Is Emotional Intelligence an Advantage? An Exploration of the Impact of Emotional and General Intelligence on Individual Performance

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ABSTRACT. Emotional intelligence is an increasingly popular consulting tool. According to popular opinion and work-place testimonials, emotional intelligence increases performance and productivity; however, there has been a general lack of independent, systematic analysis substantiating that claim. The authors investigated whether emotional intelligence would account for increases in individual cognitive-based performance over and above the level attributable to traditional general intelligence. The authors measured emotional intelligence with the Multifactor Emotional Intelligence Scale (MEIS; J. D. Mayer, P. Salovey, & D. R. Caruso, 1997). As measured by the MEIS, overall emotional intelligence is a composite of the 3 distinct emotional reasoning abilities: perceiving, understanding, and regulating emotions (J. D. Mayer & P. Salovey, 1997). Although further psychometric analysis of the MEIS is warranted, the authors found that overall emotional intelligence, emotional perception, and emotional regulation uniquely explained individual cognitive-based performance over and beyond the level attributable to general intelligence.

Key words: cognitive-based performance, emotional intelligence, general intelligence, Multifactor Emotional Intelligence Scale

THE IDEA THAT HIGH EMOTIONAL INTELLIGENCE may lead to personal and professional success has generated a great deal of excitement among the general public, managers, academics, and business consultants alike. According to popular opinion and work-place testimonials, emotional intelligence affects individual performance. Proponents claim that increasing emotional intelligence can do everything from improving the general quality of work life to enhancing...
career success. As one of the best known supporters of the importance of emotional intelligence has stated, “Emotional intelligence gives you a competitive edge. . . . Having great intellectual abilities may make you a superb fiscal analyst or legal scholar, but a highly developed emotional intelligence will make you a candidate for CEO or a brilliant trial lawyer” (Goleman, 1997, p. 76).

Although much work has gone into the development and application of emotional intelligence in people’s lives, there has been a general lack of independent, systematic analysis of the claim that emotional intelligence increases individual performance over and above the level expected from traditional notions of general intelligence. People’s understanding of that relationship is largely from anecdotal sources such as those noted earlier. Therefore, in the present study, we examined the impact of emotional intelligence on individual performance: Does emotional intelligence account for increases in individual cognitive-based performance over and above the level attributable to general intelligence?

**General Intelligence**

The existence of a single measure of intellectual ability, or general intelligence, is orthodoxy both among psychologists and in the general public (Gardner, 1998). General intelligence is the ability to acquire basic knowledge and use it in novel situations. There are basic assumptions underlying the theory of general intelligence: (a) People are born with a fixed, potential intelligence, and (b) general intelligence can be measured (Gardner; Gottfredson, 1998). The measurement of general intelligence consists of completion of number series; pattern recognition; and analogies designed to capture mathematical-reasoning, verbal, and spatial-visualization abilities. According to Gottfredson, “Intelligence as measured by IQ tests is the single most effective predictor known of individual performance at school and on the job” (p. 24).

**Emotional Intelligence**

With increasing usage of emotional intelligence by managers and scholars, researchers have proposed many definitions of emotional intelligence; however, only one appears to consider both emotions and cognition equally. According to Mayer and Salovey (1997), emotional intelligence reflects not a single trait or ability but, rather, a composite of distinct emotional reasoning abilities: perceiving, understanding, and regulating emotions. Perceiving emotions consists of recognizing and interpreting the meaning of various emotional states, as well as their relations to other sensory experiences. Understanding emotions involves

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comprehension of how basic emotions are blended to form complex emotions, how emotions are affected by events surrounding experiences, and whether various emotional reactions are likely in given social settings. *Regulating emotions* encompasses the control of emotions in oneself and in others. An individual’s emotional intelligence is an indication of how he or she perceives, understands, and regulates emotions. In sum, emotional intelligence is a form of intelligence that involves “the ability to monitor one’s own and others’ feelings and emotions, to discriminate among them and to use this information to guide one’s thinking and actions” (Salovey & Mayer, 1990, p. 189).

With the recent development of a comprehensive emotional intelligence scale, the Multifactor Emotional Intelligence Scale (MEIS; Mayer, Salovey, & Caruso, 1997), it is possible to investigate more thoroughly the relationship between emotional intelligence and individual performance. To assess the soundness of claims that emotional intelligence accounts for personal performance gains over and above those attributable to general intelligence (Cooper & Sawaf, 1997; Goleman, 1997; Salovey & Sluyter, 1997; Weisinger, 1997), we examined the relationships between emotional intelligence, general intelligence, and individual cognitive-based performance. We explored whether overall emotional intelligence and its distinct emotional reasoning abilities would positively contribute to individual cognitive-based performance over and above the level explained by general intelligence. We formulated the following hypotheses:

**Hypothesis 1:** Overall emotional intelligence contributes to individual cognitive-based performance over and above the level attributable to general intelligence, and the relationship is positive.

