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Development and Validation of the Durand Emotional Comprehension Inventory (DECI): A Measure of Trait Emotional Intelligence

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Abstract: Although numerous instruments measuring trait emotional intelligence (EI) have been developed, none has been established as a gold standard. Across three studies (*N*s = 231, 202, and 377), this article describes the development and validation of a self-report trait EI questionnaire designed to capture the constructs common to widely used EI measures. A series of exploratory factor analyses (maximum likelihood, direct oblimin rotation) yielded a 44-item, 11-factor solution with good internal consistency (subscale αs = .65–.84; total α = .86). The instrument showed convergent validity with established EI measures, the expected relationships with self-esteem, alexithymia, happiness, personal growth, and the Big Five, and adequate separation among its subscales. In incremental-validity analyses, it performed comparably to the TEIQue and outperformed the SEIS in predicting EI-related constructs. Together, these findings provide initial support for the questionnaire as a broad and efficient measure of trait EI.

Keywords: *Test development; Psychometric testing; General population; Emotional intelligence.*

Emotional intelligence (EI) refers to the skillset associated with accurately reasoning about emotions and using knowledge of emotions to enhance one's thinking (Mayer, Roberts, & Barsade, 2008; Miners, Côté, & Lievens, 2018). Although the concept of EI is relatively new, there has been a plethora of scientific and popular literature published in the last three decades (Petrides, 2001). While the EI concept became widely popular due to laypeople's expectations of its importance in success, empirical research failed to provide consistent conclusive evidence regarding the relationship between EI and markers of success (Miners et al., 2018). Indeed, while many studies support the association between emotional intelligence and positive characteristics such as satisfaction in life (Ruiz-Aranda, Extremera, & Pineda-Galán, 2014), happiness (Furnham & Petrides, 2003), and both physical and psychological health (Tsaousis & Nikolaou, 2005); findings related to success, such as leadership and salary, are more mixed (Føllesdal & Hagtvet, 2013; George, 2000; Howe, Falkenbach, & Massey, 2014). Discrepancies in the EI field could potentially be due to how the concept is measured.

These conflicting findings may principally stem from the duality of approaches used to measure the construct: typical and maximal performance (Hofstee, 2001). Indeed, many researchers developed self-reported questionnaires focusing on the typical expression of traits related to EI, while others designed ability tests focusing on the maximum performance at a specific time point. Despite measuring EI using two widely different approaches, researchers believed they were operationalizing the same construct, leading to confusion regarding the conceptual definition of EI, as well as numerous divergent findings (Pérez, Petrides, & Furnham, 2005). The distinction between typical and maximal performance was further developed by Petrides and Furnham (2000) who classified EI as *trait* (or emotional self-efficacy) and *ability* (or cognitive-emotional ability). Trait EI refers to one's beliefs surrounding their emotional intelligence and is thus captured by self-report measures. On the other hand, ability EI refers to one's cognitive ability to understand their emotions and the emotions of others; and the ability to use that information in social settings and is best captured by maximal performance measures (Pérez et al., 2005). Although trait EI and ability EI shouldn't be considered as competing (since they are measuring two independent constructs), previous findings support a weak correlation between trait and ability EI (Brackett & Mayer, 2003).

Psychometric testing being a lucrative business, there has been a surge of instruments developed by academics and private organizations to measure emotional intelligence (Pérez et al., 2005). While reliable information regarding the psychometric properties of privately developed EI tests is scarce, the scientific literature has been particularly critical of the most common EI measures. For instance, the Mayer-Salovey-Caruso Emotional Intelligence Test (MSCEIT; Mayer, Salovey, & Caruso, 2002) has been criticized extensively, primarily due to the test's score being highly predicted by personality, general intelligence,

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and demographics, as well as due to suboptimal discriminant, construct, and incremental validity (Fiori & Antonakis, 2011). Another commonly used instrument, the Schutte Emotional Intelligence Scale (SEIS; Schutte et al., 1998), also faces a lot of criticism, particularly due to its lack of reverse-keyed items and its factor structure (Austin, Saklofske, Huang, & McKenney, 2004). Among the multiple other tests, common criticisms are that tests do not focus on the complete testing EI universe, are lengthy, have a questionable factor structure, and have not been used in the scientific literature, limiting the availability of psychometric data (for an extensive review of multiple measures, see Pérez et al., 2005).

In addition to the numerous limitations of many popular EI tests, EI measures should display significant relationships with multiple constructs commonly associated with EI, such as life outcomes, personality traits, and alexithymia (Saklofske, Austin, & Minski, 2003). Emotional intelligence has been associated with life satisfaction (Palmer, Donaldson, & Stough, 2002), happiness (Furnham & Christoforou, 2007), positive mood (Schutte, Malouff, Simunek, McKenley, & Hollander, 2002), self-esteem (Kong, Zhao, & You, 2012), and personal growth (Landa, Martos, & López-Zafra, 2010). EI was also reported to have positive relationships with all components of the Big Five factor of personality, apart from a negative relationship with neuroticism (Saklofske et al., 2003). A similar negative relationship is commonly observed between EI and alexithymia (Saklofske et al., 2003).

