

AN ABSTRACT OF THE THESIS OF

Joshua M. Landin for the degree of Honors Baccalaureate of Science in Psychology presented on May 26, 2011. Title: Investigating the Validity of the Mayer-Salovey-Caruso Emotional Intelligence Test (MSCEIT).

Abstract Approved: \_\_\_\_\_

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This study investigated the validity of the Perceiving Emotions branch of the Mayer-Salovey-Caruso Emotional Intelligence Test (MSCEIT). This was conducted through a correlational analysis with three previously validated measures of nonverbal communication proficiency; The Profile of Nonverbal Communication (PONS), the Diagnostic Analysis of Nonverbal Accuracy-2 (DANVA2), and the Affective Communication Test (ACT). The PONS and the DANVA2 correlated significantly with each other but neither correlated with the ACT. In line with this, the MSCEIT correlated significantly with the PONS and DANVA2 but did not correlate with the ACT. In general, the MSCEIT shows convergent validity that it is measuring the ability to perceive nonverbal emotional signals. The ACT is a paper-and-pencil assessment intended to predict an individual's expressivity rather than perception. The lack of correlation between the ACT and the other three assessments brings into question whether the ACT measures individual differences in people's ability to express nonverbal messages.

Key Words: MSCEIT, PONS, DANVA2, ACT, Emotional Intelligence, Convergent Validity.

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Investigating the Validity of the Mayer-Salovey-Caruso Emotional Intelligence Test (MSCEIT)

By

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I understand that my project will become part of the permanent collection of Oregon State University, University Honors College. My signature below authorizes release of my project to any reader upon request.

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Joshua M. Landin, Author

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## TABLE OF CONTENTS

	<u>Page</u>
INTRODUCTION.....	1
Emotional Intelligence.....	2
Trait Emotional Intelligence.....	3
Ability Emotional Intelligence.....	4
Critique of Emotional Intelligence Measures.....	5
MSCEIT.....	6
Scoring the MSCEIT.....	7
Performance Measures of Perception.....	8
The Profile of Nonverbal Sensitivity.....	9
The Diagnostic Analysis of Nonverbal Accuracy-2.....	10
Performance Measure of Expression.....	11
The Affective Communication Test.....	11
The Present Study.....	12
METHOD.....	13
Participants.....	13
Materials.....	13
MSCEIT.....	13
PONS.....	14
DANVA2.....	14
ACT.....	15
Experimental Design.....	15
RESULTS.....	16
Intercorrelation among Performance Measures.....	17
DISCUSSION.....	20
REFERENCES.....	24
APPENDICES.....	30
Appendix A MSCEIT Face.....	31
Appendix B PONS.....	33

## **TABLE OF CONTENTS (Continued)**

Appendix C DANVA2.....	35
Appendix D ACT.....	37
Appendix E MSCEIT Abstract.....	39

## **LIST OF FIGURES AND TABLES**

Figure	Page
1. The four branches of emotional intelligence.....	8
 Table	
1. Simple Statistics of Measures.....	16
2. Intercorrelation Matrix.....	17
3. Convergent Validity Correlations.....	17
4. Individual Channel Performance Measure Correlations.....	18
5. Individual Channel Performance Measure Correlations (Face and Picture).....	19

## Investigating the Validity of the Mayer-Salovey-Caruso Emotional Intelligence Test (MSCEIT)

A woman in line at the post office is carrying a large package and has been waiting for a long time when she is unexpectedly jostled by another customer. The customer, a man, turns to her and offers an apologetic smile. This social encounter can continue along several different pathways depending on the perceptions and judgments of the participants. Let us consider the viewpoint of the woman. A complex emotional and cognitive process is initiated as soon as the man bumps into her. Initially she is startled as she looks to the other customer. She rapidly recalls her long wait in line, how her feet are hurting, and how her arms are tired from carrying the large package she is intending to mail off. She attends to the expression on his face and *incorrectly* interprets his smile as insincere and dismissive. She feels angry and offers an expression of disapproval hoping to put the man in his place. Instead of looking properly chastised, the man simply smiles again and walks away. The woman is left feeling upset, believing the man to be rude and inconsiderate. This scenario should have had a much different outcome, so what went wrong?

There are two processes in this interaction that resulted in miscommunication; the woman's inaccurate perception of the man's smile and her inability to express her disapproval. The man, truly apologetic, offered an emotional signal to communicate his remorse for violating her personal space and that his actions were not ill-intended. She did not appraise his smile as sincere and, responding to her feeling of anger, attempted to generate a negative signal communicating her internal emotional state to the man. Yet she was not successful in mustering an appropriate expression to reflect her disapproval and therefore the man never knew how she felt, and thus was never afforded an opportunity to correct her misconstrual. This process of perceiving and expressing emotions is a key component of a construct known as emotional intelligence (EI).

## **Emotional Intelligence**

Although the construct of emotional intelligence is new, the study of how emotion is used to communicate important messages has been of interest since Darwin first examined the function of emotional expression in man and animals (Darwin, 1872). He believed that emotions were the first human language and that facial muscles, body posture, and distinct vocal intonations were used as nonverbal vehicles for expressing internal states and motivations to others. It is due to the limited natures of these channels for communicating nonverbal information that necessitated the ability for humans to assess and reason about the contexts of emotions and emotional situations Ekman (2002). For example, a smile can be an invitation for a courting ritual or to simply communicate an absence of ill-intent. Failure to appropriately interpret the context of these messages can lead to detrimental deficiencies in social interaction.

