A Multi-faceted Method for Validating Emotional Intelligence

by

Nicholas R. Reyna

A PROJECT

Submitted to

Oregon State University

University Honors College

In partial fulfillment of

the requirements for the

degree of

Honors Baccalaureate of Science in Psychology (Honors Scholar)

Presented August 28, 2007

Commencement September 2007

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The Mayer-Salovey-Caruso Emotional Intelligence Test (MSCEIT) purports to

assess emotional intelligence, which includes the ability to successfully identify and

manage emotions. To test the validity of this claim, 21 students took the MSCIET along

with a several other performance measures and personality scales, and their scores were

correlated. The MSCEIT was associated with accurate emotional perception and the

successful communication of emotional content, but no relationship with personality

scales was established. The results support the concurrent validity of the MSCEIT and

provide suggestive evidence for the integrity of the emotional intelligence construct. The

Expression and Judgment Task (EJT) was developed for this study to help validate the

MSCEIT and demonstrated encouraging potential as a new measure of interpersonal

sensitivity.

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Dean, University Honors College

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.

_____

Nicholas R. Reyna, Author

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This thesis is dedicated to Penelope.

May you continue to grow and always reach higher.

One day you will reach the sky.

A Multi-faceted Method for Validating Emotional Intelligence

The captain of a soccer team in the semi-finals just had a goal scored on them in the final minutes of the match, putting them down by one point. What does he say for motivation? What should he do to prevent demoralization from crippling his team? A child suddenly finds himself separated from his parents at the mall. The child looks everywhere but he cannot find his parents. Terror and panic grip the child. Can he channel his anxiety to seek help, or will he succumb to his fright, sit, and cry? A manager just called two employees into her office. A disagreement between them has escalated and she knows they are very upset. She is nervous, but must deal with these two angry, but vital, members of the team.

Numerous choices are available to each person; the key is choosing the right response for the right situation to reach the desired outcome. The soccer player may determine that a look to his teammates says more than words, or that a hard, determined sprint to the ball will demonstrate to the others they are not giving up yet. The child has to choose who, if anyone, will be able to help him. The manager must read each employee's feelings to diffuse the situation and help mediate differences. Some choices will inevitably be better than others. The success factor ends up being the individuals' ability to appraise and respond to the situation in order to choose the right action to take.

An individual's ability to appraise a situation involving other people is a complex process (Bernieri, 2001). It includes reading other people and perceiving their thoughts and feelings (Riggio, 2006). It requires awareness and accurate perceptions of the surrounding personal and social environment, also known as interpersonal sensitivity

(Bernieri, 2001). Information about inner states, like emotion, motivation, and thoughts, can be transmitted by various means including verbalizations, facial expressions, body language, and tone of voice (Bernieri, 2001). A person who is good at reading these channels should be able to use the cues available to make an accurate assessment of the situation. This could then lead to better decision making and success in social environments (Rosenthal, Hall, DiMatteo, Rogers, & Archer, 1979).

Emotions and emotional understanding are key to these interpersonal situations (Lopes et al., 2004). Being able to work with them and to use them to one's advantage is a skill important for solving problems that are encountered every day. A person could even say that to use emotions to one's advantage is the intelligent thing to do. Emotions after all, are pieces of information that can serve as indicators for people's inner states and feelings (Gohm & Clore, 2002). They help us understand and relate to one another and reach successful outcomes.

Daniel Goleman capitalized on this vital link between emotions and interpersonal situations with his 1995 bestseller *Emotional Intelligence.* He popularized previous research of others and purported the ability to use emotion-related skills as crucial for life success, possibly even more so than traditional IQ. As Goleman claims, the ability to work with emotions, understand, and regulate them is essential for any situation or field of work that deals with people.

The ability to handle emotions that Goleman described is referred to as emotional intelligence (Mayer, Salovey, Caruso, 2004). Goleman's book was a popularization of Peter Salovey and John Mayer's original conceptualization of the construct. They defined emotional intelligence as, "the ability to monitor one's own and other's feelings

and emotions, to discriminate among them, and to use this information to guide one's thinking and actions" (Salovey & Mayer, 1990, p.189). A person high in this ability would not only be aware of their own emotions, but would be a good judge of other people, and manifest this ability in their behaviors and when communicating with others. An emotionally intelligent person should be able to regulate his or her own behavior and solve problems using emotion (Salovey & Mayer, 1990).

To assess emotional intelligence, several self-report scales have been developed, but they often have little connection to emotional intelligence (Mayer et al., 2004). Self-report inventories ask people to report their own level of emotional intelligence. They ask questions like, "I know why my emotions change" (Schutte et al., 1998). Self-report instruments may in fact be sensitive to aspects of personality other than emotional intelligence by having substantial overlap with the Big Five personality dimensions, and relating significantly with optimism and emotional control (Brackett & Mayer, 2003; Goldenberg, Matheson, & Mantler, 2006). This format of testing can be problematic because in order to answer these questions accurately, a certain amount of awareness and ability must already be present to make an accurate self-reflection (Carney & Harrigan, 2003). Interestingly, people with the least ability do not possess enough awareness to realize their shortcomings and often misjudge their own ability the most (Kruger & Dunning, 1999).

Mayer, Salovey, and Caruso addressed this problem by developing an ability measure of emotional intelligence: the Mayer-Salovey-Caruso Emotional Intelligence Test (MSCEIT) (Mayer, Salovey, Caruso, 2002). The MSCEIT is based on a four-branch model of emotional intelligence and assesses the capability to identify, use, understand,

and manage emotions. The MSCEIT is an ability test, which means it measures performance based on objective, predetermined scoring criteria (Mayer et al., 2002). Respondents are scored based on how well they did, not on how well they think they did.

Emotional intelligence should be understood in terms of its real world behavioral manifestations (Funder, 2001); however, the MSCEIT is a relatively new test with limited reported validity studies of this kind. Supportive roommate behavior (Lopes et al., 2004), owning possessions of sentimental value, and enjoying more positive social interactions (Mayer et al., 2002) have all been positively related to the MSCEIT. The MSCEIT has been negatively correlated with deviant behavior and self-destructive activities like smoking, excessive drinking, drug abuse, and violent outbursts (Brackett, Mayer, & Warner, 2004). These findings suggest that the emotionally intelligent person is well adjusted and likeable. Nevertheless, these behaviors are removed from the underlying ability to perceive and communicate emotions, which have not been addressed.