It is possible that the discrepancies observed in the EI field, particularly across trait EI, may be due to how each author operationalized the EI construct. Examining how each of the most common EI instruments define the construct and mapping the common and uncommon aspects within each definition may be beneficial to develop an instrument focusing on the entire testing EI universe. Hence, the purpose of this article is to describe the development and initial validation of a new trait EI self-reported questionnaire focusing on the constructs commonly observed within popular EI instruments.

METHOD OF STUDY 1: TEST DEVELOPMENT

Participants

Two hundred and thirty-one (N = 231, 42% males, M = 27.85 years old, SD = 11.08) participants were recruited online. All participants received informed consent at the beginning of the questionnaire. Inclusion criteria were to be over 18 years old and be fluent in English. Almost half (45%) of the participants reported being a university student. The majority of participants were located in North America (45%) and Europe (45%).

Procedure

In order to identify the constructs of interest to emotional comprehension, I first examined the factors included in six of the most well-researched EI instruments: the Mayer-Salovey-Caruso Emotional Intelligence Test battery (MSCEIT; Mayer, Salovey, Caruso, & Sitarenios, 2001), Emotional and Social Competence Inventory (ESCI; Goleman, 1998), Work Profile Questionnaire – Emotional Intelligence (WPQei; Cameron, 2004), BarOn Emotional Quotient Inventory (EQI; Bar-On, 1997), Trait emotional intelligence questionnaire (TEIQue; Petrides, 2001), and the Test of Emotional Intelligence (TIE; Śmieja, Orzechowski, & Stolarski, 2014). Upon examination of all factors and subscales reported by the aforementioned instruments, I regrouped identical factors, and in consultation with three independent psychologists, I excluded a set of constructs considered unrelated to EI, and included two constructs not observed in the aforementioned instruments, namely Integrity and Service Orientation. The final list of constructs included in the study is as follows: 1. Assertiveness, 2. Behavioural inhibition, 3. Cognitive empathy, 4. Cooperation, 5. Coping skills, 6. Emotional control, 7. Emotional empathy, 8. General mood, 9. Integrity, 10. Self-awareness, 11. Judgment, 12. Self-expression, 13. Service orientation, and 14. Stress management. Subsequently, 10 items were written for each construct, with half of these items being written in the negative form for reverse coding. Items were answered using a 5-point scale (*Strongly Disagree, Disagree, Neither Agree or Disagree, Agree, Strongly Agree*).

Prior to performing the factor analysis on all items of the Durand Emotional Comprehension Inventory (DECI), multiple statistical assumptions were verified. First, all response choices on all 140 items were utilized. Second, examination of skewness and kurtosis identified four problematic items exceeding a -2/+2 range, which were removed from the pool of items. Cronbach's alpha was then examined within each proposed construct. Items within each construct were removed until the deletion of the item with the lowest alpha would not further increase the alpha of the construct. These analyses removed an additional 45 items from the original pool of items. A bivariate Pearson correlation between all constructs and the total score of these constructs showed positive correlations between the constructs and the total.

An exploratory factor analysis using Maximum Likelihood with a direct oblimin rotation was then performed on the pool of items. Items were deleted if they did not load on a factor or load on two factors or more with a loading of 0.30. The remaining items were processed through a factor analysis once again

using the specifications mentioned previously. A factor analysis was computed after every round of items deletion. On the 7th factor analysis, a stable solution emerged, dividing 44 items into 11 factors. Table 1 shows the loading of the DECI's scales on the factors.

Table 1. DECI Subscales, sample items, Cronbach's alpha, eigenvalues, and variance

Scales	Alpha	Eigenvalues	Cumulative % of Variance
Optimism (3 items) I am happy most of the time (True)	.81	5.62	12.79
Emotional Composure (4 items) Sometimes, I feel like crying when I am sad (False)	.80	5.25	24.72
Nonjudgmental (5 items) I am judgmental sometimes (True)	.83	3.60	32.91
Self-awareness (3 items) Sometimes, I feel I do not fully know myself (False)	.76	2.26	38.03
Accepting Support (4 items) Very few people are aware of my fears (False)	.69	2.23	43.11
Assertiveness (4 items) I am not afraid to say 'no' to someone (True)	.72	1.61	46.79
Cognitive Empathy (4 items) Some people's arguments do not deserve to be listened to (False)	.67	1.49	50.17
Self-expression (3 items) My face does not display a lot of emotions (False)	.74	1.44	53.46
Behavioural Inhibition (4 items) I keep my cool in situations where others do not (True)	.72	1.39	56.61
Professionalism (4 items) As an employee, it is sometimes okay to ignore angry customers (False)	.68	1.18	59.29
Empathy & Integrity (6 items) Other people's problems are their problems, not mine (False)	.71	1.08	61.74

