GMAT, GGPA, and Conscientiousness as Predictors of Career Success

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The Graduate Management Admission Test (GMAT) has drawn more attention than ever before in business graduate programs because GMAT scores are weighted heavily in the admission process. Primary as well as meta-analytic studies have corroborated that GMAT is a valid predictor of academic performance in business graduate programs. However, little attention has been paid to GMAT's validity in predicting career success. The present research fills this research gap by conceptually investigating the interplay among GMAT scores, graduate grade point average (GGPA), conscientiousness, and career success.

INTRODUCTION

First administered in 1954 as the Admission Test for Graduate Study in Business (Graduate Management Admission Council, 1954-1994), the GMAT is a standardized test to measure verbal, mathematical, and analytical and writing skills (Graduate Management Admission Council, 2011). Surveys have indicated that around 1,700 schools use the GMAT as one of the admission criteria and 1,000 or more schools set the GMAT as a mandatory admission requirement. A recent report by GMAC indicates that "prospective students around the globe sat for 258,192 GMAT exams in TY (testing year) 2011. This number represents the third highest annual total on record and is 18 percent higher than TY 2007" (GMAC, 2012, p. 8). Leading business schools and management education programs worldwide recognize the GMAT as the most effective predictor of success (Graduate Management Admission Council, 2011). The GMAT is perhaps the most widely used uniform criterion in business school admissions (Dobson, Krapljan-Barr, & Vielba, 1999; Wright & Palmer, 1994). The compelling qualitative and quantitative evidence manifests the significant impact of the GMAT on the screening process of business graduate program admission. Gropper (2007) indicated that GMAT scores are heavily weighted in some of the methods used to rank full-time MBA programs. Therefore, schools are keenly interested in recruiting students who will raise their GMAT averages. Due to its practical implications and institutional significance as a required part of the admission procedure to business schools, the GMAT's predictive validity for graduate performance has been extensively researched (Gropper, 2007; Wright & Palmer, 1994).

Promising as the GMAT is, some research studies have revealed that there is still considerable disagreement regarding the effectiveness of the GMAT (Kuncel, Crede, & Thomas, 2007). There is a stream of research literature favorably supporting the predictive ability of the GMAT (Bieker, 1996; Hecht & Schrader, 1986; Kuncel et al., 2007; Melnick, 1972; Morris, 1995; Olsen, 1957; Sireci & Talento-Miller, 2006), whereas some others hold antagonistic standpoints toward it (Fairtest, 2003; Goodrich, 1975; Grambsch, 1981; Hancock, 1999). For example, for the "supportive school", Kuncel et al. (2007) conducted a meta-analysis based on 402 independent samples across 64,583 students to indicate that predictive validity of the GMAT is as high as .47 for graduate academic performance and this validity is generalizable across most situations. For the "opposing school", for instance, Hancock (1999) carried out a study to compare the performance of men and women on the GMAT relative to their academic performance in a MBA program. Results showed that women performed considerably lower on the GMAT than did the men. Nevertheless, no big difference has been found in GGPA between the groups. Hence, Hancock (1999) came to the conclusion that the GMAT, once used as an admission criterion in admission decisions, needs to be exercised with caution. Hancock (1999) also suggested that racial or gender differences in standardized test scores may exist and actions to impose requirements for minimum standardized test scores will trigger racial or gender imbalances in the profiles of admitted full-time MBA students. These arguments imply that the debate over the GMAT will continue for some time (Zwick, 2002). Although there are a large number of studies examining the predictive validity of the GMAT for student performance in business graduate programs, few studies have examined using the GMAT to predict future career success. This is a topic that merits examination (Graduate Management Admission Council, 2011).

Hecht and Schraeder (1986) argued that the GMAT is one frequently used measure of general cognitive ability. Although the agency that develops the test does not label the GMAT as a test of intelligence, it fits the general requisites of a measure of general cognitive ability. The GMAT scores therefore can be used as markers of individuals' cognitive ability (O'Reilly & Chatman, 1994). Previous research studies have also highlighted that cognitive ability is one of the strongest predictors of job performance and career advancement (Hunter & Hunter, 1984; Lubinski et al., 2006; Schmidt & Hunter, 1998). This research could provide direction for employers by discussing why it is necessary for them to look closely at applicants' GMAT, GGPA, and conscientiousness during employee selection process.

