Emotional Intelligence, Team Learning Effectiveness, and Academic Performance: A Quantitative Study of Middle Managers Attending Corporate Education Programs

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Abstract: This paper empirically examines the correlation between Trait Emotional Intelligence and team performance and individual academic performance in a corporate training setting. Findings suggest a strong, significant, positive relationship between Trait Emotional Intelligence and team performance. The significant yet moderate correlation between Trait Emotional Intelligence and individual academic performance supports previous research that suggests EI has a moderating rather than direct effect on academic performance. Implications for educators are discussed.

Key Words: trait emotional intelligence, team performance, academic performance

Introduction

Valuing Emotional Intelligence (EI) skills in organizational settings for selection, performance management, and promotional purposes is on the rise and has been of interest in a variety of industries including educational, clinical, health, and social environments. Emotional Intelligence as an area of research, however, is relatively young and the literature examining the impact of emotional intelligence on performance is largely contradictory. This study provides empirical evidence to support the correlation between emotional intelligence scores and organizational outcomes such as team effectiveness and performance. Data were gathered and analyzed from surveys of mid-level business managers of a consumer goods company to investigate the relationships between trait emotional intel-

ligence, team learning effectiveness, and academic performance. Although this study is not based on traditional post-secondary pedagogy, the results of corporate-based training and team performance should be generalizable to the mature students and continuing education environments.

Literature Review

The literature review section is comprised of four subsections: history and definition of Emotional Intelligence (EI) as well as a discussion around the main constructs and methods for measuring Emotional Intelligence.

History of Emotional Intelligence

The concept of Emotional Intelligence (EI) has a long history in psychology. According to Sharma (2008), the roots of EI could be traced back to seventeenth century when in 1677 Spinoza suggested that cognition should be measured by considering emotion and intellect together. In the 20th century, Thorndike (1920) introduced the concept of 'Social Intelligence' as the ability to understand and manage people in human relations. In the following decades, many researchers contributed to the development of the theory of Social or Emotional Intelligence (Gardner, 1983; Leeper, 1948; Lum, 1960; Manguss and Woodward, 1949; Mower, 1960; Sharma, 1977; Tomkins, 1962; Wagner and Sternberg, 1985; Wechsler, 1940). By the end of the 20th century, EI had evolved to a two-dimensional construct comprising multiple intelligences (Gardner, 1983): "Interpersonal intelligence" or "a person's capacity to understand the intentions, motivations, and desires of other people and, consequently, to work effectively with others"; and "Intrapersonal intelligence" or "the capacity to understand oneself, to have an effective working model of oneself, including one's own desires, fears, and capacities, and to use such information effectively in regulating one's own life" (Gardner, 1999, p. 43).

Despite significant theoretical contributions to the development of the construct of EI in the latter half of the 20th century, there was a dearth of empirical research, that is, until the introduction of Salovey and Mayer's (1990) scientific EI model and Goleman's (1995) practitioner model. After these seminal works were published, SCOPUS publications with the keywords "Emotional Intelligence" in their title or abstract grew from 14 in 1998 to 145 in

2006 and an estimated 1,300 publications by 2010 (Stough, Saklofske, & Parker, 2009). This flurry of academic interest in EI did not help the construct cohere. On the contrary, the plethora of EI frameworks, definitions, and models led to controversy about the credibility, validity, and ambiguity of the construct (Caruso, 2008). Murphy and Sideman (2006) believe that disagreements over definition, validity, and impact of EI reflect of a clash of cultures between the science-based academics, who emphasize precision, empirical confirmation, and scientific caution; and the practice-driven business practitioners, who emphasize practicality and solving real-world problems. The works of Salovey & Mayer (1997) and their colleagues could be characterized as following the science-driven culture, whereas the model of Goleman (1995) and his colleagues represents an example of the practice-driven culture. This clash of cultures has led to significant differences in how the Emotional Intelligence construct is defined (Locke, 2005) and in which theories it is grounded (Caruso, 2008).

Perez, Petrides & Furnham (2005) argue that, in the majority of cases, the correspondence between EI models and empirical data has been weak, and, that most of the models are not based on a strong theoretical foundation. Researchers are also split on their opinions about the compatibility of existing models. While some researchers purport that some of the generally accepted approaches to the definition and measurement of EI are fundamentally dissimilar and measure very different things (Bracket & Mayer, 2003; Caruso, 2008), others claim that various models and definitions of EI tend to complement, rather than conflict with one another (Ciarrochi, Chan, & Caputi, 2000).