Results

The 11-factor EFA solution accounted for 61.74% of the variance. The eigenvalues of these 11 factors ranged between 5.62 and 1.08. The internal reliability of the scales ranged between α = .67 to .83. The internal consistency of the total score was α = .81. All subscales correlated at $p < .001$ with the total score. The correlations were as follows: Nonjudgmental (r = .56), Emotional Composure (r = .30), Optimism (r = .60), Assertiveness (r = .40), Professionalism (r = .43), Self-awareness (r = .45), Empathy & Integrity (r = .49), Cognitive Empathy (r = .53), Self-expression (r = .37), Behavioural Inhibition (r = .42), and Accepting Support (r = .42).

METHOD OF STUDY 2: INCREMENTAL VALIDITY OF THE DECI

Participants

All participants received informed consent and were given a debriefing at the end of the study. Two hundred and two (N = 202) participants were recruited online via social media and websites dedicated to psychological research. There was no missing data for any of the responses. Inclusion criteria for the study were to be over 18 years old and be fluent in English. The sample consisted of 97 males and 105 females. Participants were predominantly located in North America (64%), Europe (22%), Oceania (6%), or other (8%). Most participants reported being Caucasian (80%) or Asian (8%). English was the primary language of 78% of the participants. Almost half of the participants (46%) reported being enrolled as a university student. The mean age of the sample was 24.70 years old (SD = 7.42).

Measures

Trait emotional intelligence questionnaire – short form (TEIQue - SF; Petrides & Furnham, 2006). The TEIQue-SF is a 30-item self-report instrument providing a global measure of trait emotional intelligence and emotional self-efficacy (e.g., the ability to identify and manage one's own emotions, as well as the emotions of others). The short form is based on the original 153-item TEIQue (Petrides, 2001).

Participants provide their agreement to each statement on a 7-point scale. The TEIQue-SF has shown reliable internal consistency in previous studies (Ali, Amorim, & Chamorro-Premuzic, 2009).

Schutte Emotional Intelligence Scale (SEIS; Schutte et al., 1998). The SEIS is a 33-item self-report questionnaire answered on a 5-point Likert scale. Although it has been widely used in research, its psychometric properties, and especially its factor structure, have been extensively debated (Austin et al., 2004; Saklofske et al., 2003). A recurrently discussed shortcoming of the SEIS is that it solely assesses EI through the 3 dimensions postulated in the early Salovey & Mayer's (1990) model (Pérez et al., 2005).

Personal Growth Initiative Scale (PGIS; Robitschek, 1998). The PGIS is a 9-item self-report instrument measuring one's motivation to change and develop as a person. Each item is rated on a 6-point scale, ranging from Definitely Disagree to Definitely Agree. The PGIS has shown adequate internal reliability, as well as convergent and discriminant validity (Durand, 2018; Shorey et al., 2007).

Rosenberg Self-Esteem Scale (RSES; Rosenberg, 1965). The RSES is a 10-item global measure of self-esteem. Each item is rated on a scale ranging from 1 = Disagree strongly to 4 = Agree strongly. The RSES possesses adequate psychometric properties (Crowe, LoPilato, Campbell, & Miller, 2015).

20-item-Toronto Alexithymia Scale (TAS-20; Bagby, Parker, & Taylor, 1994). The TAS-20 is a 20-item self-report instrument of alexithymia. Items are rated on a 5-point scale from strongly disagree to strongly agree. The TAS-20 has three factors: 1) difficulty describing one's feelings towards others, 2) difficulty identifying and modulating feelings, and 3) externally oriented thinking (attention). The TAS-20 has shown adequate validity and reliability and is considered a valid measure of alexithymia (Bagby, Taylor, & Parker, 1994; Gori et al., 2014).

Subjective Fluctuating Happiness Scale and Subjective Authentic-Durable Happiness Scale (SFHS and SA-DHS; Dambrun et al., 2012). The 10-item SFHS and the 13-item SA-DHS examine two components of happiness: the fluctuation of happiness over time, and one's stable happiness state. Items are rated on a 7-point scale. Psychometric properties of both questionnaires are considered adequate and reliable (Dambrun et al., 2012; Durand, 2018).