GMAT, GGPA, AND CAREER SUCCESS

Graduate business programs are challenging, and admission officers in each business school need to ensure that admitted students have reasonable intelligence to complete all courses and practical training offered by schools. School course loads require not only reasoning skills but also quantitative capabilities. The fact that applicants are coming from different schools across states and countries complicates the predictive measures of future academic performance by solely relying on undergraduate GPA. Because some schools are more rigorous than others, it is difficult to rank order undergraduate GPA on a precise scale. In addition, GPA is not standardized. For instance, an "A" in one university may just be a "B+" at another (Kuther, 2011). Other measures, such as letters of recommendation, are not frequently researched compared with the GMAT and GPA, suggesting that their predictive validity of future academic performance is of little value (Reilly & Chao, 1982). However, the GMAT can solve the aforementioned problems by offering standardized verbal reasoning, quantitative, and analytical measures across countries. This standardization of applicants provides admission officers a valid, precise "ruler", against which they can objectively measure applicants and make reasonable predictions regarding future academic performance.

Further, the GMAT consistently explains about 20% of the variance in GGPA (Ahmadi, Raiszadeh, & Helms, 1997; Graham, 1991; Hancock, 1999; Nilsson, 1995; Olsen, 1957; Paolillo, 1982; Powers & Moss, 1980; Wightman & Leary, 1985; Wright & Palmer, 1994; Youngblood & Martin, 1982; Zhao et al., 2000). For instance, Paolillo's (1982) study based on 220 samples indicated that the GMAT is significantly correlated with GGPA. Youngblood and Martin (1982) conducted a study to confirm the

adequacy of the validity of the GMAT and undergraduate GPA for predicting the graduate performance. Graham (1991) proposed a study to correlate graduate schools of business entrance criteria with success in a MBA program (as measured by GGPA). Based on results from 203 graduates, they found that there is a strong correlation between the GMAT score and GGPA. Additionally, the relationship between the GMAT score and GGPA is significantly higher than that between Miller Analogies Test (MAT) and GGPA. Yang and Lu (2001) conducted a primary study on 543 samples and concluded that the GMAT has a significant impact on MBA graduate performance. Sireci and Talento-Miller (2006) indicated that the GMAT verbal and quantitative scores have substantial predictive validity, accounting for about 16% of the variance in GGPA beyond that predicted by undergraduate GPA. Talento-Miller and Rudner (2008) examined the validity of the GMAT score by summarizing 273 studies conducted between 1997 and 2004. Their results confirmed that the GMAT score consistently outperforms undergraduate GPA as a predictor of early academic success. Thus, the GMAT taps different characteristics which are requisite for studying at graduate programs and is a valid predictor of academic performance, measured by GGPA, in business graduate program.

On the other hand, general cognitive ability is essentially the ability to learn (Hunter, 1986; Hunter & Schmidt, 1996). Thus, general intelligence relates with success in almost any academic endeavor. For instance, verbal and quantitative ability should influence performance at tasks involving verbal and quantitative reasoning, respectively (Rothstein et al., 1994). Many scientific research studies have demonstrated that general cognitive ability, or g, predicts a broad spectrum of important life outcomes, behaviors, and performances. These include academic achievement, health-related behaviors, social outcomes, job performance, and creativity, among many others (Brand, 1987; Gottfredson, 1997; Jensen, 1998; Lubinski, 2000; Ree & Caretta, 2002; Schmidt, 2002). Abundant evidence also provides supports for the validity of cognitive ability measures for predicting work-related criteria in both civilian and military organizations (Hunter, 1983, 1986; Hunter & Hunter, 1984; McHenry et al., 1990; Pearlman, Schmidt, & Hunter, 1980; Reeve & Hakel, 2002; Thorndike, 1985). Jensen (1998) pointed out that general cognitive ability can consistently differentiate individuals on mental abilities. Schmidt and Hunter (1998) reviewed 85 years of employment testing research and provided .51 as the validity of general cognitive ability and job performance. Schmidt (2002) stressed the viewpoint that overwhelming research evidence shows a strong link between general cognitive ability and job performance and there cannot be a debate over the relationship between general cognitive ability and job performance. McDaniel and Banks (2010) reviewed research and practice in the use of general cognitive ability tests in workplace assessment and pointed out that cognitive ability tests show substantial validity for all jobs.

