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Fake it 'til you make it: Measuring personality in university admissions

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Abstract: *Each year, university admissions officers endeavour to select the best and brightest from a set of applicants. Traditionally, cognitive measures such as high school grade point average and standardized test scores are weighted most heavily in admissions decisions. However, there is growing concern that cognitive measures fail to capture other important skills that are correlated with academic achievement and therefore do not adequately predict success in higher education. In order to get a broader and more complete picture of each applicant's academic potential, many admissions professionals are exploring the use of non-cognitive measures to capture the soft skills that are valued in education and correlated with academic success. Specifically, personality is a non-cognitive trait that has gained increased attention in admissions contexts. In particular, current research shows that the personality trait Conscientiousness demonstrates consistent, strong positive correlations with academic achievement. However, trait instability during late adolescence and early adulthood, contextual influences on personality, and limitations associated with commonly used self-report personality measures make it challenging to justify the inclusion of personality assessments in high stakes admissions decisions. This paper explores the role of personality measurement in predicting academic success among university applicants.*

Predicting success in higher education is an important task. Unsuccessful students not only take away spaces from other students who may have been successful in a particular university¹ program, but also tend to drop out of programs, negatively impacting university revenue. Each year, admissions officers endeavor to select the best and brightest from a set of applicants. In the current Canadian university climate of declining application numbers, it is becoming more difficult to attract and recruit top quality students. Consequently, Canadian admissions officers are tasked with the challenge of selecting individuals most likely to be successful in university from a diminishing pool of applicants.

¹ Please note that much of the American research uses the term "college" to refer to academic higher education, whereas Canadian research uses "university". In this paper we have used university for our own ideas, but adopted whatever term the author used when citing or referring to other pieces of research.

Traditionally, cognitive measures such as high school grade point average (HSGPA) and standardized test scores (e.g., SAT and ACT scores) are weighted most heavily in admissions decisions (Atkinson & Geiser, 2009). Cognitive measures have a long history of reliably predicting academic achievement among students (Lundberg, 2013; Richardson, Abraham, & Bond, 2012). However, there is growing concern that cognitive measures ignore the multidimensional nature of academic achievement (Lundberg, 2013; Noffle & Robins, 2007). Furthermore, there is evidence that the sole use of cognitive measures disadvantages certain groups (Caldwell & Komarraju, 2014; Kaufman, Agars & Lopez-Wagner, 2008). Consequently, many admissions professionals are exploring the use of non-cognitive measures to capture the *soft skills* that are valued in education and correlated with academic success (Heckman & Kautz, 2012; Kyllonen, 2005).

Increasingly, personality has been identified as a non-cognitive trait that adds unique predictive power beyond traditional cognitive measures (Conrad, 2006; Heckman & Kautz, 2012; Komarraju, Kamau, & Schmeck, 2009). Personality is defined as “the relatively enduring patterns of thoughts, feelings, and behaviors that reflect the tendency to respond in certain ways under certain circumstances” (Roberts, 2009, p. 140). While cognitive ability reflects what an individual *can do*, personality reflects what an individual *will do* (O’Connor & Paunonen, 2007). Various personality frameworks exist in the literature; however the Big 5, outlined by the American Psychological Association, is the most dominant and widely accepted (Heckman & Kautz, 2012; Lundberg, 2013).

Personality and Its Role in Academics

The Big 5

The Big 5 framework identifies five broad traits, or dimensions, of personality with six facets, or constituent traits, associated with each dimension (Heckman & Kautz, 2012; Noffle & Robins, 2007). Facets are defined differently depending on the personality measure used (O’Connor & Paunonen, 2007). This paper outlines facets included in the NEO Personality Inventory, a commonly used self-report measure (Richardson et al., 2012; Robins, Fraley, Roberts, & Trzesniewski, 2001).