Short Affect Intensity Measure (AIM; Geuens & De Pelsmacker, 2002). The short AIM is a shortened version of the original 40-item measure by Larsen, Diener, and Emmons (1986). The current AIM includes 20 items rated on a 6-point scale. The instrument measures the intensity with which an individual will experience positive and negative emotions. The AIM has demonstrated adequate psychometric properties (Geuens & De Pelsmacker, 2002).

Results

The mean, standard deviation, internal consistency, and inter-correlations of the DECI and its subscales are shown in Table 2. Overall, the internal consistency of the DECI (α = .86) as well as its subscales (α = .65 to .84) is acceptable. All the subscales of the DECI correlated moderately to strongly with the DECI total score, with the exception of Emotional Composure, which correlated weakly with the total (r = .26).

As shown in Table 3, examination of the DECI and its subscales against other measures of emotional intelligence and correlates related to EI yielded several significant results. First, the DECI total score showed strong positive correlations with the TEIQue and all its subscales, as well as with the SEIS, the PGIS, the RSES, and the SADHS, and weakly with Expressing Positive emotions from the AIM. It also showed strong negative associations with the TAS, and moderately with the SFHS. Additionally, all scales of the DECI correlated with three or four subscales of the TEIQue. All scales but Emotional Composure correlated with the SEIS.

In addition to examining the correlations of the DECI with other EI measures, I also examined the incremental validity of the DECI over the TEIQue and the SEIS in predicting EI correlates. All analyses were computed twice, once with the DECI in Block 1 and the TEIQue or the SEIS in Block 2, and a second time with the TEIQue or the SEIS in Block 1 and the DECI in Block 2. Tables 4 and 5 report the value in Block 1 and its related p value when the TEIQue or the SEIS was in Block 1, when the DECI was in Block 1, the outcome of the second variable in Block 2, and the adjusted R^2 change and its significance from DECI to TEIQue/SEIS and from TEIQue/SEIS to DECI.

Regarding the incremental validity over the TEIQue, the DECI added incrementally to the prediction of expressing positive and negative emotions from the AIM, identifying feelings from the TAS, as well as both measures of happiness. Alternatively, the TEIQue showed better predictive abilities than the DECI to measure personal growth, self-esteem, and describing feelings and attention scales from the TAS.

Table 2. Inter-correlations between the DECI subscales (*N* = 202)

Scales	1	2	3	4	5	6	7	8	9	10	11
1. Nonjudgmental											
2. Emotional comp.	-.05										
3. Optimism	.13	**.31**									
4. Assertiveness	.18	**.22**	**.43**								
5. Professionalism	**.25**	**.23**	**.27**	**.32**							
6. Self-awareness	.09	**.33**	**.55**	**.42**	**.24**						
7. Empathy & integ.	**.33**	**-.23**	**.24**	.16	.13	**.18**					
8. Cognitive empathy	**.41**	-.08	**.24**	**.25**	**.42**	**.24**	**.36**				
9. Self-expression	.10	**-.37**	**.22**	.09	.13	.15	**.28**	**.23**			
10. Behavioural inhib.	**.25**	**.40**	**.27**	**.18**	**.30**	**.22**	-.01	**.19**	-.17		
11. Accepting support	.12	**-.34**	**.31**	**.19**	.09	.16	**.35**	**.21**	**.40**	-.05	
12. DECI total	**.52**	**.26**	**.70**	**.61**	**.59**	**.63**	**.52**	**.60**	**.34**	**.45**	**.42**

Note. Bold indicates $p < .01$, two-tailed. 1 = Nonjudgmental (*M* = 15.43; *SD* = 4.03; α = .82); 2 = Emotional Composure (*M* = 12.54; *SD* = 3.82; α = .76); 3 = Optimism (*M* = 8.50; *SD* = 3.34; α = .84); 4 = Assertiveness (*M* = 12.32; *SD* = 3.32; α = .71); 5 = Professionalism (*M* = 12.26; *SD* = 3.35; α = .74); 6 = Self-awareness (*M* = 9.50; *SD* = 3.27; α = .80); 7 = Empathy & Integrity (*M* = 22.46; *SD* = 4.01; α = .68); 8 = Cognitive Empathy (*M* = 14.45; *SD* = 2.86; α = .65); 9 = Self-expression (*M* = 9.78; *SD* = 2.94; α = .74); 10 = Behavioural Inhibition (*M* = 14.41; *SD* = 2.85; α = .69); 11 = Accepting Support (*M* = 10.28; *SD* = 3.34; α = .69); 12 = DECI Total (*M* = 141.96; *SD* = 18.97; α = .86).