Research on emotional intelligence and nonverbal skill has rarely converged (Riggio, 2006). Nevertheless, the MSCEIT should be compared to other tests where judging people directly gauges perceptual accuracy if a generalized construct of Emotional Intelligence is to be realized. Video tasks like the Profile of Nonverbal Sensitivity (Rosenthal et al., 1979) and the Interpersonal Perception Task (Archer & Costanzo, 1987; Costanzo & Archer, 1989) assess individual differences in judging nonverbal behavior (decoding). They entail observing short live action clips and making evaluative decisions based on the observed content. Comparisons between these measures and the MSCEIT would lend support to emotional intelligence containing emotional perception as a component part.

McEnrue and Groves (2006) argued that the MSCEIT does not clearly capture the ability to express emotions accurately. Rode et al. (2007) though, found participants scoring high on the MSCEIT delivered speeches on business-related topics more eloquently and persuasively than individuals who scored low. While eloquent and persuasive speeches often include emotional appeals (Rode et al. 2007), emotion is not necessary for such a result. A more robust measure is needed to directly isolate and assess the expression of emotion.

Patricia Noller examined the nonverbal expression of emotion and its consequences on communication effectiveness within relationships (Noller, 1984). She developed a technique where married couples made standardized statements with no intrinsic meaning on their own (e.g. "What are you doing?"). Each statement had three possible intentions, positive, negative and neutral. One person would express a statement with one of the possible intentions, while their partner interpreted what they were trying to convey. Each partner had the opportunity to communicate to and observe the other partner. In this way, they were able to determine how well they could communicate and be read by their partners. Couples high in marital adjustment were better at communicating with each other (Noller, 1980). An adaptation of this technique would be useful beyond couples for assessing skill in communicating emotions. Such an assessment tool would be an ecologically valid way to investigate the MSCEIT's relationship with emotional expression and judgment.

Of course, reading the behavior of others is just one facet of emotional intelligence. Many other skills, like the ability to regulate emotions and understand probable future outcomes, are a part of emotional intelligence (Mayer et al., 2004). Still,

it is hard to conceptualize a person with a high emotional intelligence who is incapable of conveying emotion or interpreting the expressive behavior of others (Archer, Costanzo, & Akert, 2001). For this reason, the present study will investigate the relationship between the MSCEIT and the ability to accurately perceive and communicate emotion.

A related objective of this project is to examine the extent to which perceiving and expressing emotions underlie the construct of emotional intelligence itself. Given the complicated nature of interpersonal sensitivity, a multi-faceted approach involving different methods would be appropriate for capturing the complexity of the behaviors in question (Zebrowitz, 2001). Different methods to test that construct should converge and yield similar results (Funder & Harris, 1986). Such a study that brings together a variety of data and demonstrates coherence would make an "important contribution to the field of psychology" (Funder & Harris, 1986, p. 530). It is therefore worthwhile to compare the MSCEIT to a variety of different measures and methodologies which also assess the ability to interpret the behavior of others and communicate using emotion. In addition, by including personality measures as part of the present study, a common ground to help orient and relate the results will be established (Funder, 2001). In this study, participants will be assessed on several personality traits, measured within interpersonally encountered situations (performance measures), and asked to judge the responses of others either live or through the observation of video. The intercorrelation of these data will allow a better understanding of the convergence of the measures. The present study, thus, examines the validity of the MSCEIT in terms of (a) judging others accurately, (b) being judged accurately, and (c) theoretically associated personality traits, using multiple measures of different formats.

Overview of Multi Method Approach

Consistent with Funder & Harris's (1986) distinction between personality and performance, the following measures are separated out by those that assess personality attributes or types and those that require an individual to perform a task relating to particular characteristics or skills

Performance

The *MSCEIT* assesses emotional intelligence based on a four branch model: identifying, facilitating thought, understanding, and managing emotions (Mayer et al., 2002). Identifying emotions relates to the accurate perception of emotions in other people and oneself. Using emotions to facilitate thought means controlling and harnessing emotions to reach mental solutions, like inducing happiness to heighten creativity. Understanding emotions involves the comprehension of emotional complexities and the blending of feelings, such as how anger can morph into rage or how a person could feel sad and happy at the same time. The last branch managing emotions deals with regulating emotions and behaviors of oneself and others, which would include regulating feelings to make better decisions. The MSCEIT has two forms of scoring available, general consensus with a normative sample of over 5000 and expert scoring based on 21 experts in the field of emotion. The general consensus scoring was used in the present study. Scores on the MSCIET are standardized in a manner of a typical IQ test where the population mean=100 with a standard deviation of 15.

An individual high in emotional intelligence is adept at each of the four branches. This means that solving emotional problems and describing motivational aims and goals

takes less effort and the person will likely be drawn to occupations involving social interactions (Mayer et al., 2004). He or she likely has a secure attachment (Kafetsios, 2004), and is able to predict their own emotional responses to future events (Dunn, Brackett, Ashton-James, Schneiderman, & Salovey, 2007). The high emotionally intelligent individual is also less likely to engage in self-destructive or negative behaviors (Brackett et al., 2004).

The *Interpersonal Perception Task* (IPT) is a video measure featuring 30 naturalistic scenes. The questions cover different types of interpersonal categories including kinship, deception, competition, status, and intimacy levels. Each scene has an objectively correct answer, and performance is much higher than what would be expected by chance (Costanzo & Archer, 1989).

The IPT has been reported to correlate positively with measures of sociability and public self-consciousness, and negatively with measures of social and communication anxiety and shyness (Archer et al., 2001). High scorers on the IPT tend to be rated as more socially skilled and supportive by friends (Hodgins & Zuckerman, 1990). The IPT has also been used to teach and train interpersonal perception accuracy (Costanzo, 1992)

The *Profile of Nonverbal Sensitivity (*PONS) is a video task which assesses the perception of various nonverbal channels by altering the presentation of visual and auditory content (Rosenthal et al. 1979). The clips focus either on the actor's face, body, both, or presents a blank screen. Meanwhile the sound is garbled so only the tone of voice is left. This way the PONS can present combinations of all these as well as what emotional situations are acted, to test different nonverbal channels like face, body, tone of voice, etc.

The PONS has received extensive validation efforts. It has been positively related to clinical and teaching ability (Rosenthal et al., 1979). Funder and Harris (1986) compared the PONS with self and friend reports on Q-sorts to assess related personality characteristics. The person who scores well on the PONS tended to be warm, sympathetic, open, creative, productive, and dependable. He or she was described as not being impulsive, hostile, deceitful, or critical.

Expression and Judgment Task (EJT) is a newly developed measure of interpersonal sensitivity and emotional expressivity. Patricia Noller's content standard methodology was adapted for the present study to be applicable to college students, not just married couples. Nine new scenarios were designed with statements and responses appropriate for students.