This idea that social interaction entails not just a visceral emotional response yet requires a certain level of cognitive process motivated Thorndike (1920) to investigate a notion he coined “social intelligence”. He described social intelligence as the ability to understand and manage people, specifically one’s proficiency to act wisely in social interactions. A key concept Thorndike touched upon is that this skill is actually a type of intelligence and that people vary in their ability to manage social environments. Although he was unable to define any specific components of social intelligence, he did suggest that further investigation might lead to methods for measuring this construct. It was not until the late half of the century that researchers finally introduced a coherent and complete definition for the concept of emotional intelligence.

The term ‘emotional intelligence’ first appeared in a German journal on child psychology (Luener, 1966) and then later in a doctoral thesis written by L. W. Payne (1985). Still fuzzy in concept, investigators were beginning to hone in on a phenomenon that they believed described an individual’s

ability to function appropriately in emotional situations. Greenspan (1989) introduced the first trait model of emotional intelligence, which described EI as a set of personality characteristics that influenced behavior in interpersonal situations. Mayer, Salovey, and Caruso (1999) then published a paper defining emotional intelligence as an ability rather than a set of personality traits. It was these pioneers that laid the foundation for the current direction in the research of emotional intelligence.

Today there are two competing approaches toward understanding emotional intelligence. These are illustrated by the trait model (Petrides & Furnham, 2000) and the ability model (Mayer, Salovey, & Caruso, 2008). Trait EI defines emotional intelligence as a set of characteristics that exist in personality space and is separate from cognitive functioning. Traits, such as extroversion or empathy, influence behavior similarly across a variety of different situations. The ability model characterizes EI as the capacity to process and relate emotional information. This approach attributes EI as a type of intelligence and behavior is dependent on an individual's knowledge, experience, and current ability.

**Trait Emotional Intelligence.** The trait model of emotional intelligence defines EI as a set of personality characteristics that act to predict and influence a person's behavior in emotional situational without that individual drawing on cognitive resources (Petrides & Furnham, 2000). These traits vary from specific personality domains such as extroversion, to more abstract characteristics which include adaptability and self-motivation. The concept behind trait EI is that people are aware of how they act and how successful they are in emotional and social situations and therefore are able to report whether they possess a specific characteristic or not (Petrides & Furnham, 2001). As a result, measurements of trait emotional intelligence rely on self-reporting measures. For example, an individual with a strong empathy trait will answer yes to an item that asks, "I know what others are feeling just by looking at them".

There are many current measures of trait emotional intelligence (Pérez, Petrides, & Furnham, 2005), such as the Trait Meta-Mood Scale (TMMS; Salovey et al., 1995), Bar-On Emotional Quotient Inventory (EQ-i; Bar-On, 1997), and the Schutte Emotional Intelligence Scale (SEIS Schutte et al., 1998). There is evidence of the validity of trait measurements in their capacity to predict criteria in comparison to basic personality traits (Furnham & Petrides, 2003; Saklofske et al., 2003), predict differences between different groups of people such as students with disabilities (Reiff et al., 2001), police officers and care workers (Bar-On et al., 2000), and inmates and guards (Bar-On, 1997).

**Ability Emotional Intelligence.** The basis behind ability EI is that it is a type of intelligence; a construct that allows an individual to reason about emotions and use emotional information to augment intellectual capacity (Mayer et al., 2008). Models of general intelligence have undergone an evolution ranging from a single, general factor (Spearman, 1904), to Garner's multiple intelligence theory (1983; 1993), which first introduced interpersonal and intrapersonal intelligence. Intelligence is defined as a set of cognitive skills that involve reasoning, abstract thinking, and problem solving that assist in learning and interacting with the environment (Neisser et al., 1996; Snyderman & Rothman, 1987; Sternberg & Detterman, 1986). Ability emotional intelligence is rooted in the concept that EI is a type of intelligence and is possessed and utilized at different levels of proficiency between different people (Mayer, et al., 1999).

It is widely accepted that emotion is used to convey information (Deyer, 1983; Elfinbein & Ambady, 2002) that helps people to understand both their own emotional intentions as well as the actions of others. These ideas led Mayer et al. (1997) to define emotional intelligence as "... the abilities to (a) perceive emotions in oneself and others accurately, (b) use emotions to facilitate thinking, (c) understand emotions, emotional language, and the signals conveyed by emotions, and (d) manage emotions so as to attain specific goals". Each of these four branches are distinct from the others,

allowing someone to have different levels of proficiency in each area, yet all consisting of a certain level of cognitive processing and decision making that potentially influences behavior. *Perceiving and expressing* describes the ability to attend to other people emotional signals, know what those signals mean at a rudimentary level, and be able to also respond with his or her own emotional information. *Facilitating thought* is where an individual draws on emotions and emotional experience to improve emotional communication or thinking processes. *Understanding emotion* describes a deeper processing of emotional information, how emotions blend and evolve over situations, and how to interpret these complex experiences. *Managing emotions* is the ability to reflect on emotional states in the context of feeling and responding appropriately both in self and with others.