**Hypothesis 2:** Perceiving emotions contributes to individual cognitive-based performance over and above the level attributable to general intelligence, and the relationship is positive.

**Hypothesis 3:** Understanding emotions contributes to individual cognitive-based performance over and above the level attributable to general intelligence, and the relationship is positive.

**Hypothesis 4:** Regulating emotions contributes to individual cognitive-based performance over and above the level attributable to general intelligence, and the relationship is positive.

**Method**

**Sample and Design**

The participants were 304 undergraduates (152 men and 152 women) at a university in the western United States. Each participant completed a paper-and-pencil measure of individual cognitive performance, the short version of the MEIS (Mayer et al., 1997), the Shipley Institute of Living IQ Scale (Western Psychological Services, 1967), and a questionnaire assessing demographic char-
acteristics. The participants ranged in age from 18 to 33 years \((M = 20.8\) years, \(SD = 2.4\)) and were primarily Caucasian (88.5%).

Each participant received a folder containing all the necessary materials (i.e., written instructions, measures, and response sheets). The primary researcher reviewed the testing instructions with the participants to ensure optimal understanding of what was required to perform each of the tasks as accurately as possible.

**Measures**

**MEIS (short version).** The MEIS consists of eight tasks that are divided into components representing three levels of emotional reasoning ability: perceiving, understanding, and regulating emotions (Mayer et al., 1997). The scale yields four scores: an overall score reflecting general emotional intelligence and a score for each of the three emotional reasoning abilities. The short version of the MEIS consists of 258 items and takes approximately 40 min to complete. The MEIS is scored by an expert scoring method, in which each response is compared with an expert answer—that is, the response that the MEIS experts believe is the most accurate assessment of a particular ability (Mayer & Geher, 1996; Mayer & Salovey, 1997; Mayer et al., 1997). For each component, the percentage of correct answers (as determined by the MEIS developers) serves as the component score. The three component scores are summed to obtain a measure of overall emotional intelligence.

**General intelligence.** We used the Shipley Institute of Living IQ Scale (Western Psychological Services, 1967) to assess the participants’ general intelligence. This test is timed and takes exactly 20 min to complete (10 min for the vocabulary test and 10 min for the abstract-thinking test). A raw score is calculated for each of the subtests along with a raw total (sum of the two subtests), which is used to estimate an IQ score with a mean of 100 and a standard deviation of 15 (Zachary, Crumpton, & Speigel, 1985; Zachary, Paulson, & Gorsuch, 1985). The total raw score is used to estimate an IQ equivalent on the Wechsler Adult Intelligence Scale-Revised (WAIS-R; Wechsler, 1958). The Shipley provides a reliable estimate of general intelligence and has been correlated as high as .85 with the WAIS-R (Zachary, Paulson, et al., 1985).

**Individual cognitive-based performance.** We assessed the dependent measure, individual cognitive-based performance, with 8 problems selected from the Burney (1974) logical reasoning test. To simulate the time pressures faced in the modern work place (Cooper, 1997), we placed the participants in a stressful situation by choosing very difficult cognitive reasoning problems and limiting the time given to complete them. Level of difficulty was based on solution scores to the Burney test observed by Lam, Bell, Sorell, Taylor, and Yang (1998). Of the original 21 items, we selected the 8 most difficult for the performance task. To
elicited performance-related stress, we gave the participants 1 min to solve each problem. We based the timing on the finding that both easy and difficult problems took an average of 1.4 min to complete (Lam et al.). We told the participants (a) that the measure of performance emphasized both accuracy and speed, (b) that they should try to complete all items within the allotted time, and (c) that they should solve correctly as many problems as possible. The 8 items consisted of a variety of verbal analogies, syllogisms, and problems similar to the Piagetian tasks in more traditional assessments of formal reasoning abilities (Burney). The percentage of problems answered correctly was the measure of performance. The participant with the highest score (or the participants who tied for the highest score) on his or her individual performance task received $25. The monetary reward ensured that the participants maintained high levels of motivation while performing the task.

Results

We computed subscale reliabilities for each component of the MEIS (Mayer et al., 1997). Because of low alpha coefficients for some of the original emotional-intelligence measures, we conducted an analysis of the item-to-total correlation. We removed items with correlations to their respective subscales of less than .05 and reran the reliability tests. In the case of the understanding component, we retained only the Relativity subscale (the only understanding subscale with an acceptable α level) because the reliability analysis indicated that the removal of more items from the Blends, Progression, and Transition subscales did not result in acceptable alpha levels for these subscales (Nunnally, 1967, 1978). The revised emotional intelligence scale used in subsequent analysis contained more than 75% of the original items (for results of the reliability analysis, see Table 1).