Students took turns communicating or acting out the described scene, and conveyed one of three possible intentions: positive, negative, or neutral. Each scenario had a unique positive, negative, and neutral alternative. Students observing would then judge the actor's (encoder's) intent. Each student experienced the opportunity to be the encoder for every scene.

The EJT has unique qualities because it involves live, dynamic participants instead of a video task. Each participant also has the opportunity to encode and decode emotional content, which allows for an expression and judgment ability score to be calculated for each person.

The *Social Skills Inventory* (SSI) developed by Riggio (1986) is based on a multidimensional framework of social competency. The measure deals with the sending, receiving, and controlling the communication of interpersonal information. It assesses

people's ability in both emotional (nonverbal) and social (verbal) dimensions. The SSI is

a self-report measure of social skills and was created before the development of the

emotional intelligence construct. However, certain aspects like emotional sensitivity,

emotional control, and emotional expressivity are not very dissimilar with the emotional

intelligence construct.

The SSI was validated through positive correlations with scales like Self-

Monitoring and the Affective Communication Test (Riggio, 1986). The SSI has also

been reported to relate to the PONS (Riggio, 1989). Also, the SSI has been linked with

greater social support and social network size (Riggio, 1986). Experienced actors tend to

score highly on the SSI as well (Riggio, 1986).

Personality Scales

Self-monitoring is a personality type proposed by Snyder in 1974. It refers to how

people regulate their own behavior and self-presentation to be perceived by others

favorably. Self-Monitoring encapsulates five broad domains: use of social comparison

information, monitoring behavior to fit different situations, the ability to alter behavior

for specific situations, and to what extent this behavior spans across different situations.

Early research showed that psychiatric patients scored lower than the norm,

whereas actors scored significantly higher (Snyder, 1974). High self-monitors appear to

alter their behavior more in response to external cues, unlike low self-monitors, who

behave relatively consistent with their beliefs and attitudes (Funder & Harris, 1986).

The *NEO-PI-R* is a personality inventory used to assess the Big Five personality

traits: Extraversion, Agreeableness, Conscientiousness, Neuroticism, and Openness to

Experience (Costa & McCrae, 1992). These traits assessed by the NEO-PI-R "seem

almost ubiquitous in the current literature" (Funder, 2001, p. 200). Neuroticism reflects

maladjustment and emotional instability with individuals prone to experience anxiety,

depression, hostility, anger, and vulnerability. Extroversion tends to relate with high

energy, sociable, talkative individuals who are cheerful and seek stimulation. Openness

involves imagination, abstract thinking, sensitivity to inner feelings, and a desire for

variety and intellectual curiosity. Agreeableness tends to be a inclination toward

compassion, cooperation, and likeability. Conscientiousness usually incorporates

dutifulness, responsibility, self-discipline, persistence, and reliability.

The *Otis Quick-Scoring Mental Ability Test* (Otis) assesses intelligence (Otis,

1954). The test uses a variety of verbal, logical, spatial, and mathematical questions to

measure mental ability. The test has been shown to match the criterion of successful

progression through school. High scorers on the test are usually considered bright and

have a higher IQ.

Thesis Statement

This investigation will test the concurrent validity of the MSCEIT in

terms of (a) judging others accurately, (b) being judged accurately, and (c) theoretically

associated personality traits. In doing so, this project will explore the integrity of a

generalized construct of Emotional Intelligence by assessing a wide array of theoretically

derived performance measures and associated personality traits to establish a multitrait-

multimethod matrix of intercorrelations that has so far been absent in the interpersonal

sensitivity literature (Hall & Bernieri, 2001).

METHOD

Participants

A flier was e-mailed to all psychology students at Oregon State University announcing the addition of a new class with the objectives of providing first-hand experience with psychological assessment and to learn about practical issues in research methodology. Twenty-one undergraduates (12 male, 9 female) enrolled in the ten-week research course (PSY 401) which met three times a week. The class of 21 was organized into groups of 7, with equal proportions of males to females in each group. Ages ranged from seventeen to twenty-eight with a mean age of 21.

As part of this class students were assessed using a variety of personality scales, performance measures, and interpersonal activities. Students also received their own scores for their own self-analysis. Grades were not affected at all by their performance or nature of response on any measure or activity in this class. Students understood that their pass/fail grades for this research experience course were based entirely on their attendance and completion of the research activities. The present study is a report on just a few of these measures the course covered over the term.

Measures

Performance

Mayer Salovey Caruso Emotional Intelligence Test (MSCEIT). (Mayer et al., 2002). The MSCEIT is a 141 item, approximately 35-minute, multiple-choice test designed to assess one's emotional intelligence. The MSCEIT incorporates a variety of likert, categorical, and polytomous items, which ask respondents questions ranging from how much of an emotion is present in a pictured face, to which behavioral response

would be most effective in a given situation. An example question is, "A woman loved someone and then felt secure. What happened in between?" Five choices are possible, including, "her love went away," and, "she learned the other person loved her in return." See Appendix A for more examples.

Interpersonal Perception Task (IPT). (Archer & Costanzo, 1987; Costanzo & Archer, 1989). The IPT is a 38-minute video measure featuring 30 naturalistic scenes requiring a judgment in multiple choice format. The IPT has an internal consistency of .52 and test-retest reliability after five weeks of .70. After watching a scene of a man and woman talking, a sample question would be, "What is the relationship between the man and the woman? A) they are lovers who have been together for about 10 months. B) they are lovers who have been together for about 3 years." See Appendix B for more examples.

The Profile of Nonverbal Sensitivity (PONS). (Rosenthal et al., 1979). The PONS is a 45-minute video task comprised of 220 two-second clips of an actress performing various emotional scenes. The PONS has an internal consistency ranging from .86 to .92, and a median test-retest correlation is .69. The respondent is given a pair of alternatives and asked which best describes the scene, like discerning if the person is "expressing jealous anger," or "talking to a lost child." See Appendix C for example questions.

Expression and Judgment Task (EJT). The nine gender-neutral scenarios used in the EJT were created specifically for this study and designed for college students. The task involves delivering ambiguous statements to others to communicate positive, negative, or neutral messages. For example, a person is asked to state or act out the

question, "Did you put all the dishes in the dishwasher?" This question could be a simple matter of curiosity, or, by employing certain inflections, gestures, and emotions, could convey a feeling of astonishment or frustration. Using these standardized ambiguous statements requires the "actor" to use nonverbal expressions to drive the meaning instead of the words.