### **Critique of Emotional Intelligence Measures**

Interest in emotional intelligence and corresponding models has initiated the design of a multitude of EI assessments. The three most salient measurements today are the Mayer-Salovey-Caruso Emotional Intelligence Test (MSCEIT; Mayer et.al, 2002), the Emotional Quotient Inventory (EQ-I; Bar-On, 1997), and the Self-Report Emotional Intelligence Test (SREIT; Schutte, et al., 1998), although there are many more. The main criticism of emotional intelligence tests has been the lack of evidence demonstrating a standard of psychometric criteria (Matthew, Roberts, & Zeidner, 2004) or validity of the assessments. The process of deciding whether a test is valid requires a multi-method approach (Campbell & Fiske, 1959), which includes content, construct, and predictive validation, and reliability. Convergent validity describes how similar an assessment is to other tests that theoretically measure the same construct. The most effective way to approach these types of validation is to compare the results of the test in question to several assessments that have already established validity in measuring similar constructs. It is through this process that we can provide further evidence that we're measuring what we say we're measuring (John & Benet-Martinez, 2000).

## MSCEIT

The MSCEIT is a 141-item paper and pencil ability assessment that measures four areas of emotional intelligence: (a) perceiving and expressing emotions, (b) using emotions to facilitate thought, (c) understanding emotions, and (d) managing emotions. Mayer et al. (2002) designed the MSCEIT to measure the ability of an individual in each branch of this emotional intelligence ability model.

The perceiving branch consists of a faces task and a pictures task. The faces task presents a photo of a target's face and asks the test taker to rate the level of emotion apparent in it (Mayer, et al. 2003). The concept is to assess an individual's proficiency in detecting emotional nonverbal cues. The pictures task has the participant rate photographs of landscapes and abstract paintings on levels of emotion using cartoon faces depicting neutral to extreme emotions. This category is more abstract, as there are no behavioral cues available. However, the authors believe that emotional perception is important in areas such as music and art, stimulus that is capable of expressing emotional content. The pictures category is designed to assess sensitivity to this information.

The facilitating thought branch is divided into a sensations task and a facilitation task. In the sensations task, individuals are told to imagine a specific emotional situation (feeling guilty for an insensitive behavior) and then rate how much that emotion feels like a certain sensations (i.e. wet, purple, salty). This task is to see how well one can compare emotional states to other stimuli. The facilitation task offers an emotional scenario in which the individual must identify the best emotions to promote effective thinking. For example, what behaviors would be best to help a sad friend feel better?

The understanding branch uses a blends task and a changes task. The blends task describes a complex emotion and has the test taker choose the best combination of basic emotions that fits the description. The changes task describes a situation where an emotion is evolving into other feelings (i.e.

first sad, then angry, then defeated) and is asked to choose the best single emotion to describe the change.

The managing branch consists of a management task and an emotional relations task. The management task offers different situations and the participant must choose the best behavior to maintain or change their feelings. For example, if a friend just got married and is not going to be around very often, how effective would it be to stop talking to the friend in order to avoid negative emotions? The emotional relations task has the participant rate the best behavior to moderate other people's feelings in order to attain a certain response (i.e., what moods will be most useful to create a romantic environment for an anniversary dinner).

**Scoring the MSCEIT.** The authors of the MSCEIT offer both consensus and expert scoring (Mayer et al., 2002). Expert scoring has a panel of 21 International Society of Research on Emotion (IRSE) members designate a set of criteria on the correctness of each question. For example, the panel of experts takes the test and the items with the highest agreement are weighted the most. Consensus takes a respondent's answer and compares it to the overall proportion of responses of all other test takers. In both cases, agreement with either the experts or the consensus results in a higher score.

The MSCEIT offers a total score and two area scores, four branch scores, and eight task scores (Figure 1). In this study, we only investigate the perception branch of the MSCEIT. The perception branch is further divided into a faces and pictures task. The MSCEIT reports either a single branch score, consisting of both tasks, or each task is reported individually.

**Figure 1.***The Four Branches of Emotional Intelligence*

The four-branches of emotional intelligence measured by the MSCEIT			
Emotional Intelligence Measured by the MSCEIT			
Branch 1: (Perception of emotion)	Branch 2: (Use of emotion to facilitate thinking)	Branch 3: (Understanding of emotion)	Branch 4: (Management of emotion)
<i>Task 1: Faces</i> Participants view photographs of faces and identify the emotions in them	<i>Task 3: Sensation</i> Which tactile, taste, and color sensations are reminiscent of a specific emotion?	<i>Task 5: Blends</i> Which emotions might blend together to form a more complex feeling?	<i>Task 7: Emotion management</i> How effective alternative actions would be in achieving a certain outcome, in emotion-laden situations where individuals must regulate their feelings
<i>Task 2: Pictures</i> Participants view photographs of faces and artistic representations and identify the emotions in them	<i>Task 4: Facilitation</i> How moods enhance thinking, reasoning and other cognitive processes	<i>Task 6: Changes</i> How emotions progress and change from one state to another	<i>Task 8: Relationship management</i> Test-takers evaluate how effective different actions would be in achieving an emotion-laden outcome involving other people

