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The influence of emotional intelligence, cognitive test anxiety, and coping strategies on undergraduate academic performance



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ABSTRACT

This study explored factors with the potential to exert facilitative and debilitative influence on undergraduate students' academic performance. Participants responded to the Schutte Emotional Intelligence Scale, COPE inventory, and Cognitive Test Anxiety Scale-Revised and agreed to have their responses paired with institutional performance data. Analyses tested the iterative and collective influence of the identified variables on four-year GPA after controlling for previous academic performance (first-year GPA). The examination revealed cognitive test anxiety and use of emotion-focused coping strategies were significant predictors of students' long-term academic outcomes such that increased cognitive test anxiety and increased use of emotion-focused coping strategies were associated with decreases in four-year GPA. The results inform the nature of the influence these student factors have on long-term academic outcomes and highlight the importance of developing a multifaceted intervention model that supports emotion regulation and self-regulation skill development to buffer the impact of cognitive test anxiety on achievement.

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1. Introduction

It is well established in the psychological literature that standard cognitive processing differences are insufficient to capture the full range of variability observed in academic performance (e.g., Duckworth, Peterson, Matthews, & Kelly, 2007; Schunk & Zimmerman, 2003; Snow, Corno, & Jackson, 1996). The classic approach to this work has primarily adopted a deficit orientation and has focused on identifying constructs that exert a debilitative influence on performance. For instance, it has been effectively summarized that student performance can be adversely impacted by stressors within (e.g., task difficulty, academic overload, academic anxiety) and beyond the academic setting (e.g., financial obligations, family, and personal needs). Alternatively, many contemporary conceptual orientations have adopted a positive psychology perspective concerned with the identification of facilitative influences of affective constructs such as grit (Duckworth et al., 2007), a sense of purpose (Kuh, Cruce, Shoup, Kinzie, & Gonyea, 2008), and emotional intelligence (Perera & Digiacomo, 2013). We advocate for a broader perspective when examining students' academic abilities and self-regulatory tendencies that acknowledge both the adaptive and maladaptive influences of constructs in the affective domain. While information related to both

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E-mail addresses: christopherthomas@ballstate.bsu.edu (C.L Thomas), jccassady@bsu.edu (J.C. Cassady), mheller@sf.edu (M.L. Heller). supportive and debilitative influences on student performance hold value in isolation, it is only with attention to multiple factors in concert that the true operations of the factors may be realized. Therefore, the purpose of the current examination was to explore the viability of a theoretically based framework for explaining the influences of supportive and debilitative factors on undergraduate students' GPAs over the typical four-year time interval.

1.1. Emotional intelligence

Emotional intelligence (EI) is an expansive construct consisting of mental skills, abilities, and capacities that both process and draw from emotions (Salovey & Mayer, 1990; Mayer, Salovey, & Caruso, 2000). Dominant theoretical orientations assume these tendencies allow individuals to accurately assess, regulate, and express their emotional states as well as to perceive and assess the emotional states of others (Ciarrochi et al., 2001; Mayer & Salovey, 1997). Further, EI appears to be a multidimensional construct characterized by bidirectional influences among familial, environmental, and cognitive factors. Moreover, as such, EI has the potential to influence the expression, interpretation, and impact of emotional responses in all phases of human experience (Mayer, Roberts, & Barsade, 2008).

Over the past 20 years, the field has clarified a distinction between two common constructs found within El literature, commonly referred to as trait and ability El. Trait El can be conceptualized as individuals' perceptions of their emotional world and emotional self-efficacy (Petrides et al., 2016; Petrides & Furnham, 2000). That is, trait EI refers to perceptions of the behavioral dispositions and abilities that allow individuals to effectively assess, regulate, and express emotional states (Petrides & Furnham, 2000). Given the subjective nature of the construct, trait EI is commonly assessed within empirical investigations via self-report measures (Mavroveli, Petrides, Rieffe, & Bakker, 2007). Conversely, ability EI is conceptualized as the actual cognitive abilities that allow individuals to identify, understand, and manage emotions (Bar-On, 2010; Mavroveli et al., 2007). Consequently, research examining ability EI have commonly assessed the construct using performancebased assessments (Petrides, Pita, & Kokkinaki, 2007). While these constructs differ in their operationalization, both have shown strong predictive utility in regards to numerous academic, career, and life outcomes (Petrides et al., 2016; Amdurer, Boyatzis, Saatcioglu, Smith, & Taylor, 2014).

Negative associations between EI and various psychological traits (e.g., anxiety, depression) are generally explained by the rather simple premise that one or more emotional processing dimensions (e.g., perception/clarity, management/regulation) are flawed. That is, individuals experience negative psychological states - in part - because they ineffectively interpret emotional stimuli, set inappropriate goals, implement ineffective coping strategies, or fail to employ appropriate emotion regulation skills (e.g., Salovey et al., 2008; Yusoff et al., 2013). For instance, prior studies have demonstrated that individuals with anxiety have difficulty engaging in strategies that will help them manage or change their emotional states due to low emotional clarity, inability to process emotions, and deficient emotional regulation (Fisher et al., 2010; Fernández-Berrocal, Alcaide, Extremera & Pizarro, 2006, Southam-Gerow & Kendall, 2000). Perhaps paradoxically, empirical investigations have also indicated that high levels of specific dimensions of EI may backfire and heighten individuals' risk for negative affective outcomes. As explained by Ciarrochi et al. (2001), individuals with high levels of emotional perception may become more aware of environmental stressors and sources of struggle in their lives, contributing to higher levels of perceived stress.