For the Expression Judgment Task, each participant took turns acting out the nine scenarios with three positive, negative, and neutral messages created for the study. They received the contexts, statements, and specific intentions beforehand so they could premeditate the best way to convey their intended message. Random assignment predetermined the order of the scenes and which intent the participant would deliver.

While each actor was delivering the message in their scene (encoding), the rest of the group was observing and judging the communicative intent of the actor (decoding). Both the actors and observers had copies of the contexts, lines, and three possible meanings (positive, negative, and neutral), but only the actor knew his or her specific intent (see Appendix D for all nine scenarios and Appendix E for a sample card). The observers guessed the meanings of the actors and circled their responses in a packet containing all 63 scenes in the order they were delivered.

Social Skills Inventory (SSI). (Riggio, 1986, 1989). The SSI is an 82 item self-report which takes 30 to 45 minutes to complete. Alpha coefficients for the SSI scales range from .62 to .87 and the two-week test-retest was reported as .94. Respondents answer by indicating the extent to which the statements like, "I am usually wary of strangers," apply to them from "Not at all like me," to "Exactly like me." See Appendix F for more examples.

Personality

　　Revised NEO Personality Inventory (NEO-PI-R). (Costa & McCrae, 1992). The 240 item NEO-PI-R uses a 5-point likert scale from "strongly disagree" to "strongly agree" for questions like "I am not a worrier." See Appendix G for more examples.

　　Self-Monitoring. (Snyder, 1974). The self-monitoring scale is a 25 item, true-false self-report of social awareness and self-presentation. The internal consistency of the Self-Monitoring Scale is .70 with a test-retest reliability over a one month period of .83. "I would probably make a good actor," is a representative question. See Appendix H for full scale.

　　Otis Quick-Scoring Mental Ability Test (Otis). (Otis, 1954). The form FM of the Gamma test was used as a measure of intelligence. The 80-item test has a corrected split-half reliability coefficient of .88 and a standard measurement error of 3.0 points. Participants have exactly 30 minutes to complete as many questions as they can. "A house is most likely to have a – 1) telephone 2) doorbell 3) window 4) carpet 5) radio," is a sample question. See Appendix I for first page.

　　The present study is reporting approximately 5 to 6 hours of psychological assessment; however, each of these measurements was administered on a separate day over the course of a 10-week period.

RESULTS

The scores on the MSCEIT ranged from 69 to 112 ($\underline{M}$=100.29). The complete

lack of high scores (i.e., 1 STD above the mean) may seem surprising, but there is a

precedent for this. A large-scale study of college students reported by Brackett, Mayer

and Warner (2003) also found a lack of high scorers on the MSCEIT. An adult

population produced the norms established for the MSCEIT where 18-22 year olds

constituted only a minority of the sample generating the norms (Mayer et al., 2002).

Apparently, college populations have fewer extreme high scores of the MSCEIT than

older adult populations. Exactly why this is true (e.g., adult experiences and practice,

etc.) remains to be discovered.

Intercorrelations among Performance Measures

Pearson Product-Moment correlations were calculated between the performance

and personality measures across the sample of 21 students. The correlations among the

performance measures are presented in Table 1. Overall, the five performance-based

measures demonstrated coherency with a median of $\underline{r}$=.41, $\underline{p}$<.06. As predicted, the

MSCEIT positively correlated with the PONS ($\underline{r}$=.46, $\underline{p}$<.05), the encoding portion of the

EJT at $\underline{r}$=.48, $\underline{p}$<.05, and marginally with the IPT ($\underline{r}$=.40, $\underline{p}$=.07).

The EJT was adapted specifically for this project and offered compelling evidence

that it is a valid measure of decoding performance. The EJT-Decoding correlated

strongly with the PONS ($\underline{r}$=.42, $\underline{p}$<.05). However, although the EJT-Decoding positively

correlated with the MSCEIT ($\underline{r}$=.21), this result was not statistically significant. The

encoding and decoding portions of the task are inherently linked and were empirically

linked in this study (r=.39), which suggests that the two components of the task taken as a whole could be a useful diagnostic assessment of emotional intelligence.

The SSI, the only measure of performance to rely on self-reported ability, was uncorrelated with all other measures of performance.

Table 1.

Performance Measure Intercorrelations

	1	2	3	4	5	6
1. MSCEIT	--	0.40†	**0.46***	0.21	**0.48***	-0.03
2. IPT		--	0.42†	0.04	0.16	-0.16
3. PONS			--	**0.47***	0.39	-0.21
4. EJT-Decoding				--	0.18	-0.01
5. EJT-Encoding					--	0.04
6. SSI						--

† p<0.10, * p<0.05

Intercorrelations among Personality Scales

Intercorrelations among the personality scales can be found in Table 2. Past research shows Self-Monitoring to be associated with openness and extraversion (Tett, Fox, & Wang, 2005). The present study found Self-Monitoring to be positively related to both, but only the correlation with openness reached significance (r=.47, p<.05).

Openness is related to thinking abstractly and playing with ideas (Costa & McCrae,

1992), which could explain the marginal relationship between openness and the Otis

intelligence test (r=.39, p=.08). The Otis was also positively correlated with neuroticism

(r=.45, p=<.05), but negatively related to extraversion (r=-.46, p=<.05). A few intelligent

yet shy and anxious individuals in the sample could explain this result, although this is

speculation.

Table 2.

Personality Scale Intercorrelations

	1	2	3	4	5	6	7	8
1. Neuroticism	--	-0.31	0.25	-0.36	**-0.47***	**.45***	0.21	0.22
2. Extraversion		--	0.26	0.19	0.12	**-0.46***	0.20	0.20
3. Openness			--	-0.19	0.15	0.39†	**0.47***	0.01
4. Agreeableness				--	-0.07	-0.26	-0.34	0.07
5. Conscientious					--	-0.21	-0.03	-0.19
6. OTIS						--	0.28	0.03
7. Self Monitoring							--	-0.08
8. Sex								--

† p<0.10, * p<.05.

Correlations between Performance Measures and Personality Scales

An objective of this study is to begin to describe the personality profile of the emotionally intelligent individual. To accomplish this, correlations were performed to test whether personality traits were associated with the other performance measures. The correlations are shown in Table 3.

Table 3.