*Perceiving and Expressing Emotions*

According to Mayer and Salovey (1990), the gateway to emotional intelligence lies first in the ability to perceive emotional information and then accurately appraise its meaning. Perception defines the ability to detect emotions and then label the emotional experience. Expression is a bit more ambiguous in operation yet was explicitly included in their definition of emotional intelligence. They explained that being able to accurately perceive one's own emotion allows for a more appropriate emotional response, in other words, expressivity. For example, if you feel happy, recognize the emotion; you will be more likely to communicate your mood with the appropriate facial expressions. This is what the MSCEIT perceiving/expressing branch claims to measure. In order to validate these claims, it is important to find other performance assessments that have established objective criteria for measuring nonverbal emotional decoding and encoding. If the MSCEIT perceiving/expressing branch is congruent with other validated and similar measures, then there is evidence that it should predict performance in this category of emotional intelligence. This study will look at three different assessments of nonverbal performance against which the MSCEIT will be measured.

## Performance Measures of Emotional Perception

**The Profile of Nonverbal Sensitivity (PONS; Rosenthal et al., 1979).** The PONS is a multi-item video task that is designed to measure individual differences in ability to accurately read nonverbal cues. The PONS was initially designed with the intention of better understanding expectancy effects between teachers and students (Rosenthal, 1967, 1971, 1976; Rosenthal and Jacobson, 1968). It was discovered that the expectations of an instructor can influence the behavior of their pupils without intentionally conveying any information. The authors wanted to know how high expectations can be communicated nonverbally and why some students responded differently to teacher expectations than others.

Accuracy on the PONS is assessed by how well a person is able to decipher nonverbal cues in different situational contexts. The test taker is asked to observe a variety of emotional scenes portrayed by an actor and accurately interpret the intended emotional message. The more scenes he or she gets correct, the higher the resulting score. More specifically, this is a perceiving task and involves accurately detecting emotional messages from the face, body, and voice.

The video clips are each two seconds in duration and portray a young female actress communicating through various nonverbal channels; voice, body, face, and full figure. The vocal channels are either filtered or spliced so the spoken words are unintelligible. The channels are presented in isolation or in combination. For example, one scene may only involve the actress's face while another may combine filtered vocal and face. There are twenty different emotional scenes that represent different levels of positivity and dominance. The four affective quadrants are positive dominant (admiring the weather), positive submissive (asking directions), negative dominant (criticizing someone), and negative submissive (asking forgiveness).

The PONS is found to have a multitude of convergent validity correlations that indicate the assessment measures an individual's sensitivity to nonverbal cues (Rosenthal et al., 1979). Among

these, high scores are associated with well-adjusted personalities, being seen as more interpersonally sensitive by peers and supervisors, and higher rating as clinicians and teachers. Later studies provided evidence that high scores on the PONS resulted in higher nonverbal communication skills; health practitioners had happier clients (DiMatteo, Friedman, and Taranta, 1979), individuals demonstrated a better knowledge of gender-stereotype (Hall and Carter, 1999), and were better at judging certain personality traits in other people (Ambady, Hallahan, and Rosenthal, 1995). Overall, the PONS is best described as an assessment of an individual's sensitivity to nonverbal signals (Hall and Bernieri, 2001) in both perception and expression and therefore appropriate for validating the MSCEIT perceiving/expressing branch.

#### **The Diagnostic Analysis of Nonverbal Accuracy-2 (DANVA2; Nowicki & Duke, 1994, 2000).**

Norowicki and Duke (1992) first became interested in nonverbal communication when they began investigating a phenomenon called dyssemia, a condition where someone exhibits deficiencies in the ability to translate nonverbal cues. They created a slew of subtests to measure nonverbal sensitivity, which they defined as being able to detect four basic emotions; happiness, sadness, anger, and fear. These tests were eventually combined into the DANVA. This is a pure affect display perception task. The test-taker is asked to attend to nonverbal emotional signals in the face, body, or voice and then accurately report the intended emotion. Again, answers are right or wrong and the more correct answers the test-taker reports, the higher his or her score.

The DANVA is an assessment that offers three subtests (voice, posture, and face) and measures nonverbal sensitivity to different intensities of happiness, sadness, anger, and fear. Each subtest is specific for testing either adults or children. Low scores on the DANVA were found to correlate to lower social competency in individual ranging from very young children to older adults (Nowicki & Mitchell, 1997; Verbeek, 1996; Collins, 1996; Maxim & Nowicki, 1997; McClanahan, 1996). It is important to note

that the posture subtests are relatively new and are still in the process of validation. Adult postures do correlate with the adult faces subtest and early data shows promise in the child posture subtest (Nowicki, 1997). Essentially, the DANVA2 measures the ability of an individual identify four basic affect displays. This task is relevant to the MSCEIT perception/expression branch because it offers basic stimuli without context and asks the participant to identify the affect display presented.

### **Performance Measure of Expression**

**The Affective Communication Test (ACT; Friedman et al., 1980).** Although there has been a large amount of recent research into the perception of nonverbal cues, expressivity has been less extensively investigated. It is often very easy to bring to mind an array of expressive people, yet it is very difficult to describe what makes them so. Expressivity can describe many different things, including acting ability, communication ability, emotionality, and femininity (Friedman, et al., 1980).

