

The Nature of Emotional Intelligence Abilities:  
Underlying Dimensions and Their Relation to Other Cognitive and Personality Variables  
Kim Barchard, University of Nevada, Las Vegas

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**Contact Information:** Kim Barchard, Department of Psychology, University of Nevada, Las Vegas, 4505 S. Maryland Parkway, P.O. Box 455030, Las Vegas, NV, 89154-5030, USA, [barchard@unlv.edu](mailto:barchard@unlv.edu)

### Abstract

The purpose of this study was twofold: first, to determine the dimensions underlying measures of Emotional Intelligence, and second, to examine the relation of these dimensions to other cognitive abilities and personality dimensions in order to determine if the Emotional Intelligence factors represent cognitive abilities or personality dimensions. 176 undergraduate students (116 female) completed 24 measures of Emotional Intelligence, 12 cognitive abilities measures, and measures of the Big Five dimensions of personality. The measures of Emotional Intelligence included both self-report measures (such as the Toronto Alexithymia Scale) and maximum-performance tests (such as the MSCEIT and the Social Intelligence tests designed by O'Sullivan and Guilford). A factor analysis was conducted of the 24 Emotional Intelligence measures. Five factors emerged: Emotional Congruence, Emotional Independence, Social Perceptiveness, Alexithymia, and Social Confidence. Factor scores were correlated with the cognitive ability measures and the personality dimensions. Emotional Congruence had low correlations with both cognitive abilities and personality dimensions. It may be that this factor is measuring a new aspect of personality or a new cognitive ability. Social Perceptiveness had moderate correlations with Verbal Ability and Inductive Reasoning. Further research is needed to determine if the tests that loaded on this factor measure existing cognitive abilities or new ones. The remaining three factors had moderate correlations with various personality dimensions and low correlations with cognitive abilities, and thus do not appear to be measuring cognitive abilities. The implications of these results for both the measurement and the theory of Emotional Intelligence are discussed.

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### Introduction

Emotional Intelligence can be broadly defined as the ability to understand and manage emotions. Two main approaches to studying Emotional Intelligence (EI) have evolved. The first, typified by the work of Mayer, Caruso, and Salovey (2000), focuses exclusively on cognitive abilities related to emotions (Ability EI). The second approach, typified by the work of Petrides and Furnham (2001), focuses on personality traits related to emotions (Trait EI). See Table 1.

Bar-On (1997) and Petrides and Furnham (2001) have examined the dimensions of Trait EI and have concluded that the underlying concepts can be summarized quite well by a single higher-order factor.

Mayer et al. (2000) have briefly examined the factors underlying Ability EI. They found three factors: Perception, Understanding, and Management. Additional research is needed to include a greater number and wider variety of Ability EI measures. The purpose of this research is to determine the dimensions underlying Ability EI and the relation of those dimensions to other cognitive abilities and personality dimensions.

A secondary purpose of this research is to determine whether self-report measures designed to measure Ability EI are best considered to assess Ability EI or Trait EI.

## Method

### Participants

176 undergraduate students (60 male) participated in this study for course credit.

### Measures

<i>Emotional Intelligence</i>	Twenty-four measures of Emotional Intelligence were used to tap eight different aspects of Ability EI. See Table 2.
<i>Cognitive Abilities</i>	Twelve timed tests of cognitive abilities were used to measure Verbal Ability, Verbal Closure, Visualization, and Inductive Reasoning.
<i>Personality Dimensions</i>	Multiple personality scales were used to measure each of the Big Five Dimensions of Personality: Neuroticism, Extraversion, Openness, Agreeableness, and Conscientiousness.

## Results and Conclusions

### Factor Analysis

The number and type of dimensions underlying Ability EI measures was examined through exploratory factor analysis. Five factors resulted. See Table 3.

### Correlations with Cognitive Abilities and Personality Dimensions

To determine the relation of the resulting factors to other cognitive abilities and personality dimensions, factor scores were estimated using the regression method and were correlated with composite measures of four cognitive abilities and five personality dimensions. See Table 4.

