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The location of trait emotional intelligence in personality factor space

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The construct of trait emotional intelligence (trait EI or trait emotional self-efficacy) provides a comprehensive operationalization of emotion-related self-perceptions and dispositions. In the first part of the present study ($N = 274$, 92 males), we performed two joint factor analyses to determine the location of trait EI in Eysenckian and Big Five factor space. The results showed that trait EI is a compound personality construct located at the lower levels of the two taxonomies. In the second part of the study, we performed six two-step hierarchical regressions to investigate the incremental validity of trait EI in predicting, over and above the Giant Three and Big Five personality dimensions, six distinct criteria (life satisfaction, rumination, two adaptive and two maladaptive coping styles). Trait EI incrementally predicted four criteria over the Giant Three and five criteria over the Big Five. The discussion addresses common questions about the operationalization of emotional intelligence as a personality trait.

Emotional intelligence (EI) has received much attention in the psychological literature and beyond, generating intense demand for applications in educational, organizational and clinical settings. Many researchers (e.g. Austin, 2004; Austin, Saklofske, & Egan, 2005; Petrides & Furnham, 2000, 2003; Spence, Oades, & Caputi, 2004; Tett, Fox, & Wang, 2005) distinguish between two EI constructs, depending on whether the operationalization process is based on self-report (as in personality questionnaires) or on maximum-performance (as in IQ tests). Trait EI (or trait emotional self-efficacy) concerns emotion-related dispositions and self-perceptions measured via self-report, whereas ability EI (or cognitive-emotional ability) concerns emotion-related cognitive abilities measured via performance-based tests. The conceptual differences between the two constructs are directly reflected in empirical findings, which reveal very low correlations between measures of trait and ability EI (e.g. O'Connor & Little, 2003; Warwick & Nettelbeck, 2004).

The operationalization of ability EI is problematic because the subjectivity of emotional experience undermines the development of maximum-performance (IQ-like)

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tests (Brody, 2004; Matthews, Roberts, & Zeidner, 2004; Robinson & Clore, 2002). In contrast, the operationalization of trait EI is straightforward because the construct encompasses self-perceptions and dispositions, which accord with the subjective nature of emotions. Petrides and Furnham (2001) content-analysed salient models of EI and cognate constructs in the literature and derived the first sampling domain of trait EI, which is shown in Table 1. As can be seen in the table, the domain comprises personality facets that are specifically related to affect.

Table 1. The adult sampling domain of trait EI

Facets	High scorers perceive themselves as . . .
Adaptability	. . . flexible and willing to adapt to new conditions
Assertiveness	. . . forthright, frank and willing to stand up for their rights
Emotion perception (self and others)	. . . clear about their own and other people's feelings
Emotion expression	. . . capable of communicating their feelings to others
Emotion management (others)	. . . capable of influencing other people's feelings
Emotion regulation	. . . capable of controlling their emotions
Impulsiveness (low)	. . . reflective and less likely to give in to their urges
Relationships	. . . capable of having fulfilling personal relationships
Self-esteem	. . . successful and self-confident
Self-motivation	. . . driven and unlikely to give up in the face of adversity
Social awareness	. . . accomplished networkers with excellent social skills
Stress management	. . . capable of withstanding pressure and regulating stress
Trait empathy	. . . capable of taking someone else's perspective
Trait happiness	. . . cheerful and satisfied with their lives
Trait optimism	. . . confident and likely to 'look on the bright side' of life

Since trait EI is a personality trait, as opposed to a cognitive ability, an important question is where it belongs within established personality hierarchies. Where is trait EI located in Eysenckian and Big Five factor space? Locating trait EI in personality space is important, not least because it will allow us to connect the construct to the mainstream personality literature. Theorists who propose new individual differences constructs ought to be in a position to demonstrate how these constructs relate to extant knowledge in the field. This has been a major objective of our definition and development of trait EI. Furthermore, establishing the location of trait EI within existing taxonomies can provide empirical support for the construct's discriminant validity *vis-à-vis* the higher-order traits. If a distinct trait EI factor can be isolated in personality space, it means that a sufficient number of trait EI facets share enough common variance to define a separate factor in joint analyses with the Giant Three or the Big Five, which constitutes clear evidence of discriminant validity.

The present study also seeks to examine the criterion and incremental validity of trait EI. The relevant analyses will help evaluate the criticism that the construct does not predict anything over and above the basic personality dimensions. Issues such as criterion, discriminant and incremental validity have important theoretical implications and it is essential that studies designed to address them be based on comprehensive and psychometrically robust measures. Then, and only then, can we be sure that our conclusions reflect the nature of the construct and not the various deficiencies in the vehicles used to operationalize it.

Six variables were used as criteria in the study. They were specifically chosen for their theoretical relevance to trait EI and have also been incorporated in cross-cultural research aiming to replicate and extend the findings presented herein.

Life satisfaction concerns a cognitive evaluation of one's circumstances against a set of subjective criteria (Diener, Emmons, Larsen, & Griffin, 1985). It was hypothesized that trait EI would be positively associated with life satisfaction (H1a; see also Saklofske, Austin, & Minski, 2003).