Descriptive statistics providing the mean values for the emotional intelligence measures and general intelligence appear in Table 2. Given that overall emotional intelligence is a composite of Variables 1 through 3, we expected significant correlations between those variables.

We conducted an additional analysis to assess the validity of the general-intelligence measure. Because the Shipley Institute of Living IQ Scale (Western Psychological Services, 1967) measures intellectual ability, we expected it to be correlated with other measures of the same ability, such as standardized academic achievement tests (Gottfredson, 1998). We collected SAT scores as part of the demographic information for each participant. The participants’ IQ and SAT scores were significantly and positively correlated, $r = .42, p < .001$; thus, the correlation provided evidence of concurrent validity for the Shipley scale.

To address multicollinearity problems, we tested the hypotheses by using four separate multiple regression analyses with ordered predictor variables. Because overall emotional intelligence is the sum of the individual components, overall
emotional intelligence cannot be entered into an equation containing its components, and the components cannot be entered into regression equations together. Because we were interested in the impact of emotional intelligence on individual performance over and above the level of performance attributable to general intelligence, we entered IQ first into all four ordered predictor regression models. As expected (Gottfredson, 1998), the omnibus $F$ was significant, and general intelligence was significantly and positively related to cognitive-based individual performance in all four models. The results supported Hypothesis 1: Overall emotional intelligence contributed to individual cognitive-based performance over and above the level attributable to general intelligence, and the relationship was positive, $R^2$ change = .034, $F(2, 291) = 11.37, p < .001$. The results also supported Hypothesis 2: Perceiving emotions contributed to individual cognitive-based performance over and above the level attributable to general intelligence, and the relationship was positive, $R^2$ change = .074, $F(2, 292) = 23.24, p < .001$. The results did not support Hypothesis 3: Understanding emotions did not contribute to individual cognitive-

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<td>Feeling Bias</td>
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<td>Understanding emotions</td>
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<td>Relativity</td>
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<td>Managing Emotions in Others</td>
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*aWe excluded from further analysis these subscales of the understanding component of emotional intelligence because of unacceptable reliability measures.*
based performance over and above the level attributable to general intelligence, $R^2 \text{ change} = .008, F(2, 291) = 2.75, p > .05$. The results supported Hypothesis 4: Regulating emotions contributed to cognitive-based performance over and above the level attributable to general intelligence, and the relationship was positive, $R^2 \text{ change} = .024, F(2, 291) = 7.59, p < .01$.

**Discussion**

In the present study, we used the conceptualization of emotional intelligence (Mayer et al., 1997) to investigate how an individual’s ability to perceive, understand, and regulate emotions is related to performance. We addressed the limitations in the extant literature concerning the relationship between emotional intelligence and individual performance and examined the utility of the MEIS (Mayer et al.).

We examined individual performance in relation to general intelligence and to overall emotional intelligence and its components: perceiving, understanding, and regulating emotions. As expected, general intelligence made a significant contribution to the prediction of individual performance of a cognitive task (Gottfredson, 1998). In addition, overall emotional intelligence, perceiving emotions, and regulating emotions all contributed positively to individual cognitive-based performance; however, understanding emotions did not add to the explanation of variance in individual cognitive-based performance over and above the level attributable to general intelligence. Perceiving emotions consists of recognizing the presence and interpreting the meaning of various emotional states, whereas regulating emotions encompasses the control of emotions in oneself and in others. Perceiving and regulating emotions are likely tapping into the two main components of emotional intelligence put forth by the original proponent of multiple intelligences (Gardner, 1998). According to Gardner (p. 22), “accurately deter-
mining moods, feelings and other mental states in oneself (intrapersonal intelligence) and in others (interpersonal intelligence) and using the information as a guide for behavior” defines a key component of emotional intelligence. Perceiving emotions is the ability to accurately determine emotions, whereas regulating emotions relates to controlling and using information about emotions. Both elements of emotional intelligence are concerned with the perception and regulation of emotions in oneself and others (intrapersonal and interpersonal intelligence).

In the present study, understanding emotions did not contribute to cognitive-based performance over and above the level attributable to general intelligence. Understanding, as measured in the present study, is the ability to describe the likeliness of emotions in a given social setting. The ability merely to describe emotions and their relations to other sensory experiences may have very little impact on one’s ability to harness emotions in the service of performing cognitive tasks. However, we were able to test only one of the four components of understanding emotions because of internal-consistency problems with that component of the MEIS (Mayer et al., 1997). Further analysis as the MEIS is refined may allow for a more thorough examination of the understanding component of emotional intelligence and may uncover a relationship to performance that we were unable to discover.