The third factor (Social Perceptiveness) has the strongest relation to other cognitive abilities, and is the dimension of EI that most deserves to use the label "Intelligence". The first factor (Emotional Congruence) is the least strongly related to existing cognitive and personality measures. As such, it is the dimension of EI that is most likely to represent a new mental ability, and to be able to improve our prediction of various types of life success. The remaining three factors each have low correlations with cognitive abilities but moderate correlations with personality dimensions. This suggests that these dimensions might be better understood as measuring something other than cognitive abilities.

### The Status of Self-Report Measures of EI Abilities

Self-report measures of EI do not appear to be good measures of Ability EI: they load on different factors, have low correlations with cognitive abilities, and have moderately strong correlations with personality dimensions. These tests might more appropriately be considered to measure aspects of Trait EI.

*Table 1*

*Frequently Mentioned Aspects of Emotional Intelligence*

<b>Traits</b>	<b>Abilities</b>
Attending to Emotions	Perception of Emotions in Self
Assertiveness	Perception of Emotions in Others
Emotional Expressivity	Perception of Emotions in Objects
Emotion-Based Decision-Making	Managing Emotions in the Self
Impulse Control	Managing Emotions in Others
Motivation	Understanding Emotions
Optimism	Social Competence
Responsive Distress	Emotional Integration
Responsive Joy	
Self-Esteem	
Stress Management	

*Table 2*  
*Measures of Emotional Intelligence*

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<b>Measures</b>
<b>Emotional Understanding and Perception of Emotion in the Self</b>
MSCEIT C Blends *
MSCEIT D Progressions
MSCEIT H Transitions
MSCEIT L Analogies
LEAS 5-Item Version
TAS-20 Difficulty Describing Feelings
TAS-20 Difficulty Identifying Feelings
TEIS Emotional Appropriateness
<b>Emotional Integration</b>
MSCEIT B Synesthesia
MSCEIT G Facilitation
MSCEIT K Sensation Translation
<b>Perception of Emotions in Others</b>
MSCEIT A Faces
Expression Grouping part I
TEIS Recognition of Emotion in Others
<b>Perception of Emotions in Objects</b>
MSCEIT F Landscapes
MSCEIT J Designs
<b>Social Insight</b>
Cartoon Predictions part I
Missing Cartoons part I
Social Translations part I
<b>Managing Emotions in the Self</b>
TMMS Repair
TEIS Regulation of Emotion in the Self
MSCEIT I Emotion Management
<b>Managing Emotions in Others</b>
TEIS Regulation of Emotion in Others
MSCEIT E Emotions in Relationships

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Table 3  
EI Factor Names

Factor	Name	Description
Factor 1	Emotional Congruence	The similarity between the perceived affective quality of a stimulus for the subject and the perceived affective quality of the stimulus for most other people. Typified by high scores on Emotion Perception measures scored with consensus scoring, but included salient loadings from many different EI measures that use consensus scoring.
Factor 2	Emotional Independence	Having emotional experiences that are relatively independent of the surrounding situation, or which are not the same emotional experiences as other people would likely have. Typified by high levels of Emotion Management and unusual emotional reactions to situations.
Factor 3	Social Perceptiveness	Understanding of interpersonal relations and the relationship between emotions and behaviors in various situations. Typified by measures of emotional Understanding and Social Insight.
Factor 4	Alexithymia	Difficulty understanding and managing one's own emotions. Marked by two self-report Alexithymia scales, but also including a negative loading on a vocabulary test of emotion words.
Factor 5	Social Confidence	Confidence in one's ability to understand and manage other's emotions. Marked by self-report measures of the ability to recognize and manage others emotions, but maximum-performance measures of these skills do not load on this factor.

Table 4  
Correlation Between the Five EI Factors and the Cognitive Abilities and Personality Dimensions

Correlate	EI Factor				
	1	2	3	4	5
Verbal Ability	.241**	.010	.495**	-.168*	.022
Verbal Closure	.171*	.002	.271**	-.128	.111
Visualization	.070	.168*	.284**	.046	.054
Inductive Reasoning	.140	.194**	.445**	.032	.060
Neuroticism	-.081	-.691**	-.166*	.407**	-.285**
Extraversion	.109	.443**	.231**	-.181*	.644**
Openness	.083	.120	.261**	-.110	.360**
Agreeableness	.186*	.150	-.019	-.179*	.205*
Conscientiousness	.143	.174*	.090	-.315**	.238**

\*\*  $p < .01$

\*  $p < .05$