Table 3. Correlations between the DECI subscales and the TEIQue, the SEIS, the AIM, the PGIS, the RSES, the TAS, the SFHS, and the SADHS (*N* = 202)

Scales	1	2	3	4	5	6	7	8	9	10	11	12
TEIQue												
Well Being	.17	**.29**	**.86**	**.47**	**.35**	**.59**	**.28**	**.28**	**.33**	**.29**	**.26**	**.74**
Self-control	**.24**	**.56**	**.57**	**.52**	**.39**	**.57**	.04	.20	-.05	**.59**	.00	**.64**
Emotionality	**.37**	-.07	**.53**	**.37**	**.31**	**.54**	**.46**	**.49**	**.45**	.18	**.51**	**.73**
Sociability	**.20**	**.19**	**.53**	**.61**	**.36**	**.36**	**.22**	**.41**	**.23**	**.30**	**.25**	**.64**
Total	**.29**	**.31**	**.80**	**.59**	**.44**	**.65**	**.31**	**.42**	**.31**	**.41**	**.31**	**.85**
SEIS												
Total	**.33**	.00	**.63**	**.42**	**.31**	**.55**	**.42**	**.48**	**.48**	**.28**	**.45**	**.76**
AIM												
Exp.-Positive	.09	**-.38**	**.27**	.10	.17	.07	**.33**	**.23**	**.62**	**-.24**	**.45**	**.29**
Exp.-Negative	.06	**-.59**	**-.29**	**-.26**	-.13	**-.26**	**.32**	-.02	**.30**	**-.38**	**.25**	-.17
PGIS												
Total	.15	**.25**	**.73**	**.46**	**.31**	**.53**	**.26**	**.26**	**.28**	**.34**	**.31**	**.68**
RSES												
Total	.08	**.35**	**.79**	**.49**	**.31**	**.63**	.16	**.25**	**.20**	**.31**	.14	**.65**
TAS												
Descr. Feelings	**-.18**	.00	**-.49**	**-.38**	**-.26**	**-.57**	**-.32**	**-.36**	**-.40**	-.11	**-.44**	**-.61**
Ident. Feelings	-.16	**-.39**	**-.48**	**-.33**	**-.24**	**-.72**	-.16	**-.21**	-.15	**-.27**	-.11	**-.57**
Attention	**-.28**	**.24**	**-.27**	**-.25**	**-.18**	**-.28**	**-.44**	**-.39**	**-.36**	-.06	**-.41**	**-.47**
Total	**-.25**	-.09	**-.51**	**-.39**	**-.28**	**-.66**	**-.36**	**-.38**	**-.36**	**-.19**	**-.37**	**-.67**
SFHS												
Total	.01	**-.54**	**-.46**	**-.28**	-.14	**-.51**	.00	-.04	**.19**	**-.31**	.04	**-.37**
SADHS												
Total	.12	**.33**	**.87**	**.40**	**.31**	**.58**	.17	**.22**	**.21**	**.32**	**.25**	**.66**

Note. Bold indicates $p < .01$, two-tailed. 1 = Nonjudgmental; 2 = Emotional Composure; 3 = Optimism; 4 = Assertiveness; 5 = Professionalism; 6 = Self-awareness; 7 = Empathy & Integrity; 8 = Cognitive Empathy; 9 = Self-expression; 10 = Behavioural Inhibition; 11 = Accepting Support; 12 = DECI Total. Criterion measures: TEIQue Well Being (*M* = 27.04; *SD* = 9.68; α = .92); TEIQue Self-control (*M* = 26.15; *SD* = 7.37; α = .79); TEIQue Emotionality (*M* = 37.70; *SD* = 8.81; α = .77); TEIQue Sociability (*M* = 27.04; *SD* = 7.54; α = .82); TEIQue Total (*M* = 134.33; *SD* = 31.79; α = .94); SEIS Total (*M* = 113.64; *SD* = 21.08; α = .94); AIM Expressing Positive (*M* = 46.30; *SD* = 10.14; α = .84); AIM Expressing Negative (*M* = 22.27; *SD* = 4.89; α = .62); PGIS Total (*M* = 33.52; *SD* = 9.92; α = .91); RSES Total (*M* = 25.51; *SD* = 7.44; α = .93); TAS Describing Feelings (*M* = 14.55; *SD* = 5.06; α = .84); TAS Identifying Feelings (*M* = 16.52; *SD* = 6.26; α = .87); TAS Attention (*M* = 18.24; *SD* = 5.17; α = .71); TAS Total (*M* = 49.32; *SD* = 13.51; α = .89); SFHS Total (*M* = 41.28; *SD* = 12.15; α = .90); SADHS Total (*M* = 47.66; *SD* = 17.84; α = .96).

Table 4. Incremental validity of the DECI over the TEIQue and vice versa.