Conscientiousness refers to a tendency to be organized, responsible, and hardworking. Facets of Conscientiousness include: achievement-striving, self-discipline, deliberation, competence, order, and dutifulness (Heckman & Kautz, 2012). Of the Big 5, Conscientiousness exhibits the strongest, most consistent correlation with academic achievement (Richardson et al., 2012). Facets of achievement-striving and

self-discipline are positively correlated with academic achievement in college, while dutifulness is related to achievement in high school (Gray & Watson, 2002).

Openness refers to the tendency to be creative and open to new aesthetic, cultural, or intellectual experiences. Openness facets are: fantasy, aesthetics, feelings, actions, ideas, and values (Heckman & Kautz, 2012). The Openness trait demonstrates inconsistent, moderate correlations with aspects of academic achievement (Nofhle & Robins, 2007; Richardson et al, 2012); its facets are not significantly related to academic outcomes (Gray & Watson, 2002).

Neuroticism indicates a chronic level of emotional instability. Neuroticism facets include impulsivity, anxiety, hostility, depression, self-consciousness, and vulnerability to stress. (Heckman & Kautz, 2012). The relationship between Neuroticism and academic achievement is generally weak and negative (Robins et al., 2001; Richardson et al., 2012). Specifically, facets of impulsivity and anxiety demonstrate negative correlations with academic outcomes (O'Connor & Paunonen, 2007).

Extraversion implies an orientation toward the outer world of people and things versus the inner world of subjective experiences. Facets of Extraversion are: warmth, gregariousness, assertiveness, activity, excitement-seeking, and positive emotion (Heckman & Kautz, 2012). Extraversion demonstrates a weak, negative correlation with academic achievement in college; its facets do not correlate with academic outcomes (O'Connor & Paunonen, 2007).

Agreeableness entails the tendency to act in a cooperative, unselfish manner and includes facets of: trust, straightforwardness, altruism, compliance, modesty, and tendermindedness (Heckman & Kautz, 2012). The relationship between Agreeableness and academic achievement is weak and differs across educational contexts (Lundberg, 2013; Nofhle & Robins, 2007; O'Connor & Paunonen, 2007). Its facets are not significantly correlated with academic success (Gray & Watson, 2002).

Personality and Academic Achievement

Recent studies have explored relationships between the Big 5 and academic achievement in an attempt to elucidate the role of personality in college success. Although most studies are limited by self-reports of personality traits and academic performance, consistent patterns of results have emerged (Conrad, 2006; Komarraju et al., 2009; Nofhle & Robins, 2007).

Conscientiousness is the strongest, most consistent correlate of academic success among students from preschool through college (Heckman & Kautz, 2012; Nofhle & Robins, 2007; O'Connor & Paunonen, 2007; Richardson et al., 2012). Research shows that Conscientiousness consistently predicts college achievement beyond

cognitive measures of HSGPA (Nofhle & Robins, 2007) and SAT scores (Conrad, 2006). In conjunction with intrinsic motivation, Conscientiousness is an even more robust predictor of college achievement (Komarraju et al., 2009). It is suggested that Conscientiousness manifests itself through behaviours which support college success, such as attendance (Conrad, 2006) and self-regulated learning strategies (Richardson et al., 2012). There is evidence that certain facets of Conscientiousness (achievement-striving and self-discipline) are stronger predictors of academic achievement than the broad trait itself (Nofhle & Robins, 2007; O'Connor & Paunonen, 2007). Contrary to expectation, the Conscientiousness facet of order (i.e. organization) is not significantly correlated with academic achievement (Nofhle & Robins, 2007).

Openness is identified as a moderate, inconsistent predictor of academic achievement (Heckman & Kautz, 2012; Komarraju et al., 2009). A recent meta-analysis failed to find a significant relationship between Openness and college achievement (Richardson et al., 2012), calling into question the relevance of this trait in predicting college success. However, studies have shown that Openness is significantly correlated with SAT Verbal scores (Nofhle & Robins, 2007) and intrinsic motivation (Komarraju et al., 2009); both correlates of college achievement (Richardson et al., 2012). The relationship between Openness and achievement is most significant during early adulthood, a time that many individuals are attending college (Gray & Watson, 2002; Nofhle & Robins, 2007). This suggests that the creativity associated with Openness might be a disadvantage in certain academic contexts (e.g., high school) but an advantage in other contexts (e.g., college; Nofhle & Robins, 2007).