Friedman et al. argued that although nonverbal cues often operate outside of awareness, people will tend to receive feedback during their social interactions that provide information on how well they are able to influence those around them. Therefore, a short self-report measure related to this feedback would be a viable way to assess expressivity. For example, knowing if one is the life of the party depends on how well people react. Of course, as with all self-report measures, there is the danger of social desirability bias and a chance that people are simply wrong about their interpretation of other people's social reactions. Therefore, the primary method of validation of the ACT involved collecting input of a person's expressivity from his or her friends. Not only are friends the direct recipients of the individual's level of expressivity and thus make reasonably qualified judges, their evaluations avoid the issue of potential self-reporting biases and misrepresentation of expressivity skills. In addition, the authors believed that people who are successful in certain occupations should posses a significant level of proficiency in nonverbal emotional expressivity.

Researchers investigated this relationship by asking if people have ever lectured to group, been elected into a political organization, had any acting experience, and expressed any interest in professions like sales, counseling, ministry, diplomacy, and sales (Friedman et al., 1980). All of these occupations require the ability to influence, inspire, and move people. Significant correlations were found between the ACT and each of the above areas of interpersonal interaction. Finally, the authors looked at how expressivity related to acting ability and posed emotional sending. The ACT correlated positively with posed emotional cues and expressivity in female participants. The ACT is one of only a few measures available that are designed to predict expressivity (Gross & John, 1998) and will be used in this study to validate the expression portion of the MSCEIT perceiving and expressing branch.

### **The Present Study**

The present study investigated the convergent validity of the perceiving and expressing subtest of the MSCEIT by comparing MSCEIT performance to three relevant performance tasks; the PONS, DANVA2, and ACT. According to Mayer et al., (2008) the MSCEIT is a valid method of measuring emotional intelligence ability, specifically the perceiving and expressing branches of the MSCEIT. The PONS and the DANVA2 measure nonverbal sensitivity to emotional information (Rosenthal et al., 1979; Norwicki, 1997). The ACT assesses an individual's level of expressivity (Friedman, et al., 1980). Therefore, if the MSCEIT assess one's ability to perceive, identify, and express emotional information then it should predict performance on each of these measures.

### **Method**

### **Participants**

Participants were undergraduate students Oregon State University who were enrolled in a ten week practicum offered by the Department of Psychology who gave their consent to release the

information generated in this practicum for research purposes. Recruitment for the class was through word of mouth or an email list of psychology students. Students who registered for the practicum received a pass/no pass grade. The practicum was designed to allow the students a first hand experience in psychometrics and psychological testing. During the term, they completed an array of performance and personality assessments relevant to emotional intelligence, after which they received feedback on the results. The students were informed of the confidentiality of all data collected and that neither their results nor their performance would affect their grade.

The practicum was designed to facilitate 21 students at a time. Students were assigned to one of three groups with an effort to keep the proportion of males and females equal. The group structure was designed for more efficient organization of activities and social interaction experiences. There were 60 female and 36 males with ages ranging from 18 and 54 with a mean of age of 22.3 years.

## Materials

**MSCEIT.** The MSCEIT is a self administered performance based assessment that is designed to measure four branches of emotional intelligence: 1) perceiving and expressing emotion, 2) using emotion to facilitate thought, 3) understanding emotions, and 4) managing emotions. Each branch is assessed by two tasks, for example perceiving emotion uses both faces and pictures. Only the perceiving/expressing branch was examined. Expert scoring was used in this study as recommended by the authors, which means that a panel of 21 emotion experts selected from the International Society for Research on Emotions decided the criteria for rightness in the scoring process (i.e. how much happiness should be detected in a face; Mayer et al., 2002). However, the expert and the consensus method of scoring are found to be correlated. The perceiving /expressing branch has a test-retest reliability of .90 and is broken into two tasks; faces and pictures. The faces task has a test-retest reliability of .82 and the pictures task has a test-retest reliability of .87 (Mayer et al., 2002). An example of the faces task would

include a photograph of a face and ask the test-taker to rate the amount of emotion he or she perceives. The pictures task is similar except that pictures of landscapes and abstract are used instead. (Appendix A).

**PONS.** The PONS is a 220 item video task designed to measure the extent to which an individual can interpret or decode nonverbal behavior. Each item consists of a two second clip of a 24 year old female presenting nonverbal audio, video, or both. An example would be showing a scene and having the test-taker decide whether the actor is “returning an item to the store” or “talking to a lost child.” Appendix B for more examples. Test takers need to correctly identify the scene and communicative message the actress was attempting to portray. The PONS has an internal consistency ranging between .86 and .92, with a test-retest reliability of .69 (Rosenthal et al., 1979).

**DANVA2.** The DANVA2 measures the ability of participants to identify four basic emotions: happiness, sadness, anger, and fear. There are three subtests used in this study; Adult Facial, Adult Paralanguage, and Adult Postures. Actors and models are used to express both posed and spontaneous emotions in photographs (for the faces and posture) and audio recordings (for paralanguage). The Adult Facial subtest has an internal consistency ranging between .70 and .81 with a test-retest reliability ranging between .81 and .90 (Nowicki, 1997). The Adult Paralanguage subtest has an internal consistency between .70 and .78 and the test-retest ranges between .73 and .93. The Adult Postures subtest has an internal consistency of .68 using Cronbach’s coefficient alpha and the test-retest is .69. An example would be showing a face and having the participant decide whether the emotion being portrayed is happiness, anger, fear, or surprise. Appendix C for example.