Criterion	Block 1: TEIQue R^2	p value in	Block 1 : DECI R^2	p value in	TEIQue /DECI Block 2	R^2 Change TEIQue to DECI	p	R^2 Change DECI to TEIQue	p
AIM									
Express Positive	.38	<.001	.49	<.001	.51	.13	<.001	.02	=.008
Express Negative	.28	<.001	.45	<.001	.45	.17	<.001	.00	=.641
PGIS									
Total	.62	<.001	.59	<.001	.63	.01	=.093	.04	<.001
RSES									
Total	.78	<.001	.70	<.001	.80	.02	=.001	.10	<.001
TAS									
Describe Feelings	.67	<.001	.50	<.001	.69	.02	=.010	.19	<.001
Identify Feelings	.52	<.001	.56	<.001	.66	.14	<.001	.10	<.001
Attent.	.40	<.001	.35	<.001	.43	.03	=.038	.08	<.001
Total	.72	<.001	.56	<.001	.75	.03	=.001	.19	<.001
SFHS									
Total	.35	<.001	.44	<.001	.46	.11	<.001	.02	=.039
SADHS									
Total	.76	<.001	.77	<.001	.83	.07	<.001	.06	<.001

Note. All analyses were run twice. Once with TEIQue subscales in the first block and DECI subscales in the second block, and once with the DECI subscales in the first block and the TEIQue subscales in the second block. TEIQue /DECI Block 2 refers to the value of block 2 when the other scale was in block 1. R^2 Change TEIQue to DECI refers to the adjusted R^2 difference when TEIQue was analysed as block 1 and DECI was analysed as block 2. R^2 Change DECI to TEIQue refers to the opposite, when DECI is block 1 and TEIQue is block 2.

Table 5. Incremental validity of the DECI over the SEIS and vice versa.

Criterion	Block 1: SEIS R^2	p value in	Block 1 : DECI R^2	p value in	SEIS /DECI Block 2	R^2 Change SEIS to DECI	p	R^2 Change DECI to SEIS	p
AIM									
Express Positive	.19	<.001	.49	<.001	.50	.31	<.001	.01	=.008
Express Negative	.00	=.604	.45	<.001	.45	.45	<.001	.00	=.716
PGIS									
Total	.51	<.001	.59	<.001	.65	.14	<.001	.06	<.001
RSES									
Total	.36	<.001	.70	<.001	.70	.34	<.001	.00	=.048
TAS									
Describe Feelings	.48	<.001	.50	<.001	.55	.07	<.001	.05	<.001
Identify Feelings	.32	<.001	.56	<.001	.59	.28	<.001	.04	<.001
Attent.	.39	<.001	.35	<.001	.46	.07	<.001	.11	<.001
Total	.58	<.001	.56	<.001	.65	.07	<.001	.09	<.001
SFHS									
Total	.03	=.005	.44	<.001	.44	.41	<.001	.00	=.154
SADHS									
Total	.39	<.001	.77	<.001	.79	.40	<.001	.02	=.034

Note. All analyses were run twice. Once with SEIS total in the first block and DECI subscales in the second block, and once with the DECI subscales in the first block and the SEIS total in the second block. SEIS /DECI Block 2 refers to the value of block 2 when the other scale was in block 1. R^2 Change SEIS to DECI refers to the adjusted R^2 difference when SEIS was analysed as block 1 and DECI was analysed as block 2. R^2 Change DECI to SEIS refers to the opposite, when DECI is block 1 and SEIS is block 2.

While the TEIQue and the DECI appear to predict multiple variables related to EI with similar predictive power, the DECI showed clear incremental validity over the SEIS. Indeed, the DECI showed major improvements in adjusted R^2 over the SEIS on expressing positive (.31) and negative (.45) emotions, personal growth (.14), self-esteem (.34), describing feelings (.07), identifying feelings (.28), fluctuating happiness (.41) and stable happiness (.40). Alternatively, the SEIS provided incremental validity over the DECI on attention from the TAS (.11) and total from the TAS (.09).

METHOD OF STUDY 3: CONSTRUCT VALIDITY OF THE DECI

Participants

Three hundred and seventy-seven (N = 377) participants were recruited online for Study 3. The sample consisted of 140 males and 237 females. Participants were predominantly located in North America (63%), Europe (24%), Oceania (8%), or other (5%). Most participants reported being Caucasian (79%) or Asian (10%). English was the primary language of 83% of the participants. A third of the participants (36%) reported being enrolled as a university student. The mean age of the sample was 27.94 years old (*SD* = 8.87).

Measures

Big Five Inventory (BFI; John, Donahue, & Kentle, 1991). The BFI is a 44-item instrument assessing the Big Five components of personality (Goldberg, 1992). The questionnaire is rated on a 5-point Likert scale and provides five subscale scores: Openness, Conscientiousness, Extroversion, Agreeableness, and Neuroticism. The BFI has been used in multiple studies and is considered psychometrically valid (Miller, Gaughan, Maples, & Price, 2011).