Definition of Emotional Intelligence

With respect to defining EI, according to Caruso (2008), the term Emotional Intelligence has become ambiguous. Mayer and Salovey (1997) for instance define EI as, "the ability to perceive emotions, to access and generate emotions so as to assist thought, to understand emotions and emotional knowledge, and to reflectively regulate emotions so as to promote emotional and intellectual growth" (p.10). Ghini, Freedman, and Jensen (2005) provided a more general description by defining emotional intelligence as "the capacity to integrate thinking and feeling to make optimal decisions" (p. 5). Moreover, Goleman (1995) articulated EI as the ability to motivate oneself despite frustration; to control impulses by delaying gratifica-

tion; to regulate mood by thinking rather than responding immediately, and the ability to feel empathy.

One of the main criticisms to Emotional Intelligence has been the scope and instability of its definition. Locke (2005) argues that the definition of EI is too broad and changes continuously. Moreover, researchers argue that some definitions of EI are attempts to embed the construct in a moral discourse (Matthews, Emo, Roberts and Zeidner, 2006), i.e. "there is an old-fashioned word for the body of skills that EI represents: character" (Goleman, 1995, p. 34).

Caruso (2008) asserts that the confusion associated with the definition of EI arises from the existence of multiple generally accepted approaches to EI and its measurement (i.e. ability EI, trait EI, and competency EI). Further, Murphy and Sideman (2006) believe such arguments over definition, validity, and impact of EI are a reflection of a clash of cultures among its proponents and opponents. Murphy and Sideman (2006) define these two groups as: (a) a science-driven culture that emphasizes theory, precision, empirical confirmation, and scientific caution; and (b) the praxis-driven culture, in which the main focus is on practicality and attempts to solve real-world problems. Given this ongoing debate, gaining a better understanding of how to define Emotional Intelligence requires deeper examination of underlying differences among existing models and constructs of EI. To this end, the succeeding section provides an overview of the existing constructs and associated models for measuring EI under each construct.

Main Constructs and Measures of Emotional Intelligence

Given the debate in the literature about the multiple interpretations of EI, it is wise to distinguish between various approaches to defining and measuring Emotional Intelligence (Petrides, Furnham, & Frederickson, 2004; Warwick & Nettlebeck, 2004). According to Caruso (2008), there are three generally accepted approaches to the definition and measurement of EI:

1. Competency models that comprise a set of emotional competencies defined as learned capabilities based on EI (e.g. Goleman, 2001);
2. Ability models that define emotional intelligence as a conceptually related set of mental abilities to do with processing of emotional information (e.g. Mayer & Salovey, 1997); and

3. Trait models that define emotional intelligence as an array of socio-emotional traits such as assertiveness (e.g. Bar-On, 1997).

The model type determines the appropriate type of measurement method. For instance, the use of self-report measurement method in trait EI versus maximum-performance measurement method employed by ability EI poses significant implications for the operationalization of these constructs. The following paragraph introduces brief descriptions of the most prominent examples of measures for competence EI, ability EI, and trait EI models.

The Competency Model

The Emotional Competence Inventory (ECI) is based on competence model and was designed to assess emotional competencies and positive social behaviors (Goleman, 1995; Boyatzis, Goleman and Rhee, 2000; Sala, 2002) and is available in both self-report and 360-degree formats. The two major criticisms of the ECI are its lack of empirical evidence of psychometric properties in peer-reviewed, scientific journals (Conte & Dean, 2006; Perez et al., 2005; Matthews, Zeidner, & Roberts, 2002) and its lack of discriminant validity with several personality dimensions.