Rumination is defined as 'passively and repetitively focusing on one's symptoms of distress and the circumstances surrounding these symptoms' (Nolen-Hoeksema, McBride, & Larson, 1997, p. 855). It was hypothesized that high trait EI individuals would be less likely to ruminate than their low trait EI peers (H2a).

Coping is the process by which people try to manage stress. Coping styles can be either adaptive or maladaptive (Roger, Jarvis, & Najarian, 1993). Compared to their low trait EI peers, high trait EI individuals should be more likely to employ adaptive coping styles ('rational' and 'detached'; H3a and H4a, respectively) and less likely to employ maladaptive coping styles ('emotional' and 'avoidant'; H5a and H6a, respectively) when dealing with stress. However, it should be kept in mind that the adaptive or maladaptive value of a coping strategy is also a function of situational and other personal factors that were not examined in this study (see Lazarus, 1991; Matthews, Zeidner, & Roberts, 2002).

The aforementioned hypotheses concern the criterion validity of trait EI and seek to establish new nodes in its nomological network. A further objective of the study was to investigate the incremental validity of the construct, i.e. the extent to which it predicts criterion variance over and above the Giant Three and Big Five personality dimensions. The relevant analyses address the criticism that trait EI is merely a rework of the basic (higher-order) personality traits and cannot predict any variance that is not predicted by them. It was hypothesized that trait EI would be a reliable predictor of all six criteria, both in the presence of the Giant Three (plus social desirability; H1b to H6b) and in the presence of the Big Five (H1c to H6c).

Method

Participants

Two hundred and seventy-four students participated in the study, of whom 92 were male and 182 female. The mean age for the sample was 25.45 years ($SD = 5.85$ years).

Materials

Trait emotional intelligence questionnaire

The Trait Emotional Intelligence Questionnaire (TEIQue v. 1.00) (Petrides, 2001)[1] covers the sampling domain of trait EI comprehensively, assessing all of the 15 facets in Table 1. An investigation of the psychometric properties of the inventory can be found in Mikolajczak, Luminet, Leroy, and Roy (in press). For the purposes of this study, we adapted the TEIQue into Greek. Items were translated into Greek and back-translated into English. It took a total of six passes until all three authors were content with the quality of the translation. The final version comprised 144 questions based on

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[1] *All forms, versions and translations of the TEIQue are available from the first author, free of charge, for research purposes.*

a seven-point Likert scale. The internal consistencies of the 15 scales and global trait EI are presented in parentheses in Table 3.

Eysenck Personality Questionnaire

We used the 84-item Greek adaptation of the Eysenck Personality Questionnaire (EPQ) (Eysenck & Eysenck, 1975) to measure the three Eysenckian dimensions (Neuroticism, N; Extraversion, E; Psychoticism, P) and social desirability (L). The EPQ is usually based on a dichotomous ('yes/no') scale. However, because the psychoticism factor in the original form of the questionnaire suffered from low internal consistency (Eysenck, Eysenck, & Barrett, 1985), we decided to use a six-point Likert scale to help increase variability in the responses and, hopefully, the reliability of the scores. The alphas of the three dimensions are given in parentheses in Table 3, where it can be seen that the polytomous Likert scale was not conducive to the internal consistency of psychoticism.

Traits Personality Questionnaire

The Traits Personality Questionnaire (TEXAΠ) (Tsaousis, 1996, 1999) is based on the Big Five model of personality and has been developed and validated specifically for use with Greek adults. It comprises 206 items based on a five-point Likert scale, measuring neuroticism (N), extraversion (E), openness-to-experience (O), agreeableness (A) and conscientiousness (C). The internal consistencies of the TEXAΠ scales are reported in parentheses in Table 4.

Criteria

The constructs below were used as criterion variables in the regression analyses. All instruments were translated and back-translated following the same procedures as for the TEIQue.

Satisfaction with Life Scale

The Satisfaction with Life Scale (Diener *et al.*, 1985) consists of five items and measures global life satisfaction ('In most ways my life is close to my ideal'). Participants were asked to respond on a seven-point Likert scale. The internal consistency of the scale was .84.

Emotion Control Questionnaire – rehearsal scale

The 14-item rehearsal scale from the Emotion Control Questionnaire (ECQ) (Roger & Najarian, 1989) was used to measure rumination ('I remember things that upset me or make me angry for a long time afterwards'). Participants were asked to respond on a seven-point Likert scale. The internal consistency of the scale was .84.

Coping Styles Questionnaire

The Coping Styles Questionnaire (Roger *et al.*, 1993) consists of 60 items assessing how one typically reacts to stress. It measures four factorially distinct coping strategies, two of which are adaptive, viz., 'rational' coping ('Take action to change things') and 'detached' coping ('Just take nothing personally') and two maladaptive, viz., 'emotional' coping ('Feel worthless and unimportant') and 'avoidant' coping ('Feel that time will

sort things out'). Participants responded on a four-point Likert scale, ranging from 'always' to 'never'. The internal consistencies of the 'rational', 'detached', 'emotional' and 'avoidant' coping styles were .81, .80, .84 and .68, respectively.