Neuroticism, or emotional instability, demonstrates weak, negative correlations with academic achievement (Nofhle & Robins, 2007; O'Connor & Paunonen, 2007). The Neuroticism facets of anxiety and impulsiveness are most related to academic achievement, suggesting that students who are anxious or impulsive will struggle academically (O'Connor & Paunonen, 2007). Chamorro-Premuzic and Furnham (2008) found that Neuroticism impairs academic achievement through a significant negative correlation with college exam performance.

Extraversion and Agreeableness fail to demonstrate noteworthy relationships with academic success (Nofhle & Robins, 2007; Richardson et al., 2012). Some studies have indicated weak, negative correlations between Extraversion and achievement in college, suggesting that people-oriented individuals are not as likely to achieve postsecondary success (O'Connor & Paunonen, 2007). Agreeableness has a weak relationship with high school achievement (Nofhle & Robins, 2007), but it is not significantly correlated with college achievement (Richardson et al., 2012).

Personality and SES. In a unique study, Lundberg (2013) explored the influence of socioeconomic status (i.e., SES; measured by mother's educational attainment) and

personality on college achievement. Lundberg found that Conscientiousness was not positively correlated with college success among low SES males, although it was positively related to college success among low SES females. This contradicts previous studies which identify Conscientiousness as a strong, consistent correlate of academic achievement. In addition, Lundberg identified Openness as a strong, consistent predictor of college success for both males and females with low SES status. This result further contradicts prior research, which has failed to distinguish Openness as a robust predictor of academic achievement. Lundberg concluded that personality functions differently for students from different family backgrounds. Therefore, it is important to consider contextual influences when using personality to predict college outcomes (Lundberg, 2013).

Personality and SAT. The SAT is a commonly used cognitive measure that predicts college success (Atkinson & Geiser, 2009). Nofle and Robins (2007) found that Conscientiousness predicted college GPA over and above SAT scores; in some cases Conscientiousness better predicted college GPA than SAT scores. Although Openness was not positively correlated with college GPA, it was related to SAT verbal scores, which reflect crystallized intelligence, a correlate of college achievement (Nofle & Robins, 2007). Nofle and Robins concluded that personality explains a small proportion of variance in college achievement that is comparable to the variance explained by traditional cognitive predictors (i.e., HSGPA and SAT scores).

Personality and causation. Most studies report correlations between personality measures and academic outcomes but fail to address causality. In an analysis of predictors of important life outcomes, Heckman & Kautz (2012) reported that personality traits have a role in both predicting and causing academic achievement. However, establishing causal relationships between personality and academic outcomes is complicated and entails consideration of cognition, personality, acquired skills, effort, and incentives (Heckman & Kautz, 2012). Despite the influence of personality, Heckman and Kautz indicated that cognitive ability becomes more important as task complexity increases.

Personality Measurement

The desirability of measuring personality in educational settings has been widely articulated (Heckman & Rubinstein, 2001; Kyllonen, 2005; Levin, 2012; Steutel & Spiecker, 1996). However, there are ongoing concerns regarding the reliable measurement of personality to support high stakes college admissions decisions. Specifically, the stage of personality development typical among most college applicants and the limitations of self-report questionnaires commonly used to measure

personality may limit the predictive validity of personality measures in the context of college admissions.

Personality Development

When considering the inclusion of personality measures in educational decision-making, it is necessary to consider of the typical development of personality traits across the lifespan. Personality development entails a strong genetic component (40-60%; Lundberg, 2013) that is influenced by maturational and contextual factors (Heckman & Kautz, 2012; Komarraju et al., 2009; Lundberg, 2013). Personality traits remain elastic at all stages of life, but change slowly and become more stable with age (Heckman & Kautz, 2012; Robins et al., 2001).