Investigations stemming from a positive psychology perspective have highlighted the facilitative influence of EI within academic settings. For instance, researchers that have modeled "thriving" with respect to trait and ability EI have demonstrated that students' levels of EI are positively associated with numerous adaptive outcomes including: psychological wellbeing (Salami, 2011), quality of interpersonal relationships (Afolabi, Okediji and Ogunmwonyi, 2009), conflict resolution skills (Salovey, Mayer, Caruso, & Yoo, 2008), year retention at the university level (Parker, Hogan, Eastabrook, Oke, & Wood, 2006; Qualter, Whiteley, Morley, & Dudiak, 2009), and academic achievement (e.g., standardized test scores, grade point average, graduation; Fernández, Salamonson, & Griffiths, 2012; Hogan et al., 2010; Jaeger & Eagan, 2007; Keefer, Parker, & Wood, 2012; MacCann et al., 2011; Mayer et al., 2008; Mestre, Guil, Lopes, Salovey, & Gil-Olarte, 2006; Perera & Digiacomo, 2013). The facilitative influence of El within academic domains has traditionally been attributed to students' abilities to "successfully navigate" the complex social-emotional environment imposed by academic environments (Matthews, Zeidner, & Roberts, 2002). More specifically, EI has been linked to psychological constructs that are believed to directly or indirectly contribute to academic success – such as need for achievement (Afolabi et al., 2009), adaptive coping strategies (MacCann et al., 2011; Tugade & Frederickson, 2008), and positive peer interactions (Mavroveli, Petrides, Rieffe, & Bakker, 2010; Petrides et al., 2008).

1.2. Test anxiety

Test anxiety is a pervasive form of academic anxiety that generally has a negative impact on patterns of beliefs and behaviors common to testing situations (Cassady, 2010). Traditionally, test anxiety has been conceptualized as a multidimensional construct consisting of two broad dimensions, commonly referred to as worry and emotionality (Liebert & Morris, 1967). Emotionality – or affective test anxiety – is characterized by the physiological reactions to evaluative situations that are consistent with more "traditional" anxiety responses (e.g., headaches, dry mouth). Worry – or cognitive test anxiety – includes beliefs and behaviors associated with evaluation events that impair optimal performance (e.g., avoidance, poor study skills, cognitive interference; Zeidner & Matthews, 2005).

Research in the domain of test anxiety has repeatedly linked the experience of cognitive test anxiety to performance outcomes in academic settings, with consistent findings illustrating a negative impact on student performance for high stakes tests (Cruz, 2010; DeCaro, Thomas, Albert, & Beilock, 2011; Lowe, Grubein, & Raad, 2011), typical classroom exams (Zeidner & Matthews, 2005), and even laboratory-based assessment measures that have no evaluative impact (Cassady, 2004a; Naveh-Benjamin, 1991).

Contemporary orientations have expanded upon the traditional view that test anxiety influences performance by generating cognitive interference or distraction while students are taking exams (e.g., Sarason, 1984). These updated orientations (Zeidner & Matthews, 2005; Sommer & Arendasy, 2014) propose a variety of viable explanations for "types" of test anxiety (von der Embse, Mata, Segool, & Scott, 2013), but generally support the position that test anxiety is ubiquitous operating as a trait-like anxiety. Learners encounter the influence of test anxiety across all phases of the learning-testing cycle, with investigations noting test anxiety related impairment during test preparation (Cassady, 2004b), test performance (Ramirez & Beilock, 2011), and test reflection phases (Sommer & Arendasy, 2014; Thomas & Gadbois, 2007). The synthesis of results in this domain suggests that a complete understanding of test anxiety will only be realized when researchers and clinicians recognize there are varied manifestations of the construct that are dependent upon the individual strengths and weaknesses of the learner.

Available evidence suggests that manifestations of test anxiety across the learning-testing cycle share a rather complex relationship with learners' level of EI. Fundamentally, students with high levels of skill in emotional perception and emotional regulation should be better equipped to effectively identify and respond to sources of emotional distress (Gohm et al., 2005; Sanchez-Ruiz, Pérez-González & Petrides, 2010). However, this does not mean that students with high levels of EI are necessarily predisposed to low levels of test anxiety. To the contrary, individuals with high skills in emotional perception may be more likely to identify emotional markers for stressors, increasing the overall level of perceived anxiety (Ciarrochi et al., 2001).

1.3. Coping with academic stressors

Coping strategies form a constellation of behaviors that learners employ in response to their individual-specific interpretations of external and internal threats they face in academic settings (Fletcher & Cassady, 2010). A classic and illustrative representation for the relationships among perceived stressors and coping tendencies is the Transactional Stress and Coping framework (Lazarus & Folkman, 1984). This model of coping posits that individuals' cognitive appraisals of stressors are influenced by both personal characteristics (e.g., personality characteristics, emotional intelligence, personal history) and environmental factors (e.g., academic environment, social pressures, challenging tasks; Lazarus, 1993a, 1993b; Lazarus & Folkman, 1984, 1987). Based upon this appraisal, individuals develop either a positive or negative affective emotional response to the context, establish goals for the situation, and employ coping strategies aimed at managing the perceived stressors and achieving established goals (Cassady & Boseck, 2008). Generally, coping responses can be characterized as falling within one of three broad domains: (1) active behavioral responses that aim to adapt to and manage sources of stress (i.e., problem-focused coping; Folkman & Lazarus, 1985; Zeidner & Saklofske, 1996); (2)

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