Procedure

Participants were undergraduate students in two urban universities in Greece. Because of the length of the battery, they were tested in two separate sessions. The battery was completed anonymously in class, with the two sets of materials matched through a personal code known only to the participants.

Results

Correlations between the key variables in the study are given in Table 2. As regards the personality dimensions, trait EI correlated highest with neuroticism and extraversion, which are its strongest trait determinants (Petrides, 2001). Worth noting is the similarity of correlations between trait EI and the EPQ and TEXAΠ operationalizations of N and E. With respect to the criteria, the only variable with which trait EI did not correlate was 'avoidant' coping. In fact, 'avoidant' coping did not correlate significantly with any variable except the other three coping styles.

Factor analyses

Two principal axes factor analyses were performed to locate trait EI in Eysenckian and Big Five factor space. In the case of the EPQ, we created six parcels of three or four items per scale, including social desirability. These parcels were factored jointly with the 15 TEIQue scales. Based on the Scree plot and the objectives of the study, five factors, accounting for 53% of the variance, were extracted and rotated to simple structure via the OBLIMIN algorithm ($\delta = 0$). The rotated factor pattern matrix is presented in Table 3, where it can be seen that the four EPQ factors emerged as expected, with N and E more clearly than P and L. An oblique trait EI factor, defined by 11 of the 15 TEIQue scales, also emerged in the analysis. This factor correlated $r = -.41$ with N, $r = .29$ with L, $r = -.03$ with P and $r = .39$ with E.

In the second factor analysis, the 15 TEIQue scales were factored jointly with the 30 TEXAΠ scales (six for each of the Big Five dimensions). Based on the Scree plot and the objectives of the study, six factors, accounting for 61% of the variance, were extracted and rotated to simple structure via the OBLIMIN algorithm ($\delta = 0$). The rotated factor pattern matrix is presented in Table 4, where it can be seen that the Big Five emerged as expected. An oblique trait EI factor, defined by eight of the 15 TEIQue scales, also emerged in the analysis. This factor correlated $r = -.25$ with N, $r = .16$ with A, $r = .27$ with C, $r = .31$ with E and $r = .24$ with O.

Regression analyses

Eysenckian personality

A two-step hierarchical regression was performed for each criterion in the study. In all cases, global trait EI was entered on its own at step 1 and the four EPQ variables followed at step 2. This procedure allowed us to examine both criterion and incremental validity within the same set of regressions, since the standardized coefficients at step 1 are equivalent to the corresponding Pearson product-moment correlations. Had we entered

Table 2. Intercorrelation matrix for key variables in the study

	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
1. Trait EI	—															
2. EPQ-E	.530**	—														
3. EPQ-N	-.626**	-.271**	—													
4. EPQ-P	-.112	.120*	.346**	—												
5. EPQ-L	.371**	.218**	-.074	.222**	—											
6. TEXAII-N	-.682**	-.377**	.831**	.231**	-.133*	—										
7. TEXAII-E	.608**	.842**	-.289**	.086	.215**	-.425**	—									
8. TEXAII-O	.253**	.207**	-.086	.020	.099	-.132*	.368**	—								
9. TEXAII-A	.248**	.217**	-.126*	-.008	.320**	-.110	.262**	.299**	—							
10. TEXAII-C	.571**	.238	-.340**	-.168**	.417**	-.417**	.299**	-.047	.234**	—						
11. Satisfaction	.557**	.388**	-.483**	-.122*	.199**	-.445**	.368**	.023	.146*	.376**	—					
12. Rumination	.472**	.193**	-.550**	-.105	.128*	-.529**	.198**	.167**	.379**	.187**	.180**	—				
13. Rational	.636**	.438**	-.421**	-.073	.231**	-.543**	.470**	.165**	.124*	.429**	.436**	.259**	—			
14. Detached	.409**	.280**	-.473**	-.052	.099	-.559**	.210**	.048	-.009	.148*	.310**	.374**	.624**	—		
15. Emotional	-.583**	-.283**	.698**	.200**	-.059	.746**	-.286**	-.028	-.046	-.317**	-.415**	-.435**	-.405**	-.484**	—	
16. Avoidant	.014	.059	.040	.131*	.080	.084	-.074	-.070	.043	-.073	.038	.055	.239**	.327**	.220**	—

Note. E, extraversion; N, neuroticism; P, psychoticism; L, lie scale; O, openness; A, agreeableness; C, conscientiousness.