As we have discussed, cognitive ability is a valid predictor of job performance and has a significant potential influence on career success. Arvey (1986) found that higher-level jobs, such as managerial jobs, require increased cognitive abilities, which include the ability to recall job-related information, identify situations quickly, and adapt and rapidly learn new procedures. Higher cognitive ability, over time, leads to a rapid mastery of jobs and higher rates of career advancement (Howard, 1986; Rosenbaum, 1979), which suggests that general cognitive ability is a predictor of managerial success in particular (O'Reilly & Chatman, 1994). On the other hand, the GMAT fits the general requisites of a measure of general cognitive ability, which has therefore been frequently used as a measure of general cognitive ability (Hecht & Schraeder, 1986). Therefore, the GMAT can be considered as a cognitive ability test which has the potential to predict future career success. Moreover, cognitive ability significantly correlates with GPA. Although GPA is not an ideal measure of cognitive ability, it can be used when it is readily available (Atwater, 1992; Bell & Cooke, 2003; Jensen, 1980). Dye and Reck (1989) conducted a meta-analysis and found that GPA as a predictor of job success and performance in formal training is more useful than suggested by earlier research studies, which implies that GPA has merit for use in personnel selection. O'Reilly and Chatman (1994) further emphasized that little research has been conducted on the extent to which cognitive ability is related to career success. In O'Reilly and Chatman's study (1994), GMAT scores were used as a measure of cognitive ability and findings indicated that an interaction effect of cognitive ability and motivation influences career success. However, the results from O'Reilly and

Chatman's study (1994) may not be generalizable because samples were drawn from highly competitive MBA programs where the GMAT scores were not representative of the general population.

The above rationale provides support for the claim that the GMAT and GPA, as two measures of general cognitive ability, influence career success. The GMAT represents the general reasoning, analytical and quantitative capabilities; thus, the GMAT can be considered to be a cognitive ability test which has predictive validity for career success. Grade point average partially captures the important work-related constructs of cognitive ability and motivation (Roth & Bobko, 2000), which can also predict career success. Therefore, both are indispensable qualifications that one needs to hold in order to be more successful in managerial positions. Accordingly, two propositions are formed as below.

Proposition 1a: Performance on the GMAT positively correlates with career success.

Proposition 2a: Performance on the GGPA positively correlates with career success.

CONSCIENTIOUSNESS, GMAT, GGPA, AND CAREER SUCCESS

Conscientiousness generally is a desirable trait and consists of the following facets: dependable, persistent, organized, and goal-directed (Barrick & Mount, 2005; Costa & McCrae, 1992). Conscientiousness is a stable trait (Goldberg, 1993) and previous research studies have consistently and widely reported that it is positively related to job performance and that this relationship is generalizable across settings and types of jobs (Barrick & Mount, 1991; Barrick et al., 2001; Hurtz & Donovan, 2000; Schmidt et al., 2008; Tett et al., 1991). Highly conscientious individuals are inclined to be more motivated to perform well on the job (Judge & Ilies, 2002) and therefore are likely to achieve better performance (Barrick & Mount, 1991; Barrick, Mount, & Strauss, 1993; Gellatly, 1996; Hurtz & Donovan, 2000; Robie & Ryan, 1999). Those who can outperform others on the job will get increased chances for career advancement/success (Greenhaus, Parasuraman, & Wormley, 1990). This argument is based on the observation that the appraisal of job performance often plays a significant role in an organization's assessment of an employee's promotability (Mobley, 1982; Stumpf & London, 1981). Based on the evidence that conscientious individuals are typically high performers and high performers will have higher chance of being successful, we predict that conscientiousness positively correlates with career success.