**ACT.** The ACT is a brief paper-and-pencil assessment that is designed to measure individual differences in people’s expressivity. Consisting of 13 items, each question asks the test-takers to report on a statement that characterizes different levels of expressive behavior using a Likert scale ranging

from -4 to +4. Expressivity in this case is defined by the proficiency in communicating nonverbal signals to others. The internal consistency of the ACT is .77 and it has a test-retest reliability of .90 (Friedman, 1979). Validity is based on strong convergent evidence discussed earlier in this paper. An example of an ACT question would be "When I hear good dance music, I can hardly sit still." See Appendix D for more examples.

### **Experimental Design**

This study used a correlational design to evaluate the convergent validity of the perception and expression subtest of the MSCEIT using the PONS, DANVA2, and the ACT. The PONS and DANVA2 were considered perception tasks and the ACT was considered an assessment of expressivity. In addition, the PONS, DANVA2, and ACT intercorrelations were examined to verify that all three assessments measured the same construct (perceiving and expressing) as defined by Mayer et al. (1997).

## Results

The PONS statistics ( $M=176.37$ ,  $S.D.=10.12$ ) were only marginally higher than the normative data reported by the authors ( $M=170.05$ ,  $S.D.=12.39$ ; Rosenthal et al., 1979). The DANVA2 statistics ( $M=20.16$ ,  $S.D.= 2.40$ ) are slightly higher than the normative data ( $M=18.3$ ,  $S.D.=2.93$ ; Nowicki, 1997). The ACT statistics ( $M=73.22$ ,  $S.D.=15.97$ ) are also higher than the normative data reported by Friedman et al. ( $M=71.3$ ,  $S.D.=15.8$ ; 1980). Overall, the students in this study reported higher scores than the norm (see Table 1).

Table 1.

*Simple Statistics of Measures*

	Totals	Mean	Standard Deviation
1. PONS	N=99	176.37	10.12
2. DANVA2	N=99	20.16	2.40
3. ACT	N=99	73.22	15.97

It was of interest to the study to know if the PONS, DANVA2, and ACT agreed with each other as a measure of emotional perception and expression. An initial analysis found a strong correlation between the PONS and the DANVA2 scores ( $r=.27$ ,  $p<.001$ ), however there was no evidence of a correlation between the ACT and the PONS or DANVA2 (Table 2). These results indicate that the ACT is not measuring the same thing as the PONS and the DANVA2 and call into question whether it can be used to validate the MSCEIT perceiving and expressing branch.

Table 2.

*Intercorrelation Matrix*

	1	2	3
1. PONS	--	.27**	.01
2. DANVA2		--	.06
3. ACT			--

\*\* $p<.001$

**Intercorrelation among Performance Measures**

Correlations were calculated between the MSCEIT Perceiving/Expressing branch and the total scores of the PONS, DANVA2, and ACT (Table 3). The MSCEIT Perceiving/Expressing branch was significantly correlated to both the PONS ( $r=.36, p<.001$ ) and the DANVA2 ( $r=.25, p<.05$ ), yet there was not significant relationship between the MSCEIT Perceiving/Expressing branch and the ACT.

Table 3.

*Convergent Validity Correlations*

	Perceiving	Expressing	
	PONS	DANVA2	ACT
MSCEIT Perceiving/Expressing	.36**	.25**	.07

\* $p<.05$ , \*\* $p<.001$

The MSCEIT perceiving and expressing subtest asks the test-taker to rate the amount of emotion perceived in different photographs of faces. The PONS and DANVA2 also have a subcategory of faces; the PONS displays a short scene displaying an actor's face and the DANVA2 offers photographs of faces. In both the PONS and DANVA2, participants are asked to rate the emotional content of the faces. Due to the similarities between the tasks, we should expect these three measures to correlate with each other. Table 4 presents the correlations of the subtests of each measure that utilize a specific nonverbal channel. The PONS and DANVA2 faces did not correlate with the MSCEIT perceiving and expressing subtest. This is unexpected, as all three tasks measure emotional information from facial cues and therefore one would find the most relationship between the three channels.

Table 4.

*Individual Channel Performance Measure Correlations*

	PONS Face	DANVA2 Face	PONS Figure	DANVA2 Posture	PONS Voice	DANVA2 Voice
MSCEIT Perceiving/Expressing	.08	.15	.19†	.19†	.29*	.21*

† $p<.10$ , \* $p<.05$

However, the MSCEIT Perceiving/Expressing branch did correlate with the body/figure portion of the PONS ( $r=.19, p<.10$ ), the posture portion of the DANVA2 ( $r=.19, p<.10$ ), the voice channel of the PONS ( $r=.29, p<.05$ ), and the voices portion of the DANVA2 ( $r=.21, p<.05$ ). The PONS and the DANVA2 each have a body and a voice channel for the test-taker to observe and then rate the appropriate nonverbal content. This is where the PONS and the DANVA2 demonstrate the most differences from the MSCEIT perceiving and expressing subtest. It is unexpected for the MSCEIT faces not correlate to

the faces portion of the other two assessments, while showing strong correlation in the body and vocal channels that are not measured in the MSCEIT.