Although there is debate about the way that personality develops over time, there is consensus that personality is relatively unstable during adolescence and the early twenties (Roberts & DelVecchio, 2000; Robins et al., 2001). In particular, late adolescence and early adulthood represent a complex transition time during which many individuals move away from home, start college, begin working, marry, and have children (Robins et al., 2001). Personality traits start to stabilize at age 30, after which they change gradually and eventually plateau between ages 50 and 70 (Roberts & DelVecchio, 2000; Roberts, Walton, & Viechtbauer, 2006; Robins et al., 2001).

Robins et al. (2001) explored four types of personality change among college students over a four-year period: (1) normative; (2) rank order; (3) structural; and (4) ipsative/individual. Students exhibited normative, or mean-level, personality change with small but significant increases in Conscientiousness, Openness, Extraversion, and Agreeableness, and a small but significant decrease in Neuroticism (Robins et al., 2001). The rank order consistency of the Big 5 traits (i.e., consistency of an individual's personality trait relative to others) was relatively stable among students; Openness was most stable and Neuroticism was least. Interrelations among the Big 5 traits, or structural stability, were also consistent for college students over the four year period. In contrast, over half of the college students demonstrated change in personality at the ipsative/individual level. The latter finding is unique because most personality research examines personality change at the population level (normative, rank order, and structural change); this highlights the importance of examining personality at the individual level to attain a complete understanding of trait development (Robins et al., 2001).

Roberts et al. (2006) conducted a meta-analysis of longitudinal personality studies to elucidate patterns of normative personality change across the lifespan. Results confirmed the findings of Robins et al. (2001); Conscientiousness, Openness, Extraversion, and Agreeableness increased, and Neuroticism decreased (i.e., emotional

stability increased). The greatest changes in personality occurred during young adulthood; Conscientiousness and Extraversion increased, while Neuroticism decreased. These findings support an interactional theory of personality that acknowledges both genetics and environmental influences on personality development (Roberts et al., 2006).

Self-Report Questionnaires

The most popular way to assess non-cognitive traits is through self-report questionnaires. Self-report questionnaires are economical, easy to administer, and are suitable for large-scale assessment. Self-report instruments have also been shown to have good reliability, construct validity, and predictive validity (Duckworth, Peterson, Matthews, & Kelly, 2007; Hogan, Barrett, & Hogan, 2007; Huws, Reddy, & Talcott, 2009; McFarland & Ryan, 2000). Furthermore, these measures have the ability to tap into latent thoughts, attitudes, and beliefs that may be hidden from outside observers.

However, there are some obvious drawbacks of using self-report data. One problem is that there is no objective standard for response (i.e., examiners don't know if a candidate's self-image is correct). More importantly, it is possible for a candidate to answer dishonestly in order to create a falsely positive impression. While it is known that "faking" is possible, how much of a threat it poses to the validity of the assessment in a selection context remains a topic of debate. After all, "faking" is only a problem if it actually occurs and if/when it does occur, it alters the validity of the scale.

Does faking occur? It is well-established in the literature on faking that responses on self-report measures of personality can be faked. Viswesvaran and Ones' (1999) meta-analysis of 51 studies of faking on personality tests revealed that when respondents are instructed to "fake" positive responses on the Conscientiousness scale, they elevate their scores by at least 0.6 standard deviations. The obvious objection to this research is that studies where participants are specifically instructed to fake do not reflect real life situations. After all, faking is only a problem on personality tests if applicants fake in an actual selection situation. Hogan, Barrett and Hogan (2007) argue that faking is not a significant issue in actual selection settings. Their findings were based upon an experimental design where job applicants who had failed a battery of selections tests rewrote the same battery of tests more than six months later. It was found that the applicants did no better in their personality scores in the second round of writing of the test than they did in the first. Ones, Viswesvaran and Reiss (1996) reached the same conclusion when they used social desirability scales to demonstrate that faking is not problematic in selection contexts.