Table 3. Factor pattern matrix for the TEIQue scales and the EPQ parcels

Scales	Trait EI	N	E	P	L
TEIQue trait EI (.89)					
Relationships (.72)	**.680**	−.021	−.056	−.249	.061
Emotion expression (.83)	**.663**	.191	.097	−.062	.008
Emotion perception (.82)	**.641**	.006	−.069	.152	.288
Social awareness (.76)	**.634**	−.135	.233	.254	−.016
Self-motivation (.64)	**.572**	−.208	.023	−.019	.025
Trait optimism (.83)	**.555**	**−.331**	.213	.042	−.150
Trait happiness (.87)	**.546**	−.270	.193	−.060	−.074
Emotion management (.64)	**.476**	−.035	.124	**.356**	.014
Self-esteem (.87)	**.465**	**−.452**	.072	.207	−.016
Trait empathy (.69)	**.456**	.062	−.053	−.052	.261
Assertiveness (.67)	.262	−.134	.214	**.307**	−.141
Adaptability (.80)	.201	**−.405**	.232	.052	.156
Low impulsiveness (.71)	.185	**−.374**	**−.438**	−.118	.282
Stress management (.74)	.042	**−.723**	.053	.226	.091
Emotion regulation (.76)	−.004	**−.678**	−.047	−.008	.281
EPQ neuroticism (.89)					
N1	.043	**.794**	.097	.016	−.024
N2	.028	**.770**	−.075	−.037	.047
N3	−.019	**.723**	−.114	.121	−.023
N4	−.100	**.637**	.022	.225	−.019
N5	−.047	**.664**	−.245	−.019	.021
N6	−.058	**.696**	−.225	.182	.074
EPQ extraversion (.89)					
E1	**.342**	.115	**.618**	−.174	.016
E2	.074	−.204	**.725**	−.059	.050
E3	.151	.015	**.760**	−.152	−.020
E4	−.038	−.090	**.727**	.109	.040
E5	.007	−.215	**.547**	.273	.025
E6	−.013	−.072	**.770**	.067	.098
EPQ psychoticism (.50)					
P1	.037	.153	.279	−.078	**.339**
P2	−.213	.096	−.097	**.573**	−.286
P3	.079	−.014	.047	**.460**	.027
P4	−.019	.140	.026	.261	.233
P5	−.180	.196	−.036	**.340**	.238
P6	−.067	**.303**	.109	.109	.218
EPQ lie scale (.58)					
L1	.156	−.117	−.011	−.080	**.484**
L2	.051	−.122	−.009	.000	**.527**
L3	.006	−.167	−.077	.044	**.496**
L4	.091	−.046	.127	−.012	**.372**
L5	.092	.043	.004	.165	.253
L6	−.020	.205	.090	−.027	.278

Note. Loadings greater than |.30| are in boldface. N, neuroticism; E, extraversion; P, psychoticism; L, lie scale. The E factor has been reflected.

Table 4. Factor pattern matrix for the TEIQue and TEXAII scales

Scales	Trait EI	A	C	O	N	E
TEIQue trait EI						
Relationships	**.614**	**.367**	.088	− .075	− .115	− .117
Social awareness	**.605**	− .191	.149	.050	− .198	.234
Trait happiness	**.591**	.146	− .058	− .196	**− .393**	.152
Emotion management	**.545**	− .234	− .013	.225	− .060	.063
Trait optimism	**.544**	.021	− .013	− .070	**− .422**	.207
Emotion perception	**.512**	− .053	**.320**	.179	− .003	− .034
Emotion expression	**.507**	.050	.233	.084	.173	.157
Trait empathy	**.467**	.216	.105	.253	.031	− .220
Self-esteem	**.422**	− .181	.170	.020	**− .438**	.105
Self-motivation	**.308**	.057	**.430**	.033	− .236	.110
Adaptability	.240	.083	− .050	.183	**− .526**	.097
Assertiveness	.150	**− .400**	.244	.043	− .075	**.367**
Stress management	.122	− .104	.029	.014	**− .750**	− .036
Emotion regulation	.079	.095	.129	.021	**− .678**	− .245
Low impulsiveness	.066	.027	**.482**	.013	− .271	**− .529**
TEXAII agreeableness (.73)						
Trust (.71)	.245	**.592**	− .124	− .094	− .103	.154
Straightforwardness (.45)	− .085	**.320**	.126	.236	.032	.214
Altruism (.41)	− .021	**.570**	.178	.065	.053	.224
Compliance (.56)	.023	**.645**	− .057	.021	− .090	− .115
Modesty (.61)	− .147	**.498**	.016	− .002	− .017	− .156
Tender-mindedness (.63)	.126	**.550**	**.308**	.142	.084	.071
TEXAII conscientiousness (.85)						
Competence (.68)	.190	.042	**.599**	− .097	− .286	.090
Order (.72)	.135	− .107	**.533**	− .147	.067	− .141
Dutifulness (.60)	.045	.223	**.702**	− .048	− .030	.108
Achievement striving (.71)	.055	.022	**.706**	− .085	.045	.207
Self-discipline (.65)	− .021	.016	**.723**	.012	− .121	.135
Deliberation (.71)	− .034	.022	**.677**	.022	− .131	− .299
TEXAII openness (.73)						
Fantasy (.63)	.247	.133	− .139	**.440**	.249	− .038
Aesthetics (.79)	− .007	.241	.172	**.612**	.033	− .047
Feelings (.52)	.253	**.343**	.054	**.425**	.298	.069
Actions (.63)	.021	.019	− .019	**.479**	− .228	.263
Ideas (.47)	− .046	− .091	− .129	**.667**	− .166	.043
Values (.79)	.060	− .116	**− .331**	**.515**	− .056	− .093
TEXAII neuroticism (.84)						
Anxiety (.78)	.063	− .014	.044	.018	**.854**	− .125
Angry HOSTIlity (.77)	− .056	**− .344**	− .059	− .006	**.628**	.297
Depression (.78)	− .072	.083	− .035	− .001	**.668**	− .341
Self-consciousness (.73)	− .006	.219	− .124	− .183	**.429**	− .508
Impulsiveness (.41)	.110	− .035	**− .341**	− .094	**.391**	.336
Vulnerability (.83)	.076	.047	− .166	− .124	**.730**	− .196
TEXAII extraversion (.86)						
Warmth (.38)	.267	**.425**	.029	.166	.107	**.367**
Gregariousness (.73)	.229	.126	− .030	− .104	− .138	**.637**
Assertiveness (.69)	.051	− .173	**.351**	.229	− .127	**.509**
Activity (.63)	.110	− .013	.157	.205	− .097	**.594**