Satisfaction with Life Scale (SWLS; Diener, Emmons, Larsen, & Griffin, 1985). The SWLS is a brief 5-item measure of life satisfaction. The statements are rated on a 7-point scale. The SWLS has shown high reliability and validity (Egan, Chan, & Shorter, 2014).

Results

The descriptive data, as well as the correlations between the DECI subscales and the SWLS and BFI are shown in Table 6. Overall, the DECI Total is strongly associated with satisfaction with life, and positively moderately to strongly associated with all components of the Big Five, with the exception of neuroticism (r = -.58). At the subscale level, all DECI subscales, apart from Nonjudgmental attitudes, were significantly associated with SWLS. Furthermore, all subscales were significantly correlated with at least two components of the BFI.

To determine which of the DECI's subscales were predictive of the SWLS and the BFI, a series of regression analyses was performed. For SWLS, a significant model was computed ($F(11, 365) = 84.95$, $p < .001$, *adjusted* $R^2 = .71$). Examination of coefficients showed that only Optimism was significant (β = .845, $t = 24.579$, $p < .001$). For Extroversion, a significant model was computed ($F(11, 365) = 28.08$, $p < .001$, *adjusted* $R^2 = .44$). Examination of coefficients showed that Nonjudgmental (β = -.097, $t = -2.226$, $p = .027$), Optimism (β = .164, $t = 3.435$, $p = .001$), Assertiveness (β = .376, $t = 8.878$, $p < .001$), Professionalism (β = .128, $t = 2.884$, $p = .004$), Self-expression (β = .247, $t = 5.129$, $p < .001$), Behavioural Inhibition (β = -.136, $t = -2.819$, $p = .005$), and Accepting Support (β = .161, $t = 3.384$, $p = .001$) were significant predictors. A significant model was also computed for Agreeableness ($F(11, 365) = 40.61$, $p < .001$, *adjusted* $R^2 = .54$). Significant predictors included Nonjudgmental (β = .134, $t = 3.370$, $p = .001$), Optimism (β = .156, $t = 3.581$, $p < .001$), Assertiveness (β = -.229, $t = -5.928$, $p < .001$), Professionalism (β = .168, $t = 4.153$, $p < .001$), Empathy and Integrity (β = .231, $t = 5.519$, $p < .001$), Cognitive Empathy (β = .209, $t = 4.983$, $p < .001$), Self-expression (β = .166, $t = 3.785$, $p < .001$), Behavioural Inhibition (β = .254, $t = 5.781$, $p < .001$), and Accepting Support (β = .098, $t = 2.251$, $p = .025$). A significant model was also computed for Conscientiousness ($F(11, 365) = 10.74$, $p < .001$, *adjusted* $R^2 = .22$). Significant predictors included Optimism (β = .169, $t = 3.003$, $p = .003$), Assertiveness (β = .196, $t = 3.911$, $p < .001$), Self-awareness (β = .147, $t = 2.651$, $p = .008$), and Behavioural Inhibition (β = .121, $t = 2.132$, $p = .034$). A significant model was also computed for Neuroticism ($F(11, 365) = 56.04$, $p < .001$, *adjusted* $R^2 = .62$). Significant predictors included Emotional Composure (β = -.284, $t = -7.094$, $p < .001$), Optimism (β = -.251, $t = -6.339$, $p < .001$), Assertiveness (β = -.237, $t = -6.747$, $p < .001$), Self-awareness (β = -.137, $t = -3.534$, $p < .001$), and Behavioural Inhibition (β = -.278, $t = -6.964$, $p < .001$). A final regression model was computed for Openness ($F(11, 365) = 7.67$, $p < .001$, *adjusted* $R^2 = .16$). The significant predictors included Assertiveness (β = .233, $t = 4.486$, $p < .001$), Empathy and Integrity (β = .180, $t = 3.202$, $p = .001$), and Behavioural Inhibition (β = .134, $t = 2.276$, $p = .023$).

Table 6. Correlations between the DECI, the SWLS, and the BFI (*N* = 377)

Scales	1	2	3	4	5	6	7	8	9	10	11	12
SWLS												
Total	.11	**.15**	**.85**	**.26**	**.19**	**.38**	**.22**	**.20**	**.18**	**.22**	**.30**	**.55**
BFI												
Extroversion	-.01	-.04	**.39**	**.46**	**.16**	**.33**	**.21**	.09	**.40**	-.06	**.40**	**.42**
Agreeableness	**.36**	-.05	**.36**	-.01	**.41**	**.24**	**.49**	**.48**	**.23**	**.37**	**.32**	**.58**
Conscientiousness	**.20**	**.15**	**.36**	**.34**	**.21**	**.36**	**.13**	**.18**	.06	**.26**	**.19**	**.45**
Neuroticism	**-.16**	**-.55**	**-.50**	**-.45**	**-.32**	**-.46**	-.02	**-.25**	**.14**	**-.56**	.01	**-.58**
Openness	**.20**	.00	.10	**.30**	**.15**	**.19**	**.27**	**.26**	.04	**.19**	**.18**	**.35**