The two aforementioned studies are contradicted by a larger body of research claiming that faking is a serious threat to the validity of personality tests in a selection

context. Donovan, Dwight, and Hurst (2003) found that 50% of job applicants admitted to exaggerating their qualities relating to reliability and dependability. Similar results were found by Griffith, Chmielowski, and Yoshita (2005) who demonstrated that job applicants have higher scores on personality tests than incumbents. These authors also did research on applicants to a temporary employment agency and found that between 30 and 50 percent of applicants faked on the personality test. In an educational context, Griffin and Wilson (2012) estimated that 63% of applicants (N = 83) to a medical school faked on their personality test. Overall, research supports the idea that in a high stakes selection process, applicants are likely to fake their responses on personality tests.

What factors influence faking? Faking is influenced by multiple factors. First is the personality trait being measured. Among the Big Five personality factors, Conscientiousness has repeatedly been found to be the easiest to fake (Arthur, Glaze, Villado, & Taylor, 2010; Birkeland et al., 2006; Griffin & Wilson 2012; Huws, Reddy, & Talcott, 2009; Viswesvaran & Ones, 1999). Other factors found to affect the degree of faking include: cognitive ability (Pauls & Crost, 2005; Tett et al., 2012), warnings about faking being detectable (Landers, Sackett, & Tuzinski 2011; Fan et al., 2012), whether or not applicants think that scorers can detect faking (Donovan, Dwight, & Hertz, 2003), and how overt or subtle the test items are (Alliger & Dwight, 2000).

The factors that influence faking are summarized in Figure 1 below.

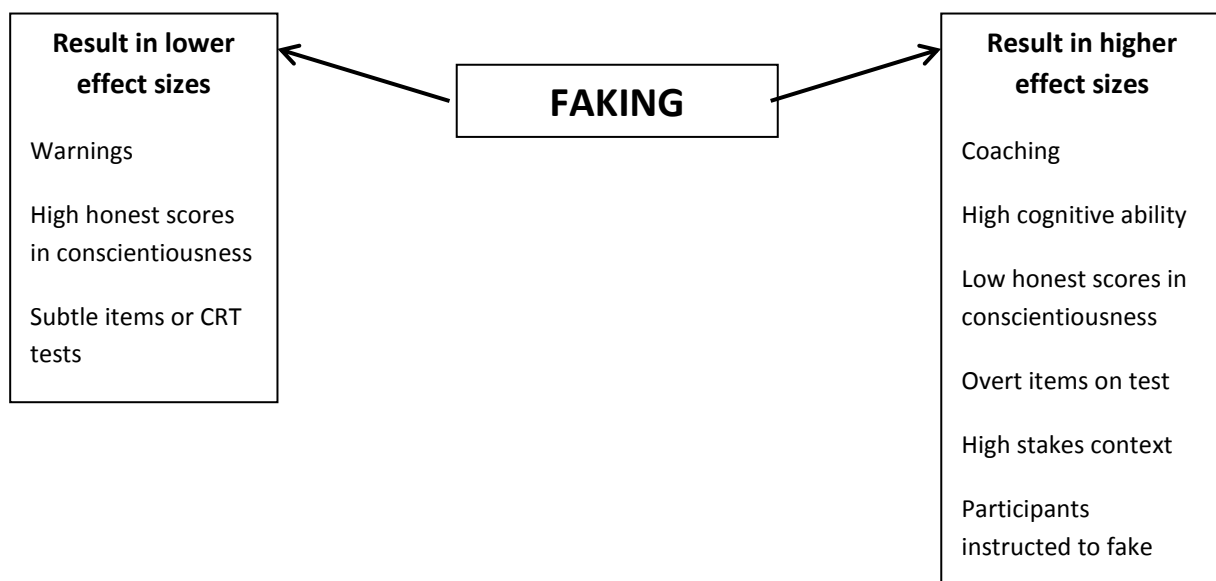


Figure 1. Factors that influence faking.