Table 4. (*Continued*)

Scales	Trait EI	A	C	O	N	E
Excitement-seeking (.69)	.070	.084	.041	.268	− .227	**.613**
Positive emotions (.67)	**.465**	.013	.006	− .009	.023	**.547**

Note. Loadings greater than |.30| are in boldface. A, agreeableness; C, conscientiousness; O, openness; N, neuroticism; E, extraversion. The N factor has been reflected.

the EPQ variables at step 1, followed by global trait EI at step 2, the test of the R^2 change would have been mathematically equivalent to the test of the partial trait EI slope in our current analyses, such that if one were statistically significant the other would be significant at the same probability level.[2] The results of the six regressions are presented in Table 5.

The first regression was performed with 'life satisfaction' as the criterion. At step 1, with trait EI in the equation, $R^2_{adj} = .313$, $F(1, 269) = 123.87$, $p < .01$. Trait EI was positively related to 'life satisfaction' ($\beta_{TEI} = .562$, $t = 11.13$, $p < .01$). At step 2, with the EPQ variables added in the equation, $R^2_{adj} = .353$, $F(5, 265) = 30.52$, $p < .01$. Trait EI remained a significant positive predictor of 'life satisfaction' ($\beta_{TEI} = .302$, $t = 3.94$, $p < .01$). These results support hypotheses H1a and H1b. The second regression was performed with 'rumination' as the dependent variable. At step 1, with trait EI in the equation, $R^2_{adj} = .220$, $F(1, 270) = 77.33$, $p < .01$. Trait EI was negatively related to 'rumination' ($\beta_{TEI} = -.472$, $t = 8.79$, $p < .01$). At step 2, with the EPQ variables added in the equation, $R^2_{adj} = .324$, $F(5, 266) = 26.95$, $p < .01$. Trait EI remained a significant negative predictor of 'rumination' ($\beta_{TEI} = -.235$, $t = 3.01$, $p < .01$). These results support hypotheses H2a and H2b.

Subsequently, four hierarchical regressions were performed with the four coping styles as the criteria. Trait EI was a reliable positive predictor in the regression of 'rational' coping both at step 1 ($R^2_{adj} = .402$, $F(1, 269) = 182.76$, $p < .01$; $\beta_{TEI} = .636$, $t = 13.52$, $p < .01$) and at step 2 ($R^2_{adj} = .412$, $F(5, 265) = 38.91$, $p < .01$; $\beta_{TEI} = .507$, $t = 3.67$, $p < .01$). These results support hypotheses H3a and H3b. For 'detached' coping, trait EI was a positive predictor only at step 1 ($R^2_{adj} = .164$, $F(1, 268) = 53.77$, $p < .01$; $\beta_{TEI} = .409$, $t = 7.33$, $p < .01$). These results support hypothesis H4a, but not hypothesis H4b. In the hierarchical regression with 'emotional' coping as the criterion, trait EI was a reliable negative predictor both at step 1 ($R^2_{adj} = .337$, $F(1, 269) = 138.18$, $p < .01$; $\beta_{TEI} = -.583$, $t = 11.76$, $p < .01$) and at step 2 ($R^2_{adj} = .524$, $F(5, 265) = 60.49$, $p < .01$; $\beta_{TEI} = -.277$, $t = 4.26$, $p < .01$). These results support hypotheses H5a and H5b. Last, in the regression with 'avoidant' coping, trait EI did not reach significance levels at step 1 and, therefore, this criterion was excluded from further consideration. This result is at odds with hypotheses H6a and H6b.

An anonymous reviewer noted that there is considerable overlap between the well-being component of trait EI and certain criterion variables and recommended that we redo the analyses excluding this particular component. With respect to statistical

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[2] *For a straightforward discussion of this and related issues, see Draper and Smith (1981; Sections 2.7, 4.2 and especially 2.9). We now demonstrate the equivalence in an example with 'rumination' as the criterion. Suppose we run a two-step hierarchical regression entering the EPQ variables at step 1, followed by trait EI at step 2. The partial F-test on the incremental contribution of trait EI is F(1, 266) = 9.06, which is exactly equal to the square of the t statistic associated with the partial trait EI regression coefficient in Table 5 and, consequently, significant at the same probability level (p = .003).*

Table 5. Hierarchical regressions with Trait EI entered at step 1 and the EPQ variables at step 2