<u>Correlations Between Performance and Personality</u>

	MSCEIT	IPT	PONS	EJT-Decoding	EJT-Encoding	SSI
Neuroticism	-0.08	0.24	0.18	**0.57****	0.05	-0.05
Extraversion	-0.07	-0.18	-0.16	-0.13	-0.05	**0.74****
Openness	-0.21	-0.07	0.33	**0.53***	-0.19	0.20
Agreeableness	0.01	-0.12	0.09	-0.12	0.13	-0.12
Conscientious	-0.04	-0.07	-0.23	-0.34	-0.17	-0.16
OTIS	-0.18	0.06	0.30	**0.53***	0.26	-0.28
Self Monitoring	-0.14	-0.09	-0.01	0.34	-0.26	**0.47***
Sex	0.29	0.34	0.19	0.22	0.36	0.13

† p<0.10, * p<0.05, ** p<.01

Mayer, Salovey, and Caruso (2004) reported that people high in emotional intelligence are agreeable (r=.21), open (r=.17), and conscientious (r=.11). Neuroticism and extraversion were less related at r=-.09 and r=.06 respectively. The present study found no correlation between the MSCEIT and the Big Five personality dimensions. The truncated range of the MSCEIT and the smaller sample size may explain why these results did not replicate. No MSCEIT scores higher than one standard deviation above the mean were found in the present study, which replicates the truncated high scores found in Brackett, Mayer, and Warner (2003) who also assessed college-aged students. Given that agreeableness and conscientiousness are known to increase from adolescence through middle age (Berk, 2007) it might be expected that the relationship between the MSCEIT and these personality traits, which were recorded in an older sample, may not replicate in younger samples. This speculation should be investigated further as it might impact the utility of the MSCEIT within younger age samples.

Mayer, Salovey, and Caruso (2004) also demonstrated a relationship between emotional intelligence and several different tests of IQ. Rosenthal et al. (1979) however, made a point of arguing that performance measures of interpersonal sensitivity should not be confounded with IQ, and in fact the PONS has been shown to be unrelated to intelligence. The present study found no relationship between the Otis intelligence test and the MSCEIT.

The MSCEIT did not relate to any of the personality scales, but neither did the majority of the other performance measures. Funder and Harris (1986) found no relationship between Self-Monitoring and the PONS, which was replicated here. In other studies, Self-Monitoring was found to correlate with the IPT (Costanzo & Archer, 1989)

and the SSI (Riggio, 1986, 1989). Although Self-Monitoring correlated with the SSI in the present investigation ($\underline{r}$=.47, $\underline{p}$<.05), and marginally with the decoding portion of the EJT ($\underline{r}$=.34), which is quite similar to the IPT, it did not correlate with the IPT. Finally, as expected from Riggio's theoretical discussion of socially skilled people, those who scored high on the SSI scored high on extraversion ($\underline{r}$=.74, $\underline{p}$<.01).

People who were accurate decoders on the EJT were more open ($\underline{r}$=.53, $\underline{p}$<.05) and intelligent ($\underline{r}$=.53, $\underline{p}$<.05), but more neurotic ($\underline{r}$=.57, $\underline{p}$<.01). Neurotic individuals are often more motivated to actively seek out the intents of others as a way to gain more control over their world, which results in more accurate perceptions of others and could explain the relationship between neuroticism and the EJT-Decoding (Edwards & Weary, 1993; Edwards, Weary, Hippel, & Jacobson, 2000).

DISCUSSION

The purpose of this investigation was to determine the concurrent validity of the MSCEIT in terms of (a) judging others accurately, (b) being judged accurately, and (c) theoretically associated personality traits. The project's secondary goal was the establishment of construct validity for emotional intelligence with a multitrait-multimethod matrix of intercorrelated interpersonal sensitivity measures.

The MSCEIT's relationship with the PONS, the EJT, and the IPT offers strong evidence it is sensitive to true differences in ability based on actual performance measures. Participants who scored well on the MSCEIT were able to accurately perceive emotional content displayed by other communicating with them, and were able to harness and express emotions for successful communication with others. The positive correlations it achieved with the other performance measures support this conclusion.

The MSCEIT did not relate strongly personality. This is in contrast with Mayer, et al. (2004) who described high scorers on the MSCEIT as agreeable, open, and conscientious. The sample they described contained a complete normal range of scores on the MSCEIT. The MSCEIT likely did not correlate with any personality traits in the present study because no high scores were obtained by the MSCEIT, possibly due to the limited age range (and sample size) of this study's sample.

Unlike the MSCEIT, the SSI, which is essentially a self-report of emotional intelligence, correlated strongly with expected personality traits. In fact, extraversion and Self-Monitoring were both used to validate the SSI (Riggio, 1986, 1989), so this result is not surprising. Extraversion is generally related to being sociable (Costa & McCrae,

1992) and it is likely that the people scoring well on the SSI are aware of the right responses for the items on the test. However, the lack of a relationship between the SSI and performance measures suggests that people may not be as skilled as they think they are (Brackett & Mayer, 2003; Caruso, Bienn, & Kornacki, 2006). This is consistent with findings suggesting that generally the same skills that determine competency in any human behavior are also required for an accurate self-evaluation of that competency (Kruger & Dunning, 1999). In other words, for almost any human skill, one has to be proficient at that skill to be good at assessing how good one really is at it. The fact that the SSI correlated with personality and not actual performance and the MSCEIT correlated with actual performance and not personality, leads one to cast doubt on the SSI's and other self-report measures' adequacy as instruments for emotional intelligence measurement.

This study demonstrated that the MSCEIT does relate to performance and this supports its claim to assess ability (Mayer, et al., 2002). The ability to communicate using emotion and read other people are valuable skills in business, counseling, education, and any other field involving personal interactions (Caruso, et al., 2006). The MSCEIT could be used for training purposes in these areas as well to help identify those who would benefit from metacognitive recalibration and targeted programs for increasing emotional intelligence (Kruger & Dunning, 1999).

Continuing research on emotional intelligence is crucial because of the importance it may have for these work and training domains (Goleman, 1995). The present study also provides a model of how research on emotional intelligence might be carried out to form a comprehensive theory of interpersonal sensitivity (Zebrowitz,

2001). The within-subjects and longitudinal design offers a comprehensive profile of each person. The battery of tests helped pinpoint each person's actual ability (Zebrowitz, 2001). The utility of this multi-method approach is clear; however the present study was just the beginning.

Each measure in the present study contains numerous subscales; the PONS alone contains 22 subscales. It was beyond the scope of this study to analyze each subscale but future studies could. Intriguing subtleties were found in the results but were not reported. For example, whereas the total decoding score on the EJT was related to the PONS, performance on positive, negative, and neutral messages mapped onto different nonverbal channels. People who interpreted negative scenes correctly tended to be more accurate at decoding tone of voice ($\underline{r}$=.67, $\underline{p}$<.01), while observers who decoded neutral messages accurately tended to decode facial expressions more accurately ($\underline{r}$=.45, $\underline{p}$<.05). Anger or sarcasm in the voice may be the crucial feature for negative intentions, whereas the lack of emotion shown on a blank face might be the telling feature of neutral intentions. This, however, is only speculation. A project able to examine these nuances in more depth would be able to explain such questions more effectively.