In order to further examine the lack of relationship between the PONS face and the DANVA2 face, the MSCEIT Perceiving/Expressing branch was broken into its two tasks; faces and pictures (Table 5). The MSCEIT faces weakly correlated with the DANVA2 faces ( $r=.16, p<.10$ ) and had a positive yet insignificant correlation with the PONS face. The MSCEIT pictures, however, had absolutely no relationship to either the PONS or the DANVA2 face. It is not surprising that the MSCEIT pictures task did not correlate to the faces portions of the PONS and DANVA2. The pictures task offers no human method of transmitting emotional signals seems fundamentally different from the other tasks. Yet, even when the MSCEIT perceiving and expressing subtest is divided into its two components, a much stronger correlation between the faces task of the MSCEIT and the faces portions of the PONS and DANVA2 is expected.

Table 5.

*Individual Channel Performance Measure Correlations (Face and Picture)*

	PONS Face	DANVA Face
MSCEIT Face	.13	<b>.16†</b>
MSCEIT Picture	-.02	.03

† $p<.10$

## Discussion

Mayer, et al., (2002) claim that the MSCEIT is a valid measure of ability emotional intelligence performance. This study examined only one of the four branches measured by the MSCEIT; perceiving and expressing emotion. We investigated the convergent validity of the MSCEIT perceiving/expressing through comparison of the PONS, DANVA2, and the ACT. The PONS and DANVA2 were used as the validity criterion with which to assess emotion perception and the ACT was used to assess the validity of assessing emotion expression. A secondary goal was to measure the intercorrelation between the PONS, DANVA2, and ACT.

The MSCEIT perceiving/expressing branch correlated strongly with both the PONS and the DANVA2, suggesting that it is measuring the ability to accurately attend to and recognize emotional nonverbal signals. Yet, looking closer at the results, there were some interesting anomalies in the correlations between the MSCEIT perceiving/expressing branch and the PONS and DANVA2 faces. Although the MSCEIT perceiving/expressing strongly correlated with the overall PONS and DANVA2 data, the perceiving did not correlate very well with the PONS and DANVA2 face portions of the assessments. This could be due to the lack of predicted relationship found between the MSCEIT picture and PONS and DANVA2 faces. The MSCEIT pictures task it designed to assess a person's ability to detect emotion in different landscape photographs. One example of this task is to show the participant a picture of a landscape and then ask them to rate how much emotion is perceived in the picture. This task also includes pictures of abstract art, such as a fractal pattern with a specific color scheme (see Appendix E for an example). The authors speculate that since non-human sources are capable of portraying emotion, such as love ballads and abstract art, then emotionally intelligent people will see emotional content in certain pictures. The lack of correlation in the pictures task might be from individual

differences in landscape preference. An outdoorsman might find an empty landscape appealing and beautiful, whereas a city dweller might find it fearful and depressing.

Interestingly, the MSCEIT faces also did not have as strong of a relationship to the PONS and DANVA2 faces as predicted. This could be the result of different presentation styles. Although the PONS is divided into four affective quadrants with scenes ranging from subtler emotional content (ordering food in a restaurant) to more intense (criticizing someone for being late), there is a correct answer from which the participant may choose. This context adds an additional dimension to rating emotional cues that does not exist in the MSCEIT faces and pictures tasks. The DANVA2 displays faces with a single emotional message; happiness, sadness, fear, or anger. The participant needs to decide which emotion is expressed from a list of four potential answers, one of which is correct. The MSCEIT, on the other hand, displays a face and then presents the participant with a list of five different emotions that could or could not exist. Unlike the PONS and DANVA2, there is no context or correct answers to choose from and thus may present a much more subjective response.

As for the ACT, the data showed that there was no correlation between any aspects of the MSCEIT perceiving/expressing. In fact, the ACT did not correlate with the PONS or the DANVA2 either. This is not too surprising, as the ACT is a much different type of test than the other assessments of nonverbal sensitivity. The ACT is a short pencil-and-paper test that asks people to report how they behave in certain situations. It is found to be a valid measure of how expressive an individual is as rated by their peers. Even the author states that the ACT is more of a charisma test and has a high correlation with certain personality traits, such as extroversion. If the ACT is actually measuring personality, then according to Mayer, Salovey, and Caruso (2007) it is not measuring ability emotional intelligence and therefore should not have any relationship with the MSCEIT. The same reasoning could be said for the lack of correlation between the ACT and the PONS and DANVA2.

In order to better examine the expression aspect of the MSCEIT, it is suggested that a more appropriate measure of emotional expression be utilized. This is not a simple task. Most performance assessments ask a participant to observe and make decisions. An appropriate test measuring nonverbal expressivity would theoretically involve the participant performing. Then, the individual's performance would need to be rated on levels of expressivity. In keeping with the concept of the Mayer, et al. (1990, 2002) construct of perception and expression, performances would need to be a reflection of internal emotional states in response to external stimuli. This should be able to be accomplished through either posed or scripted performance, with only subtle differences. Natural emotions do not require an individual to do anything more than accurately express their perceived emotional state. Scripted performance might include more processes. The participant would need to understand which emotion is being asked for, generate that emotion, and then accurately communicate the emotional information. It is beyond the context of this paper to ascertain the theoretical differences between these two approaches, although there are concerns about whether staged emotional signals are the same as genuine emotional signals (Ekman, 2004). In addition, a person might be naturally expressive and yet be a terrible actor, thus receiving a misleading score.