	Satisfaction with life		Rumination		Rational coping (Adaptive)		Detached coping (Adaptive)		Emotional coping (Maladaptive)	
Step 1	$F_{(1, 269)} = 123.87**$, $R^2_{adj} = .313$		$F_{(1, 270)} = 77.33**$, $R^2_{adj} = .220$		$F_{(1, 269)} = 182.76**$, $R^2_{adj} = .402$		$F_{(1, 268)} = 53.77**$, $R^2_{adj} = .164$		$F_{(1, 269)} = 138.18**$, $R^2_{adj} = .337$	
Step 2	$F_{(5, 265)} = 30.52**$, $R^2_{adj} = .353$		$F_{(5, 266)} = 26.95**$, $R^2_{adj} = .324$		$F_{(5, 265)} = 38.91**$, $R^2_{adj} = .412$		$F_{(5, 264)} = 19.50**$, $R^2_{adj} = .256$		$F_{(5, 265)} = 60.49**$, $R^2_{adj} = .524$	
	β	t	β	t	β	t	β	t	β	t
Trait EI (step 1)	0.562	11.13**	−0.472	8.79**	0.636	13.52**	0.409	7.33**	−0.583	11.76**
E	0.155	2.63**	0.068	1.13	0.154	2.76**	0.081	1.29	−0.010	0.20
N	−0.249	3.67**	0.450	6.52**	−0.064	1.00	−0.419	5.80**	0.542	9.39**
P	−0.001	0.03	−0.082	1.48	−0.016	0.29	0.078	1.33	−0.027	0.57
L	0.033	0.57	−0.001	0.18	0.018	0.35	−0.022	0.37	0.088	0.68
Trait EI (step 2)	0.302	3.94**	−0.235	3.01**	0.507	3.67**	0.122	1.50	−0.277	4.26**

Note. *$p < .05$; **$p < .01$. N, neuroticism; E, extraversion; P, psychoticism; L, lie scale. The results for 'avoidant' coping are not shown because this criterion did not correlate with trait EI.

significance, this set of analyses led to identical results in all cases except 'life satisfaction', where trait EI lost its significance.

Big Five personality

Standard multiple regressions were performed to establish the incremental validity of global trait EI *vis-à-vis* the Big Five factors.[3] These analyses are summarized in Table 6. In the presence of the Big Five, trait EI was a reliable predictor in five equations, involving 'life satisfaction' (R^2_{adj} = .325, $F(6, 265)$ = 22.75, $p <$ .01; β_{TEI} = .430, t = 5.00, $p <$ .01), 'rumination' (R^2_{adj} = .474, $F(6, 264)$ = 41.53, $p <$ .01; β_{TEI} = −.331, t = 4.35, $p <$ .01), 'rational' coping (R^2_{adj} = .449, $F(6, 263)$ = 37.54, $p <$ .01; β_{TEI} = .340, t = 4.41, $p <$ .01), 'detached' coping (R^2_{adj} = .346, $F(6, 263)$ = 24.67, $p <$ .01; β_{TEI} = .221, t = 2.63, $p <$ .01) and 'emotional' coping (R^2_{adj} = .575, $F(6, 263)$ = 61.82, $p <$ .01; β_{TEI} = −.257, t = 3.81, $p <$ .01). These results support hypotheses H1c to H5c, but not hypothesis H6c ('avoidant' coping).

In this case too, we reran the regressions excluding the well-being component of trait EI. With respect to statistical significance, this set of analyses led to identical results in all cases except 'life satisfaction' and 'detached' coping, both of which approached, but did not attain, significance (β_{TEI} = .155, t = 1.83, p = .07 and β_{TEI} = .153, t = 1.88, p = .06, respectively).

Discussion

The central finding of the study is the identification of the oblique trait EI factor in Eysenckian and Big Five factor space, which replicates results from British and New Zealand samples. The isolation of the trait EI factor constitutes strong evidence of discriminant validity *vis-à-vis* the Giant Three and Big Five personality dimensions. If trait EI did not capture any unique personality variance, as some critics have argued, then the TEIQue scales would have scattered across the basic dimensions, rather than defined a distinct factor. Insofar as the unique variance of trait EI can predict external criteria, this demonstration of discriminant validity has direct implications for the construct's incremental validity too.

The factor location analyses in this paper demonstrate that trait EI is a distinct (because it can be isolated in personality space), compound (because it is partially determined by several personality dimensions) construct that lies at the lower levels of personality hierarchies (because the trait EI factor is oblique, rather than orthogonal to the Giant Three and the Big Five). This conclusion enables us to connect our trait emotional self-efficacy conceptualization of EI to the established differential psychology literature. This is a major conceptual advantage of trait EI theory because it integrates the construct with the mainstream models of personality. Moreover, this conceptualization appears to be consistent, not only with hierarchical, but also with circumplex models of personality. Thus, De Raad (2005) located trait EI within the Abridged Big Five circumplex and found that it comprises scattered aspects of the Big Five domain and correlates with at least four of the five basic traits, conclusions that are fully in line with trait EI theory.