The Ability Model

Multifactor Emotional Intelligence Scale (MEIS; Mayer, Caruso and Salovey, 1999) and its successor, the Mayer-Salovey-Caruso Emotional Intelligence Test (MSCEIT; Mayer, Salovey, and Caruso, 2002) are arguably the most salient measures of Ability EI. The MEIS includes 402 items and produces four subscales of perception, assimilation, understanding, and managing emotions (Mayer, Caruso and Salovey, 2000). As the successor of MEIS, the MSCEIT is also based on Mayer and Salovey's (1997) EI Ability Model. The MSCEIT provides a total EI score as well as four Branch scores, including: (1) perception of emotion, (2) integration and assimilation of emotion, (3) knowledge about emotions, and (4) management of emotions. The main challenge that both MEIS and MSCEIT have to overcome is the inherent subjectivity of emotional experience and the absence of scientific standards for objectively determining the correct answers (Watson, 2000; Conte, 2005; MacCann et al., 2003).

The Trait Model

In practice, the questionnaire (or trait approach) is more popular than the ability test approach for measuring Emotional Intelligence (Matthews et al., 2006). The Trait Emotional Intelligence Questionnaire (TEIQue), based on "Trait EI" theory, is a constellation of emotional self-perceptions located at the lower levels of personality hierarchies (Perez et al., 2005; Furnham & Petrides, 2003; Petrides, Frederickson, & Furnham, 2004; Petrides, Pita, & Kokkinaki, 2007; Petrides, 2009a). Trait EI is purported to be the only operational definition in the field of EI research that recognizes the inherent subjectivity of emotional experience (Petrides, 2010).

The long form of the TEIQue measures 153 items, providing scores on 15 subscales, four factors (Emotionality, Sociability, Well-being, and Self-control), and a global trait EI score (Petrides, 2009a). With respect to reliability of TEIQue, the internal consistency of its 20 variables, including 15 facets, 4 factors, and global Trait EI, are satisfactory for both male and female samples (e.g. alpha value for global Trait EI of female sample (N=907) was 0.89 and for male sample (N=759) at 0.92) (Petrides, 2009a). In addition to the full form of TEIQue, five other TEIQue instruments are also available. These include; (1) TEIQue-SF (a 30-item short form that includes two items from each of the 15 facets of the TEIQue, generating a global trait EI score); (2) TEIQue 360 and 360-SF (available for both the full form and the short form of the TEIQue, these forms are used for collecting observer ratings); (3) TEIQue-AFF (similar to the TEIQue full form, but targeted at adolescents between 13 and 17 years); (4) TEIQue-ASF (consisting of 30 short statements, this is the simplified version of the adolescent full form of the TEIQue, targeted at adolescents between 13 and 17 years); (5) TEIQue-CF (consisting of 75 items, this instrument is for assessing the emotion related facets of child personality, based on sampling domain that is specifically developed for children between 8 and 12 years) (Petrides, 2009a).

Since researchers suggest that the operationalization of trait EI construct is congruent with the subjective nature of emotional experience (Petrides, 2009a), it is in a better position to avoid the conceptual and psychometric challenges facing competency and ability EI. Thus, a measure of trait EI was selected for this study. The full form of the TEIQue may be considered too long at 153 items and may lead to fatigue bias. Therefore, the 30-item short

form (TEIQue-SF) was chosen due to its success in research designs with limited experimental time.

Methods and Sample

This study employed a quantitative research strategy comprising a pen-and-paper, self-report questionnaire to measure Trait Emotional Intelligence (TEIQue-SF), a peer-rated questionnaire to measure team effectiveness, and biographical data. Actual final course grades were also used to measure academic performance. The convenience sample consisted of 56 mid-level managers of a consumer goods company, 30 of whom were male and 26 of whom were female. Response rate was 100 percent. The 30-item TEIQue—SF comprised two items from each of the 15 facets of the long-form TEIQue to generate a global trait EI score. The survey items included a 7-point Likert response scale ranging from completely disagree, for the score of one; to completely agree, for the score of seven. The global trait EI score of each respondent was generated by reverse scoring 15 of the question items (out of 30) and then summing up all responses. Respondents were also asked to provide demographic information such as their age, gender, and country of origin.

In addition, team learning effectiveness scores were measured through a peer-report questionnaire. Subjects of the study were involved in five different team assignments as part of a series of corporate education training program. Each candidate was asked to assess team effectiveness of other team members by completing a questionnaire that evaluated teamwork based on nine criteria: (1) Preparedness (research, reading, and assignment complete); (2) Attendance (on-time and stayed for duration); (3) Participation (contributed best academic ability); (4) Demonstrating dignity, respect, and listening (present and respectful); (5) On task (conducted like a professional business meeting); (6) Rotate tasks (willingly offered and accepted new tasks); (7) Conflict resolution (to resolve potential disputes); (8) Decisions by consensus (lead or follow appropriately); (9) Communication during and between meetings (initiated and responded appropriately).