The EJT was the closest most ecologically valid measure employed because it required participants to perform real behaviors. Not only did it correlate with established measures of nonverbal sensitivity, it was associated with emotional intelligence as well. The EJT's potential to become a valid measure of interpersonal sensitivity is quite encouraging.

Reading other people and being read are part of emotional intelligence, but these skills could also be used for persuasion, deception, and even manipulation (Malone &

DePaulo, 2001). Theoretically, an emotionally intelligent person should be able to manage the emotions of others (Salovey & Mayer, 1990), which could lead to exploitation. Deception ability has been found to relate to the control of emotions (Anolli & Ciceri, 1997), so the link between deception and emotional intelligence warrants further investigation.

The MSCEIT contains no auditory stimuli, which is clearly relevant for communicating and perceiving emotions in one's tone of voice (Bachororwski & Owren, 2002). The emotional contagion property of music is also of note. Music can express a wealth of emotions (Juslin, 2003) and it may be the emotionally receptive person who is moved by the listening experience. Music is not a form of expression that can be assessed via a paper and pencil test, but it is obviously related to emotional intelligence. Somehow this performance domain should be investigated and possibly incorporated into assessments in the future.

It is still unknown if the MSCEIT transcends its paper and pencil format to meet all its claims, but this study presents evidence that links it to reading other people accurately and expressing oneself effectively.

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APPENDIX A

MSCEIT™

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

THE INTERPERSONAL PERCEPTION TASK (IPT)

Dane Archer and Mark A. Costanzo, Copyright, 1988

The Videotape you are about to see contains 30 brief scenes and lasts about 35 minutes. There is one question on this answer sheet for each of the 30 scenes on the videotape. Before each scene appears on the screen, you may want to read the corresponding multiple choice answers on this sheet.

Please try to answer each question, even if you feel you are merely guessing. Indicate your answer to each question by drawing a circle around the letter "a", "b", or "c" next to the answer you believe to be correct.

1. Who is the child of the two adults?
   a) only the little boy.
   b) only the little girl.
   c) neither the boy or the girl is the child of the adults.

2. What is the relationship between the man and the woman?
   a) they are lovers who have been together for about 10 months.
   b) they are lovers who have been together for about 3 years.

3. Who is the higher status person?
   a) the man.
   b) the woman.

4. Who is the woman talking to on the telephone?
   a) her mother.
   b) a close female friend.
   c) her boyfriend.

5. Which person is telling a lie?
   a) the man is lying, the woman is telling the truth.
   b) the man is telling the truth, the woman is lying.
   c) both the man and the woman are lying.

6. Who won the fencing bout?
   a) the man on the left.
   b) the man on the right.

7. Who is the higher status person?
   a) the woman on the left.
   b) the woman on the right.

8. Who is the woman talking to on the telephone?
   a) her mother.
   b) a female friend she has known for many years.
   c) a male friend she has known for many years.

9. You will see the same woman in two scenes. Which is the lie and which is the truth?
   a) the first is a lie, the second is the truth.
   b) the first is the truth, the second is a lie.
   c) both are lies.

10. Which woman is the mother of the boy?
    a) the woman on the left.
    b) the woman on the right.
    c) neither woman.

11. Who won the racquetball game?
    a) the man on the left.
    b) the man on the right.

12. Which woman is talking to someone of higher status?
    a) only the first woman.
    b) only the second woman.
    c) both women are talking to someone of higher status.

13. What is the relationship between the man and the woman?
    a) they are acquaintances who have met once before.
    b) they are lovers who have been together for almost two years.
    c) they are lovers who have been together for almost four years.

APPENDIX C

Profile of Nonverbal Sensitivity

INSTRUCTIONS: Please circle the letter (A or B) next to the label which
best describes the scene you have just seen and/or heard.

SAMPLE ANSWER: Scene 1.   A. admiring a baby
                              (B) applying for a job

Scene 1.   A. expressing jealous anger
           B. talking to a lost child

Scene 2.   A. talking to a lost child
           B. admiring nature

Scene 3.   A. talking about the death of a friend
           B. talking to a lost child

Scene 4.   A. leaving on a trip
           B. saying a prayer

Scene 5.   A. criticizing someone for being late
           B. expressing gratitude

Scene 6.   A. helping a customer
           B. expressing gratitude

Scene 7.   A. criticizing someone for being late
           B. leaving on a trip

Scene 8.   A. talking about one's wedding
           B. expressing gratitude

Scene 9.   A. helping a customer
           B. talking about one's divorce

Scene 10. A. talking about the death of a friend
           B. trying to seduce someone

Scene 11. A. talking to a lost child
           B. helping a customer

Scene 12. A. admiring nature
           B. expressing motherly love

Scene 13. A. expressing deep affection
           B. nagging a child

Scene 14. A. expressing motherly love
           B. asking forgiveness

Scene 15. A. admiring nature
           B. helping a customer

Scene 16. A. admiring nature
           B. saying a prayer

Scene 17. A. nagging a child
           B. admiring nature

Scene 18. A. nagging a child
           B. criticizing someone fo

Scene 19. A. asking forgiveness
           B. leaving on a trip

Scene 20. A. expressing gratitude
           B. leaving on a trip

Scene 21. A. leaving on a trip
           B. returning faulty item

Scene 22. A. returning faulty item
           B. talking about one's di

Scene 23. A. expressing jealous ang
           B. talking about one's di

Scene 24. A. talking about the deat
           B. threatening someone

Scene 25. A. expressing deep affect
           B. saying a prayer

Scene 26. A. expressing deep affect
           B. trying to seduce someo

Scene 27. A. nagging a child
           B. expressing motherly lo

Scene 28. A. leaving on a trip
           B. ordering food in a re

Scene 29. A. helping a customer
           B. expressing jealous an

Scene 30. A. criticizing someone f
           B. expressing gratitude

Scene 31. A. threatening someone
           B. talking about one's w

Scene 32. A. admiring nature
           B. expressing strong disl

Scene 33. A. ordering food in a re
           B. criticizing someone f

Scene 34. A. leaving on a trip
           B. talking about one's w

APPENDIX D

Sample EJT-Encoding card.

Context:

You come home to find unexpectedly that all the dirty dishes in the apartment are now in the dishwasher being washed. You ask your roommate:

Intent:

You are delighted that your roommate has helped you with the chores.