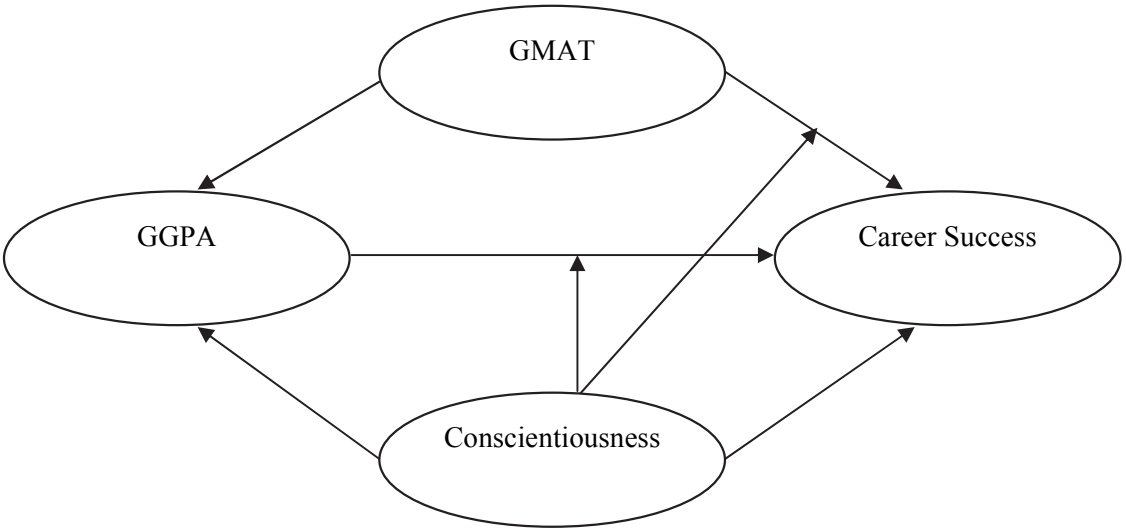
On the other hand, conscientiousness denotes a will to achieve and conscientious individuals have energy levels that can sustain the hard work necessary for performance (McClelland et al., 1976; McCrae & Costa, 1987). Schmidt and Hunter (1992) indicated that conscientiousness may be the most important trait motivation variable in the work domain. In fact, studies reported that GPA correlates with conscientiousness (BeVier, Roth, Switzer, & Barrick, 1998; Wolfe & Johnson, 1995). Furthermore, studies on the "Big Five" traits (i.e., openness, conscientiousness, extraversion, agreeableness, and neuroticism) consistently demonstrate positive correlations between conscientiousness and academic criteria (Conard, 2006). However, academic criteria's correlation with openness, neuroticism, agreeableness, and extraversion has been generally nonsignificant (Busato, Prins, Elshout, & Hamaker, 2000; Chamorro-Premuzic & Furnham, 2003a, 2003b; Gray & Watson, 2002; Oswald, Schmitt, Kim, Ramsay, & Gillespie, 2004; Wolfe & Johnson, 1995). In addition, it is also plausible that GPA is mutually determined by both general mental ability and motivation (e.g., conscientiousness) (Roth & Bobko, 2000). O'Reilly and Chatman (1994) conducted a primary study and found that MBA graduates who are both smarter (high in cognitive ability) and work harder (high in conscientiousness) are more successful in their career. The successes have been reflected on their job search upon graduation, with higher salaries, more rapid pay increases, and more promotions, which implies an interaction between conscientiousness and cognitive ability in influencing career success. Hence, it is possible that the GMAT interacts with conscientiousness to influence career success, such that when conscientiousness is high, the correlation between GMAT score and career success will be higher than when conscientiousness is low. Similarly, GGPA may also interact with conscientiousness to influence career success so that when

conscientiousness is high, the correlation between GGPA and career success will be higher than when conscientiousness is low. From this argument, we derive the following propositions. The overall relationships among constructs are illustrated in Figure 1.

Proposition 1b: Performance on the GMAT positively correlates with the career success. When conscientiousness is high, the correlation between the GMAT and the career success will be higher than when conscientiousness is low.

Proposition 2b: Performance on GGPA positively correlates with the career success. When conscientiousness is high, the correlation between GGPA and the career success will be higher than when conscientiousness is low.

FIGURE 1
A CONCEPTUAL MODEL



CONCLUSION

People who are both smart and diligent will have a higher possibility to achieve career success. In this study, we conceptually investigate how the GMAT and GGPA can predict career success, and how conscientiousness can moderate the relationship between GMAT and GGPA and career success in such way that when conscientiousness is high, the relationship between GMAT and GGPA and career successes is strong. Our conclusion is developed based on the previous findings that both the GMAT and GGPA reflect peoples' cognitive ability, which should predict career successes. Therefore, we call for primary studies to test our proposed model in the future.

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