The MSCEIT perceiving/expressing branch does appear to measure an individual's sensitivity to nonverbal emotional cues as predicted through performance on the PONS and DANVA2. However, this is just one branch of the MSCEIT, and in order to conclude overall validity, each individual branch would need to be investigated in the same manner as this study. Once a valid measure is established, then the benefits of emotional intelligence can be put to use. Identifying the different dimensions of EI might allow for understanding what strengths and weaknesses each dimension offers. Similar to intelligence, knowing someone is good at math versus verbal skills helps understand how to better complement their strengths. In addition, if EI ability measurements are reliable, programs can be designed to attempt to improve deficiencies in certain aspects of EI and the efficacy of the programs can thus be assessed.

This thesis has contributed by offering evidence that the MSCEIT perceiving subtest is actually measuring sensitivity to internal emotional states, presumably through nonverbal information. In doing so, it also establishes credibility to this branch of the ability emotional intelligence model. Less directly, results direct attention to the usefulness of designing a valid measure of emotional expressivity. Not only will such an assessment help validate the expression theory of the ability EI model, it will also act to solidify the actual processes behind the construct of nonverbal emotional expressive ability.

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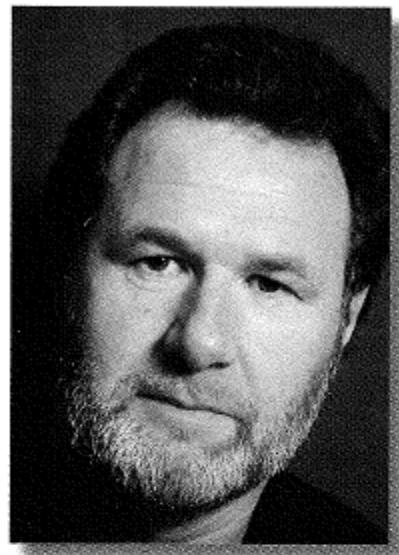
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## **Appendices**

APPENDIX A

**SECTION A****1.**

**Instructions:** How much is each feeling below expressed by this face?

(Please select a response for each item.)

- |                  |   |   |   |   |   |                    |
|------------------|---|---|---|---|---|--------------------|
| 1. No happiness  | 1 | 2 | 3 | 4 | 5 | Extreme happiness  |
| 2. No fear       | 1 | 2 | 3 | 4 | 5 | Extreme fear       |
| 3. No surprise   | 1 | 2 | 3 | 4 | 5 | Extreme surprise   |
| 4. No disgust    | 1 | 2 | 3 | 4 | 5 | Extreme disgust    |
| 5. No excitement | 1 | 2 | 3 | 4 | 5 | Extreme excitement |

APPENDIX B



## APPENDIX C



A photograph of a woman with long, wavy, dark hair with highlights. She is looking directly at the camera with a neutral expression. The background is a plain, light-colored wall.

Happy  Sad  Angry  Fearful

**next**

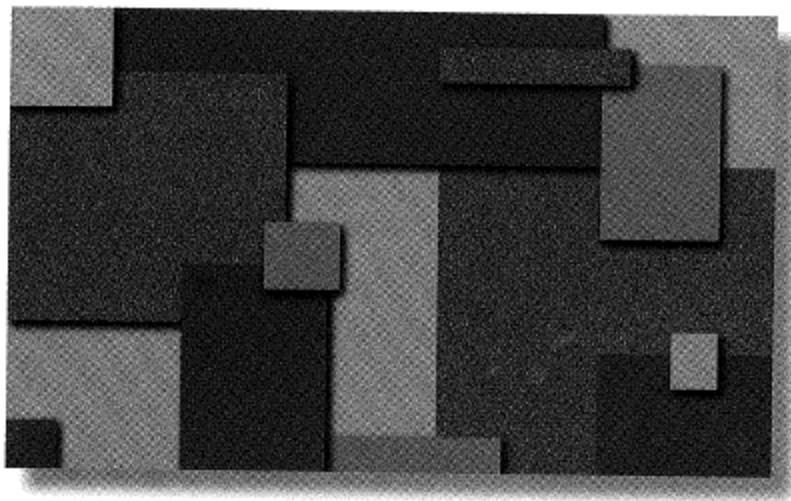
APPENDIX D

*The Affective Communication Test<sup>a</sup>*  
*Self-Description Questionnaire*

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1. When I hear good dance music, I can hardly keep still.
2. My laugh is soft and subdued.
3. I can easily express emotion over the telephone.
4. I often touch friends during conversations.
5. I dislike being watched by a large group of people.
6. I usually have a neutral facial expression.
7. People tell me that I would make a good actor or actress.
8. I like to remain unnoticed in a crowd.
9. I am shy among strangers.
10. I am able to give a seductive glance if I want to.
11. I am terrible at pantomime as in games like charades.
12. At small parties I am the center of attention.
13. I show that I like someone by hugging or touching that person.

APPENDIX E

**6.**

**Instructions:** How much is each feeling below expressed by this picture?  
(Please select a response for each item.)

	1	2	3	4	5
1. Happiness					
2. Sadness					
3. Anger					
4. Surprise					
5. Disgust					