Statement:

"Did you put all the dishes in the dishwasher?"

APPENDIX E

Statements and Intentions for all nine Contexts

Date:	Color/Letter:	ID:

EJT
Blue Group

Context:	Statement:	Intention:
Round 1		
1 You come home to find unexpectedly that all the dirty dishes in the apartment are now in the dishwasher being washed. You ask your roommate:	"Did you put all the dishes in the dishwasher?"	a. You are angry because you specifically told your roommate not to put your new expensive plastic bowls in the dishwasher because they'd melt. b. You are delighted that your roommate has helped you with the chores. c. You are curious to know whether the dishwasher is big enough to fit all of the dishes in it.
2 Your roommate asks you to look at a group project they've been working on for the past 3 weeks. You go to their room to have a look at it for the very first time.	"So this is what you did? That's really something!"	a. You are impressed at your roommate's artistic and organizational ability. b. You see a horrific jumbled mess of a poster and cannot believe anyone would turn in something like that. c. You walk into a very cluttered room that has several "projects" in various stages of development and want to verify that you are looking at the correct one.

3	You come home and open the door to your dark apartment, when suddenly the lights turn on and you hear a giant yell, "Happy Birthday!" You see 30 of your friends gathered in your home.	"Wow, what a surprise."	a. You are a bit annoyed you thought you made it clear to your roommate that you don't like surprise birthday parties. b. You are surprised by the fact that your friends managed to break in to your locked apartment without a key. c. You are excited and happy to see all of your friends.
4	You are on the phone talking to your friend about going to the bar to catch a local band play.	"I'm not sure I want to go".	a. You are uncertain about whether or not you'd like to go b. You are angry with your friend and feel that if your friend goes with you tonight you won't enjoy yourself. c. You want your friend to encourage you to go because you would like to see your friend and the performance.
5	Your friend takes you to a movie on your birthday and pays for your ticket as a gift. You had been expecting a completely different kind of movie. After the film, your friend asks what you thought of it.	"It really wasn't what I expected."	a. You are quite satisfied with the movie, although you really would have preferred what you were expecting. b. You are pleasantly surprised by the unexpected type of movie and loved it. c. You hated it, but don't want to seem ungrateful.

6	You walk into the room and unexpectedly come across your roommate. You ask:	"What are you doing?"	a. You are angry that your roommate is doing something that you have asked them not to do.
			b. You have found your friend doing something that looks like a lot of fun.
			c. You want to know what they are doing.
7	You go to your refrigerator and notice that there is no more peanut butter; your roommate is cooking dinner nearby.	"Hey, there's no more peanut butter."	a. Your roommate is going to the store this afternoon and you are relieved/happy you got a chance to add PB to the shopping list.
			b. You're mad because your roommate always eats your peanut butter without leaving you any.
			c. Your roommate likes peanut butter too, and you just want them to know there's none left in case they're planning on having some
8	You're sitting in class with a friend waiting for the instructor to arrive.	"So, what do you think of this teacher?"	a. You really like the teacher and believe your friend does, too.
			b. You dislike the teacher and want to complain about him to your friend.
			c. You and your friend were just sitting there in silence and you are just trying to start a conversation.

	Context:	Statement:	Intention:
9	You are at a party mingling when someone you know comes up to you.	"What are you doing here?"	a. You are very happy to see this person at this party. b. You are irritated because you were hoping this person wouldn't come. c. You thought this person was out of town and didn't think they would be there.

APPENDIX F

SSI

		Not at all like me	A little like me	Like me	Very much like me	Exactly like me
1.	It is difficult for others to know when I am sad or depressed.	1	2	3	4	5
2.	When people are speaking, I spend as much time watching their movements as I do listening to them.	1	2	3	4	5
3.	People can always tell when I dislike them no matter how hard I try to hide my feelings.	1	2	3	4	5
4.	I enjoy giving parties.	1	2	3	4	5
5.	Criticism or scolding rarely makes me uncomfortable.	1	2	3	4	5
6.	I can be comfortable with all types of people- young and old, rich and poor.	1	2	3	4	5
7.	I talk faster than most people.	1	2	3	4	5
8.	Few people are as sensitive and understanding as I am.	1	2	3	4	5
9.	It is often hard for me to keep a "straight face" when telling a joke or humorous story.	1	2	3	4	5
10.	It takes people quite a while to get to know me well.	1	2	3	4	5
11.	My greatest source of pleasure and pain is other people.	1	2	3	4	5
12.	When I'm with a group of friends, I am often the spokesperson for the group.	1	2	3	4	5
13.	When depressed, I tend to make those around me depressed also.	1	2	3	4	5
14.	At parties, I can immediately tell when someone is interested in me.	1	2	3	4	5
15.	People can always tell when I am embarrassed by by the expression on my face.	1	2	3	4	5
16.	I love to socialize.	1	2	3	4	5
17.	I would much rather take part in a political discussion than to observe and analyze what the participants are saying.	1	2	3	4	5

APPENDIX G

NEO-PI

Sex: M F   Age:_____   Nationality:_____   OSU ID#_____

This questionnaire contains 240 statements. Please read each item carefully and circle the number that best corresponds to your agreement or disagreement. There are no right or wrong answers, and you need not be an "expert" to complete this questionnaire. Describe yourself honestly and state your opinions as accurately as possible.

Strongly disagree	Disagree	Neither	Agree	Strongly agree
1	2	3	4	5

1. I am not a worrier.
      1   2   3   4   5
2. I really like most people I meet.
      1   2   3   4   5
3. I have a very active imagination.
      1   2   3   4   5
4. I tend to be cynical and skeptical of others' intentions.
      1   2   3   4   5
5. I'm known for my prudence and common sense.
      1   2   3   4   5
6. I often get angry at the way people treat me.
      1   2   3   4   5
7. I shy away from crowds of people.
      1   2   3   4   5
8. Aesthetic and artistic concerns aren't very important to me.
      1   2   3   4   5
9. I'm not crafty or sly.
      1   2   3   4   5
10. I would rather keep my options open than plan everything in advance.
      1   2   3   4   5
11. I rarely feel lonely or blue.
      1   2   3   4   5
12. I am dominant, forceful, and assertive.
      1   2   3   4   5
13. Without strong emotions, life would be uninteresting to me.
      1   2   3   4   5
14. Some people think I am selfish and egotistical
      1   2   3   4   5
15. I try to perform all the tasks assigned to me conscientiously.
      1   2   3   4   5
16. In dealing with other people, I always dread making a social blunder.
      1   2   3   4   5
17. I have a leisurely style in work and play.
      1   2   3   4   5
18. I'm pretty set in my ways
      1   2   3   4   5
19. I would rather cooperate with others than compete with them.
      1   2   3   4   5