Note. Bold indicates $p < .01$, two-tailed. 1 = Nonjudgmental (α = .81); 2 = Emotional Composure (α = .76); 3 = Optimism (α = .84); 4 = Assertiveness (α = .73); 5 = Professionalism (α = .62); 6 = Self-awareness (α = .76); 7 = Empathy & Integrity (α = .65); 8 = Cognitive Empathy (α = .67); 9 = Self-expression (α = .71); 10 = Behavioural Inhibition (α = .69); 11 = Accepting Support (α = .64); 12 = DECI Total (α = .85). Criterion measures: SWLS Total (*M* = 20.45; *SD* = 8.18; α = .90); BFI Extroversion (*M* = 22.80; *SD* = 8.17; α = .89); BFI Agreeableness (*M* = 33.58; *SD* = 6.31; α = .79); BFI Conscientiousness (*M* = 30.98; *SD* = 7.29; α = .86); BFI Neuroticism (*M* = 25.17; *SD* = 7.46; α = .87); BFI Openness (*M* = 38.39; *SD* = 6.63; α = .79).

DISCUSSION

The purpose of the present studies was to develop a new instrument focusing on the constructs commonly observed in popular EI measures. The reported findings support the reliability, as well as the convergent and incremental validity of the DECI. The 11 factors of the DECI showed a positive relationship with the total score, and most factors showed moderately low intercorrelations.

As expected, the DECI showed a strong positive association with both measures of trait EI. While correlations between trait-based and ability-based EI tests are generally low (Pérez et al., 2005; Petrides & Furnham, 2000), many trait EI tests share moderate to high correlations (Brackett & Mayer, 2003; Di Fabio & Saklofske, 2014; Hoerger, Chapman, Epstein, & Duberstein, 2012). Interestingly, the DECI's factors Optimism and Self-awareness showed the strongest correlations with the TEIQue and the SEIS. From these findings, it is not possible to determine if these two concepts are central to these two instruments, or if the two factors measure additional concepts. While there was no measure of convergent validity for Self-awareness, the factor Optimism showed the strongest correlation among all DECI's factors on self-esteem, personal growth, and stable happiness, suggesting a link with the concept of hope in one's well-being. In concordance with previous studies on alexithymia, the DECI showed a strong negative correlation with the TAS (Saklofske et al., 2003).

An examination of the DECI's incremental validity yielded interesting results. Overall, the DECI was vastly superior to the SEIS in measuring constructs typically connected to EI. However, when compared to the TEIQue, the DECI showed slightly better and worse incremental validity, depending on the concepts measured. Indeed, the findings suggest that the DECI is slightly superior to the TEIQue in predicting traits related to identifying feelings, expressing positive and negative emotions, and displaying fluctuating happiness. Alternatively, the TEIQue showed slightly superior incremental validity at predicting well-being-related traits, as well as signs of alexithymia. Despite these small differences in incremental validity, the findings suggest that both measures are, overall, similar in terms of predictive abilities in relation to the measured constructs.

Despite the lack of a clear superiority over the TEIQue, the DECI possesses several strengths. First, the DECI appears to cover 11 seemingly different constructs with only 44 items, providing an excellent ratio between the measured constructs and total number of items. This variety of constructs may provide useful information in understanding the relative contribution of different aspects of trait EI to personality traits. This strength is highlighted by the present findings regarding the predictive value of the DECI in measuring satisfaction with life and the Big Five. For example, despite the strong correlation between EI and satisfaction with life, results from the regression analysis suggest that the Optimism factor is the only significant predictor of satisfaction with life. Future studies should target the constructs measured by the significant factors to verify their contribution to the Big Five factors of personality.

Second, although similar to the TEIQue, the DECI showed clear incremental validity over a widely used EI measure, the SEIS. Apart from self-esteem and alexithymia, the DECI showed significant incremental validity on all measured constructs. It is possible that this incremental validity is the direct result of the numerous factors included in the DECI, allowing the instrument to cover a wider range of constructs related to EI than the single factor present in the SEIS.

Although these findings are encouraging, additional validation studies are needed to provide support for the use of the DECI as a valid measure of trait EI. Future studies should examine the incremental

validity of the DECI on similar and different constructs with other popular measures of trait EI. Test-retest reliability at different time points should be closely examined, and a thorough analysis of the DECI's factor structure through confirmatory factor analysis should be performed. Future studies should also aim for larger sample sizes, as the samples recruited in the present studies are relatively modest.

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