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[3] *Note that the hierarchical approach is unnecessary here, since the results from step 1 would be identical to those obtained in the regressions with the EPQ variables.*

Table 6. Standard multiple regressions with Trait EI and the Big Five personality factors as predictors

	Satisfaction with life $F_{(6, 265)} = 22.75^{**}$, $R^2_{adj} = .325$		Rumination $F_{(6, 264)} = 41.53^{**}$, $R^2_{adj} = .474$		Rational coping (Adaptive) $F_{(6, 188)} = 37.54^{**}$, $R^2_{adj} = .449$		Detached coping (Adaptive) $F_{(6, 263)} = 24.67^{**}$, $R^2_{adj} = .346$		Emotional coping (Maladaptive) $F_{(6, 264)} = 61.82^{**}$, $R^2_{adj} = .575$	
	β	t	β	t	β	t	β	t	β	t
N	−0.107	1.55	0.469	7.70**	−0.235	3.80**	−0.550	8.15**	0.644	11.89**
E	0.091	1.39	0.236	4.05**	0.139	2.35*	−0.075	1.17	0.078	1.50
O	−0.142	2.47*	0.042	0.82	0.016	0.31	−0.076	1.34	0.079	1.72
A	0.035	0.63	−0.412	8.44**	−0.059	1.18	−0.033	0.60	0.030	0.70
C	0.046	0.71	0.208	3.69**	0.117	2.03*	−0.199	3.12**	0.062	1.22
Trait EI	0.430	5.00**	−0.331	4.35**	0.340	4.41**	0.221	2.63**	−0.257	3.81**

Note. *$p < .05$; **$p < .01$. N, neuroticism; E, extraversion; O, openness; A, agreeableness; C, conscientiousness. The results for 'avoidant' coping are not shown because this criterion did not correlate with trait EI.

The unique variance that led to the emergence of the trait EI factor in the joint factor analyses has incremental predictive utility, as the regression equations showed. Trait EI was a statistically significant predictor in four out of six regressions in the presence of the EPQ variables, including social desirability. These results are important for three reasons. First, they support the criterion validity of the construct and expand its nomological network. Trait EI related to almost all of the criteria in the study, as hypothesized. Higher scores were associated with greater life satisfaction, less rumination of negative events, frequent use of adaptive and infrequent use of maladaptive coping strategies. This suggests that our appraisal of our circumstances and our reactions to life events may be partly filtered through our perceptions of our emotional abilities. The second reason why these results are important is because they dispel the myth that trait EI is nothing but a rework of the major personality dimensions. If there were any truth in this criticism, trait EI would simply not attain significance levels in regressions including the Giant Three or the Big Five as covariates. However, study after study has revealed statistically significant trait EI beta weights in such regressions (e.g. Furnham & Petrides, 2003; Mikolajczak, Luminet, & Menil, 2006; Petrides, Frederickson, & Furnham, 2004; Saklofske *et al.*, 2003; Van der Zee & Wabeke, 2004). The third reason why the results from the hierarchical analyses are important is because they lend empirical weight to the position that trait EI comprehensively encompasses personality facets relating to affect. The construct comprises emotion-related variance of two kinds, viz., variance that is scattered across the higher-order dimensions of personality, as well as variance that lies outside them.

The additional analyses based on truncated trait EI scores (i.e. excluding the well-being component) led to a minor loss of statistically significant results, primarily in the regressions with 'life satisfaction' as the dependent variable. On the whole, these results provide further support for the incremental validity of the construct. However, the present study is especially significant in this respect because it demonstrates that even a truncated version of trait EI can predict variance above and beyond the Giant Three and the Big Five. This evidence is in line with our view that the construct encompasses affect-related variance that is not captured by existing trait taxonomies.

Broad lower-order traits like trait emotional self-efficacy, may routinely lead to substantial improvements in our ability to predict behaviour, attitudes and achievement. Indeed, it is difficult to maintain that a handful of higher-order trait scores can provide a complete description of human personality (Block, 2001; Butcher & Rouse, 1996; Cattell, 1995; Paunonen & Jackson, 2000). Trait taxonomies have been developed as data reduction models and not as complete frameworks to exhaustively document all of the ways in which individuals may differ behaviourally. In fact, the position of the main proponents of these taxonomies, where it has been clearly expressed (e.g. Costa & McCrae, 1995), is that the dimensions they comprise are comprehensive only in the sense that they are expected to relate to, as opposed to completely account for, all other personality traits (see also O'Connor, 2002). This is consistent with our longstanding position that neither the Giant Three nor the Big Five can completely account for trait EI variance.

The regressions with the Big Five as covariates were qualitatively similar, in that trait EI accounted for criterion variance over and above the five factors in most cases. It is worth noting that this second set of regressions represents an even more stringent test of incremental predictive utility because, from a statistical perspective, we are pitting the single degree of freedom of trait EI against the five degrees of freedom of the higher-order traits. One need not be statistically minded to recognize that this comparison is

seriously skewed against the construct with the single degree of freedom. Indeed, it would be interesting to see which other personality traits can consistently yield statistically significant beta weights in the presence of the Big Five. The fact that even a truncated trait EI factor can predict variance incrementally over the Big Five further highlights the robustness of the findings.