Each respondent was asked to rate other team members on each criterion using a Likert scale ranging from one to five: one being *not at all effective* and five being *very effective*. The final team effectiveness score of each individual was calculated by averaging the scores of peer-ratings for various team assignments.

To measure academic performance, respondents' final course grades in the corporate education program were also taken into consideration. The intra-relational aspects of each candidate's emotional intelligence score were examined against his/her peer-rated team learning effectiveness score as well as the course grade achieved in the corporate education program. Score calculations and data analysis were conducted using the SPSS statistical software.

Results

Statistical analyses were conducted to examine the relationships between global trait EI scores, team learning effectiveness score, and course grades of respondents. Descriptive statistics indicated that respondents' global trait EI had the mean value of 156.36 with the standard deviation of 14.74 (N = 56). Moreover, respondents' team learning effectiveness scores had the mean of 31.61 with standard deviation of 6.45. Pearson correlation between global trait EI and team learning effectiveness (r = 0.693) indicates a strong positive correlation. The coefficient of determination indicated that 48 percent of the variation in global trait EI scores could be explained by the variation in respondents' team effectiveness score. Further, the reported p-value of 0.000 suggested that the correlation between global trait EI and age was strongly significant.

The Pearson correlation coefficient is only appropriate for data that are approximately normally distributed with no existing outliers. A scatterplot indicated normal distribution and a distinct positive relationship between respondents' trait EI and team learning effectiveness score. As a contingency, a nonparametric correlation measure was also employed. Spearman's rho also indicated a strong positive and statistically significant relationship between global trait EI and team learning effectiveness with a correlation coefficient = 0.797 ($p < .000$).

Statistical analysis was conducted in order to examine the relation between respondents' trait EI and their academic performance (course grades) in the corporate education program. Descriptive statistics indicated that respondents' course grades had a mean value of 83.42 (out of 100) with the standard deviation of 9.93 (N = 56). The Pearson correlation between global trait EI and course grade was significant ($p < .01$), positive, and moderate (r = 0.338). The coefficient of determination was of 0.114 thus 11.4 percent of the variation in respondents' course grades could be explained by glob-

al trait EI scores.

With such a low coefficient of determination, it is not surprising that a scatterplot diagram indicated a number of outliers and generally did not depict a clear linear relationship between global trait EI and course grade variables. As with the Pearson's correlation coefficient, the Spearman's rho reported a significant ($p < .000$), positive, yet small monotonic relationship between global trait EI and course grade (correlation coefficient = 0.464).

Discussion and Conclusions

Research on Emotional Intelligence in educational, health, organizational, and social science is on the rise but is largely controversial and contradictory. Existing studies on EI and team performance are not as widespread as individual performance studies. More importantly, these studies have reported contradictory results. Some studies have found no relationship between EI and team performance (e.g. Day and Carroll, 2004; Rapisarda, 2002). On the other hand, some research confirms the performance potential of EI in teams. For instance, Jordan, Ashkanasy, Hartel and Hooper (2002) examined the link between EI and team effectiveness in a longitudinal study and reported the existence of such relationship. Due to the steadily increasing use of EI measures in work settings juxtaposed with the existing disconnect in the literature, there is a need for more empirical evidence to examine potential impacts of factors such as team effectiveness and performance on EI scores.

This study attempted to address the call for more empirical research by quantitatively assessing the impact of EI on team effectiveness and academic performance using data from mid-level business managers of a consumer goods company. Pearson's and Spearman's rho correlations indicated a strong positive and statistically significant relationship between global trait EI and team learning effectiveness. These findings both conflict with studies that have found no relationship between EI and team performance (Day & Carroll, 2004; Rapisarda, 2002) and confirm studies that have identified a link between EI and team effectiveness or performance (Jordan, Ashkanasy, Hartel & Hooper, 2002; Jordan & Troth, 2004). Further, the results of this study confirm previous research that that there is a significant link between emotional intelligence and performance, particularly EI and team performance research (Jordan, Murray & Lawrence, 2009). However, more empirical research and evidence are required before we can make strong as-

sertions. This study adds to the plus side of the argument that there is empirical evidence of a strong, positive, significant relationship between EI and team performance.