Performance Implications

It is a common belief that, when emotions are intertwined with role, performance, or both, they tend to interfere with task achievement (Ashforth & Humphrey, 1995). We believe that the specific emotions experienced and their interpretation and regulation, rather than the presence of emotions per se, may cause problems for task performance. Individuals do not cause their emotions to occur and have little control over which emotions they experience, because the “connections from the emotional systems to the cognitive systems are stronger than connections from the cognitive systems to the emotional systems [of the brain]” (LeDoux, 1996, p. 19). However, once emotions occur and are recognized by the cognitive systems of the brain, the ability to guard against distracting emotions and to build on enhancing emotions facilitates individual task performance as well as team performance.

Depending on whether the emotions are perceived as enhancing or distracting, the perception and regulation of emotions operate through two opposite emotional control mechanisms: buffering and personal engagement. Buffering is a common way to control undesirable emotions. On the one hand, buffering involves encapsulating and segregating emotions so that they do not interfere with the task at hand (Ashforth & Humphrey, 1995). On the other hand, Kahn (1990, 1992) hypothesized that personal engagement, or emotional involvement in tasks, reflects the highest level of motivation and results in high performance. Personal engagement has been likened to flow (Csikszentmihalyi, 1990), or a state of peak
performance in which “emotions are not just contained and channeled, but positive, energized, and aligned with the task at hand (Goleman, 1997, p. 90).

Individuals with high emotional intelligence may use buffering techniques to internally encapsulate and segregate emotions so that they do not interfere with task performance. Because individuals with well-developed emotional intelligence are able to identify and control their own emotions and those of others, they are less likely to be paralyzed by fear, hijacked by negative emotions, and strangled by anxiety, all of which have negative effects on both individual and team performance (Seipp, 1991). Conversely, people may use the same control to channel positive emotions and use them to achieve maximum personal engagement and productivity in themselves and others.

**Limitations**

The use of cognitive reasoning problems for the individual performance task may restrict the generalizability of the present findings beyond behaviors specific to that type of paper-and-pencil activity. We selected the task on the basis of the representativeness of problem-solving behaviors, which are required in all domains of life (Burney, 1974). However, we acknowledge that solving reasoning problems may not provide the same information as solving problems involving social tasks, such as team performance. Measuring performance of social tasks may yield different information about emotional intelligence and how it affects performance in an interpersonal setting. Although the ability to perceive and regulate emotions explained individual performance over and above the level attributable to general intelligence in the present study, the ability to perceive and manage emotions may increase the motivation and effectiveness of teams as well. In fact, one would expect greater gains in social situations such as those found in the work place, where getting along with others is critical to success (Goleman, 1997).

We also realize that there are reliability issues associated with the MEIS (Mayer et al., 1997). We increased the reliability of the component subscales by eliminating items, but we believe that more work is needed on the scale, especially on the understanding component. That component is especially difficult to measure because it involves measuring how individuals account for the impact of social context on the interpretation of emotions. Because contexts vary widely, it is difficult to duplicate that construct in questionnaire format.

Last, given the basic nature of the task and measures involved in the present study, the fact that our sample consisted of undergraduate students should not affect the generalizability of our findings. However, because our sample consisted of a relatively homogeneous group of participants, different findings may occur with different populations and in different settings. Examining emotional intelligence in established work places may provide insights into how people manage emotions in contexts that last for several years, where deeper social rela-
tionships may be present, and where people from different races and ethnic back-
grounds come together to work toward common goals.

**Future Directions**

The present study has provided many potential paths for future researchers. First, because we selected cognitive-based activities for the individual tasks, different types of problem solving, or even group tasks, may provide interesting findings. Second, the relationship between emotional intelligence and individual cognitive performance was the major variable of interest. However, exploration of how emotional intelligence regulates other areas in life may be fruitful. For example, the question of how emotional intelligence affects task-interdependent activities, organizational commitment, or job satisfaction warrants investigation. Last, researchers have reported gender differences in emotional expressions (cf. Geary, 1998). Because there are differences in emotional expression between men and women, it is likely that there are also other emotional differences related to emotional intelligence. There are numerous opportunities for future explorations of significant gender differences in the individual components of emotional intelligence as well as in overall emotional intelligence. If researchers find such differences, then it would be advantageous to explore and understand the nature and sources of those differences. How such differences, if they exist, affect individual and team performance may also be of interest to researchers and practitioners alike.

**Conclusion**

The investigation of how an individual’s ability to perceive and regulate emotions affects performance yielded some interesting insights into how people may use such abilities in performing stressful cognitive tasks. Overall emotional intelligence was related to performance in that higher emotional intelligence was associated with better scores on one measure of cognitive performance. In addition, the MEIS (Mayer et al., 1997) allowed for the investigation of how emotional intelligence affected performance by providing both an overall emotional intelligence score and subscale scores that represented its components. Thus, the usefulness of the MEIS was demonstrated by its versatility in examining either the overall construct or its components.

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