There have been persistent calls in the literature to demonstrate what, if anything, trait EI can predict beyond the basic dimensions of personality. While we trust that the data reported or cited herein provide a categorical answer to this question, it must be pointed out that the monotonous repetition of the mantra of incremental validity fails to acknowledge that our principal aim as scientists is to explain, not simply predict, behaviour. There are many constructs whose variance can be accounted for by some combination of the Giant Three or the Big Five. However, attempting to recast these constructs as blends of the higher-order traits fails to capture their essence and is not conducive to the development of personality theory (Funder, 2001).

It is difficult to see how we can provide plausible explanations of psychological phenomena by invoking *post-hoc* mixtures of the basic traits. For example, variance that can be easily explained within the trait EI framework (e.g. high trait EI individuals are more sensitive to affect-laden stimuli) requires convoluted combinations of the Big Five to be predicted, but not really explained (e.g. high E, low N, above average C and O people tend to be more sensitive to affect-laden stimuli than those who are low E, high N, below average C and O). In the latter case, we are merely describing a discriminant function that differentiates those who are more from those who are less sensitive to affect-laden stimuli. However, this description does not even attempt to explain why individuals with these different profiles are differentially sensitive to such stimuli. It simply predicts who is likely to belong to which group. That such superficial accounts are routinely accepted as psychological explanations of human behaviour is testimony to the pitfalls of espousing the Big Five as the be-all and end-all of personality psychology (see also Block, 2001).

Like any single study, this too has weaknesses that should be acknowledged. Chief among them is mono-method assessment. The limitations of relying exclusively on self-report data are well understood in the field of personality (Pervin, 1999) and have also been discussed with specific reference to trait emotional self-efficacy (e.g. Petrides, Furnham, & Mavroveli, in press). These limitations should not detract from the contribution of this study, which must be interpreted within the general trait EI framework and its extensive combination of data from multiple sources (e.g. Mikolajczak, Petrides, Luminet, & Coumans, 2007; Petrides *et al.*, 2004; Petrides, Niven, & Mouskounti, 2006).

A related weakness concerns the conceptual overlap between certain trait EI facets and criterion variables used in the study. While, as in the case of mono-method assessment, the most satisfactory way of addressing this weakness is by continuing to incorporate objectively measured criteria into the construct's sampling domain (Petrides *et al.*, in press), we should like to emphasize three points. First, there is clear evidence that trait EI incrementally predicts criteria that do not overlap its constituent facets (academic performance, exclusions from school due to antisocial behaviour, sensitivity to mood induction, etc.). Second, it is important to remember that we are testing for incremental relationships over and above the Giant Three and Big Five personality dimensions, which themselves include many items and facets that overlap the criteria (depression, anxiety, feelings, etc.). Third, the indiscriminate partialling procedures we use in this study are particularly severe because they remove not only the

part of the variance resulting from item overlap (duplication), but also the part resulting from valid conceptual associations. For example, common variance due to the relationship between TEIQue Emotion Perception and EPQ Extraversion is suppressed, even though it is plainly not caused by duplication. The criticism about conceptual overlap should therefore be qualified in light of these points.

Conclusion

It is encouraging that the results of the two joint factor analyses were substantively identical. An oblique factor was isolated in both taxonomies, supporting our conceptualization of trait EI as a lower-order construct that comprehensively encompasses the emotion-related facets of personality. The multiple regressions also produced convergent results, showing that trait EI accounts for criterion variance over and above the two trait taxonomies. Because the two frameworks differ in scope (Draycott & Kline, 1995), it is possible for the discriminant validity of a construct to vary across them (e.g. a construct may be fully represented by some combination of the Big Five dimensions, but no combination of the Giant Three). It is also possible for a construct to exhibit incremental predictive validity over one taxonomy, but not the other. Our findings show that not only does trait EI capture variance that cannot be accounted for by the Giant Three or the Big Five, but, moreover, that this variance forms a robust and interpretable factor within both frameworks.

The conclusion that trait EI is a distinct, compound trait located at the lower levels of personality hierarchies has implications for its discriminant (see Factor analyses), criterion (see step 1 of Hierarchical regressions), and incremental (see step 2 of Hierarchical regressions) validity, all of which were supported by the present results. Trait EI is a useful explanatory variable because it captures individual differences in affective self-evaluations and organizes them into a single framework, thus integrating the emotion-related facets that are presently scattered across the basic personality dimensions. That most of the construct's variance overlaps with these dimensions is neither surprising nor problematic, given that the main function of higher-order personality traits is to summarize variance in the traits lower down the hierarchy.

The trait emotional intelligence framework provides an operationalization of emotion-related self-perceptions that can be integrated into the mainstream taxonomies of personality. It also demonstrates that it is these taxonomies, rather than the taxonomy of cognitive abilities (Carroll, 1993), that can provide a scientifically viable context for the ever-growing number of specious 'intelligences' (interpersonal, intrapersonal, emotional, social, etc.).

Emotions are implicated in many aspects of everyday life. Their impact and relevance, in combination with the subjective nature of emotional experience, suggest it is important to work towards a comprehensive scientific model of emotion-related self-perceptions, as envisaged in the trait EI – trait emotional self-efficacy conceptualization.

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