With respect to the link between global Trait EI and individual academic performance, research findings have been contradictory. Petrides et al. (2004) found Trait EI to have a positive relationship with performance but only in low-IQ students. On the other hand, Parker, Creque, Barnhart, Harris, Majeski, & Wood (2004) reported modest correlations between Trait EI and academic performance in high school and university samples. The findings of this study provide support for previous research that Trait EI is positively (although moderately) associated with academic performance. Pearson's and Spearman's rho correlations indicated a significant, positive yet moderate relationship between global Trait EI and academic performance. According to Petrides (2011), such contradictory findings may point to the possibility that Trait EI effects may vary based on educational level and subject of study of the samples. Further, trait EI could have a moderating and indirect impact on academic performance by affecting students' capability to network, socialize, and communicate with their peers.

Overall, there are still many unanswered questions with respect to group and individual performance and EI. This study, however, took an incremental step forward by showing a positive relationship between Trait EI and both team performance and individual academic performance. Further research is needed in order to confirm/improve findings, particularly with regards to the relationship between EI and individual academic performance.

Implications for Educators

Based on the findings of this study, there are three areas that pose significant implications for educators: using groups / teams to maximize EI's moderating role in academic performance; offering EI training programs; and creating awareness of EI differences and their potential impact on the learning environment.

By assigning group work, educators can exploit the impact of peer learning by students who have low trait EI from students who have high trait EI. The students with high EI are better able to deal with the stress of an intellectually demanding environment and typically have larger social networks (Petrides, 2009b). Thus, by example and experience, students with low trait EI can learn coping skills and gain access to valuable social networks from high trait

EI teammates. The caveat for educators is that they need to balance teams with members with both high and low EI in order for this learning to take place. More research is needed to provide educators with tools to assess the EI levels of their students.

With respect to offering EI training programs, trainability of EI has been among the most significant promises made within the field of EI research. Goleman (1995) claimed that unlike academic intelligence, EI can increase throughout the life span of individuals through training and development. For instance, Salski and Cartwright (2003) used lectures, group discussions, role plays, and one-on-one sharing to develop students' EI by recognizing their own emotions, the emotions of others, and the impact that their behavior had on others' emotions. If Emotional Intelligence can be enhanced by training, educators can improve individual learning, team effectiveness, and academic performance of their students by implementing activities aimed at increasing the EI level of students.

With respect to acknowledging the existing differences in the EI level of students, educators could attempt a custom-designed pedagogical approach whereby students' specific strengths, weaknesses, and learning objectives are taken into consideration. For instance, educators could modify grading criteria as well as the mix of individual versus team-based learning modules in culturally heterogeneous learning groups. For instance, students with high trait EI are likely to have a superior performance in the participation and presentation components of a course, whereas students with low EI are more likely to succeed in individual components such as tests and essays.

Limitations of the Study & Directions for Future Research

There are a number of limits to this study. First, the findings of this study were generated based on a self-report response method, rather than actual observations in the workplace. Second, the relatively small sample size (N = 56), the restricted sample range, as well as the sample composition may pose limitations with respect to generalizability. Third, data were gathered from middle managers of a consumer goods company with offices in four different countries. Several researchers have warned against the potential of culture bias, and have raised concerns regarding the universalizability of findings from measures such as the Emotional Intelligence surveys across different cultures (e.g. Van de Vijver and Leung, 2001). Research into the cultural underpinnings of EI would be

useful since latent presence of culture bias could potentially interfere with correlations in the underlying traits of respondents. Hence, longitudinal research with larger and more homogeneous samples would be valuable to confirm/improve findings of this research.

The final limitation of this study is related to the calculation of the variable of course grade. As discussed in the methods section, academic performance was defined as the grade each respondent achieved in one corporate education course. This may pose a limitation with respect to the narrow scope of measurement of academic performance. Conducting further research with a longer perspective on academic performance (i.e. taking into account additional course grades, or in case of student samples considering respondents' GPA scores) may be valuable to generate a clearer picture of the relationship between Emotional Intelligence and academic performance.

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