafnezhad, Ahadi, Heidarie, Askari, & Enayati, 2011), we did not expect to find a relationship between trait EI and the type of sport.

Concerning expertise, to the best of our knowledge the link between trait EI and expertise has not yet been tested. Studies in sports showed that the use of successful coping strategies is necessary to achieve a high level of expertise (Johnson, Tenenbaum, & Edmonds, 2006), and experts were found to cope better with stress than near-experts and nonexperts, as indicated by physiological variables (i.e., heart rate variability, Laborde & Raab, 2013). Thus, we expected that trait EI would be positively linked with expertise.

Finally, no direct link has been established so far between trait EI and the years of training. Training, and more specifically aerobic training, was found to influence heart rate variability, increasing the activity of the parasympathetic system (Hedelin, Wiklund, Bjerle, & Henriksson-Larsen, 2000). Parasympathetic activity is known to index effective emotion regulation (Fenton-O'Creevy & Lins, 2012) and was previously positively linked to trait EI (Laborde et al., 2011). Therefore we expected a positive relationship between trait EI and years of training.

The aim of Study 1 was to examine if the original four-factor structure of the TEIQue could be replicated within a sports sample. Given the empirical evidence of trait EI being linked to several aspects of sports performance, found with both subjective (Laborde et al., 2012) and objective (Laborde et al., 2011, 2014) measures, we hypothesized that the original factor structure of the TEIQue would be replicated within a sports sample. In addition, we hypothesized the following relationships with demographic variables: There would be a positive relationship with age (Mikolajczak, Luminet, et al., 2007; Yeung et al., 2011); male athletes would score higher than female athletes (Mikolajczak, Luminet, et al., 2007); there would be no relationship with type of sport (Kajbafnezhad et al., 2011); and finally, there would be a positive relationship with expertise level (Johnson et al., 2006; Laborde & Raab, 2013) and years of training (Hedelin et al., 2000; Laborde et al., 2011).

Method

Participants

In total, 973 athletes (519 men, 454 women, $M_{age} = 21.4$ years, $SD = 3.9$, age range: 17–56 years) were involved in this study. Four hundred and twenty-eight practiced an individual sport and 545 practiced a team sport. Participants involved in individual sports were not involved at the same time in team sports, and vice versa. Thirty-two different sports were represented. We assessed expertise level by self-report, on a Likert scale from 1 [lowest expertise