20. I am easy-going and lackadaisical.
      1   2   3   4   5
21. I rarely overindulge in anything.
      1   2   3   4   5
22. I often crave excitement.
      1   2   3   4   5
23. I often enjoy playing with theories or abstract ideas.
      1   2   3   4   5
24. I don't mind bragging about my talents and accomplishments.
      1   2   3   4   5
25. I'm pretty good about pacing myself so as to get things done on time.
      1   2   3   4   5
26. I often feel helpless and want someone else to solve my problems.
      1   2   3   4   5
27. I have never literally jumped for joy.
      1   2   3   4   5
28. I believe letting students hear controversial speakers can only confuse and mislead them.
      1   2   3   4   5
29. Political leaders need to be more aware of the human side of their policies.
      1   2   3   4   5
30. Over the years I've done some pretty stupid things.
      1   2   3   4   5
31. I am easily frightened.
      1   2   3   4   5
32. I don't get much pleasure from chatting with people
      1   2   3   4   5
33. I try to keep all my thoughts directed along realistic lines and avoid flights of fancy.
      1   2   3   4   5
34. I believe that most people are basically well-intentioned.
      1   2   3   4   5
35. I don't take civic duties like voting very seriously.
      1   2   3   4   5
36. I am an even-tempered person.
      1   2   3   4   5

APPENDIX H

Self Monitoring

DIRECTIONS: The statements below concern your personal reactions to a number of different situations. No two statements are exactly alike, so consider each statement carefully before answering. If the statement is TRUE or MOSTLY TRUE as applied to you, circle the "T" next to the question. If the statement is FALSE or NOT USUALLY TRUE as applied to you, circle the "F."

T F 1) I find it hard to imitate the behavior of other people.

T F 2) My behavior is usually an expression of my true inner feelings, attitudes, and beliefs.

T F 3) At parties and social gatherings, I do not attempt to do or say things that others will like.

T F 4) I can only argue for ideas which I already believe.

T F 5) I can make impromptu speeches even on topics about which I have almost no information.

T F 6) I guess I put on a show to impress or entertain people.

T F 7) When I am uncertain how to act in a social situation, I look to the behavior of others for cues.

T F 8) I would probably make a good actor.

T F 9) I rarely seek the advice of my friends to choose movies, books, or music.

T F 10) I sometimes appear to others to be experiencing deeper emotions that I actually am.

T F 11) I laugh more when I watch a comedy with others than when alone.

T F 12) In groups of people, I am rarely the center of attention.

T F 13) In different situations and with different people, I often act like very different persons.

T F 14) I am not particularly good at making other people like me.

T F 15) Even if I am not enjoying myself, I often pretend to be having a good time.

T F 16) I'm not always the person I appear to be.

T F 17) I would not change my opinions (or the way I do things) in order to please someone else or win their favor.

T F 18) I have considered being an entertainer.

T F 19) In order to get along and be liked, I tend to be what people expect me to be rather than anything else.

T F 20) I have never been good at games like charades or improvisational acting.

T F 21) I have trouble changing my behavior to suit different people and different situations.

T F 22) At a party, I let others keep the jokes and stories going.

T F 23) I feel a bit awkward in company and do not show up quite as well as I should.

T F 24) I can look anyone in the eye and tell a lie with a straight face (if for a right end).

T F 25) I may deceive people by being friendly when I really dislike them.

APPENDIX I

Otis Intelligence Test

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1 A house is most likely to have a —
    (1) telephone   (2) doorbell   (3) window   (4) carpet   (5) radio

2 Which of the five things below is most unlike the other four?
    (6) telescope   (7) eyeglasses   (8) window   (9) microscope   (10) binoculars

3 An election is most likely to involve —
    (11) a parade   (12) speeches   (13) voting machines   (14) candidates   (15) a platform

4 A kitten is always (?) than its mother.
    (16) softer   (17) slower   (18) younger   (19) livelier   (20) lighter colored

5 Which of the five words below comes last in the dictionary?
    (21) hare   (22) fine   (23) hike   (24) bind   (25) hire

6 The opposite of despair is —
    (26) fail   (27) health   (28) hope   (29) smile   (30) spare

7 Most of us would like to see mosquitoes —
    (31) subdued   (32) exterminated   (33) confined   (34) reduced   (35) transported

8 The first drawing below is related to the second as the third is related to one of the remaining four. Which one?
    This ◯ is to this ⊗ as this ⟡ is to this — (36) ⊠ (37) ⟡ (38) ⊠ (39) ⦂

9 The expression, "Food for Champions," is called a —
    (41) title   (42) slogan   (43) fable   (44) motto   (45) proverb

10 If something has happened to a person, he has had —
    (46) a vision   (47) a deed   (48) an operation   (49) an experience   (50) an action

11 The opposite of accept is —
    (51) concept   (52) take   (53) forfeit   (54) reject   (55) object

12 A party consisted of a man and his wife, his four sons and their wives, and three children in each son's family. How many were there in the party?
    (56) 9   (57) 12   (58) 13   (59) 20   (60) 22

13 Which word is needed to begin the following sentence?
    ———— he catches up with me, I'll win the race.
    (61) If   (62) Although   (63) Unless   (64) Since   (65) Because

14 An electric refrigerator is to an icebox as a vacuum cleaner is to —
    (66) suction   (67) a carpet   (68) electricity   (69) a broom   (70) an invention

15 What letter in the word INEXPEDIENTLY is in the same position in the word (counting from the beginning) as it is in the alphabet?
    (71) E   (72) D   (73) L   (74) I   (75) N

16 A soldier killed in battle has made a great —
    (76) effort   (77) sacrifice   (78) honor   (79) reputation   (80) mistake

17 If a person obtains money from another by threatening to tell something bad about him, he is guilty of —
    (1) deception   (2) theft   (3) blackmail   (4) embezzlement   (5) robbery

18 Which of the following words is most like punctuality, reliability, and honesty?
    (6) intelligence   (7) loyalty   (8) skill   (9) divinity   (10) eventuality

19 This P is to this ⌂ as this F is to this — (11) ⊔ (12) � (13) ⊓ (14) ⌐

20 A person in a corporation who issues general orders is said to be —
    (16) an agent   (17) a clerk   (18) an executive   (19) a general   (20) an auditor

21 One number is wrong in the following series. What should that number be?
    1   4   16   64   128   1024
    (21) 7   (22) 256   (23) 28   (24) 80   (25) 96

[3]   (*Go on to the next page.*)