A Monte Carlo simulation run by Komar, Brown, Komar and Robie (2008) found that when there is a low selection ratio (0.10), faking has particularly devastating effects with eight of the top ten candidates being faked responses. This simulation is corroborated with real world data from Peterson, Griffith and Convers (2009) who found that with a 0.10 selection ratio, 40% of the successful applicants will be faked responses. Further support for these findings is offered by Douglas, MacDaniel, and Snell's presentation at the 1996 meeting of the Academy of Management. They found that if 25% of the applicants in a large sample are fakers, the average number of fakers in the top ten candidates is 8.8. These findings imply that personality tests must be used with extreme caution in a high stakes admissions context where few of the candidates are successful, such as medical school or law school.

Another critical factor to consider is the impact of coaching. As has been shown with cognitive tests used for admission purposes such as the SAT, ACT and TOEFL, students who are motivated will find coaches to help them improve their scores. There is no reason to think that students would not seek the same coaching for non-cognitive assessments, suggesting that if personality assessments are to be used for selection purposes, they must be resistant to coaching.

How to combat faking. One way to minimize the impact of faking is to use the personality test in combination with other assessments. The personality test could serve as a hurdle, where applicants who score below a given cut score are not considered further, whereas applicants who score above the cut score are selected on the basis of their performance on other assessments such as cognitive tests (Arthur et al., 2010). Another possible remedy is to include anti-faking measures in the assessment. Tests can be written so that the extremes are not always the "best" answer. It is also possible to give warning signals when candidates show response patterns that are consistent with faking (Landers, Sackett, & Tuzinski, 2010; Fan et al., 2012). Perhaps the most promising anti-faking measure is the use of subtle items or alternative assessment tools such as conditional reasoning tests.

All of the measures above have been shown to reduce faking but in an academic selection process, the mere reduction of faking may not be enough. In academic settings, dishonesty is seen as a serious offence and the perception that cheating is possible on tests used for selection purposes could seriously harm the reputation of academic institutions. At this point, there seem to be no reliable methods of measuring personality traits suitable for a large-scale selection context such as university/college admissions.

Discussion and Conclusions

Predicting college success is complex and entails consideration of both cognitive and non-cognitive factors. Personality, measured by The Big 5 traits, is a non-cognitive factor that is linked empirically to academic achievement (e.g., Nettle & Robins, 2007). While studies show relationships between the Big 5 and academic outcomes, the only trait that demonstrates consistent positive correlations with achievement is Conscientiousness (Richardson et al., 2012). It is possible that Conscientiousness emerges as a strong predictor because it is associated with the behaviours and attributes that support college success (Nettle & Robins, 2007).

When considering the inclusion of personality measures to predict academic success of college applicants, there are important factors that must be considered. First, personality traits are least stable during adolescence and early adulthood (Roberts et al., 2006). This is a critical consideration when measuring personality among college applicants. Between the ages of 18 and 30, personality traits develop and change significantly due to the transitional nature of this period of life (Roberts & DelVecchio, 2000). These changes are most evident at the individual level, making it difficult to predict the way that personality traits will develop and influence the academic achievement of individual applicants (Robins et al., 2001).

Second, personality is influenced by contextual factors. For example, personality impacts academic achievement differently among different SES groups (Lundberg, 2013). In addition, unique life experiences can affect the way that personality influences the academic achievement of individuals (Robins et al., 2001). When using personality to predict academic outcomes, it is critical to consider contextual influences on both populations and individuals.

Third, personality must be measured in a reliable way if it is to be used to predict future achievement. Due to the possibility of faking, self-report measures may not be appropriate in the high-stakes context of college admissions (Kyllonen, 2005; Viswesvaran and Ones, 1999). Furthermore, empirical evidence citing relationships between personality and academic achievement may be limited due to reliance on self-report inventories (e.g., Nettle & Robins, 2007). Consequently, the body of research supporting the inclusion of personality measures in college admissions must be carefully examined.

Finally, academic achievement is complex and correlated with a variety of non-cognitive factors (Lundberg, 2013). While Conscientiousness may be the personality trait that demonstrates consistent positive correlations with academic achievement, it is important to consider additional non-cognitive factors that predict success. Motivation, self-regulatory learning strategies, students' approach to learning, and

psychosocial influences are also related to college achievement (Richardson et al., 2012). Broadening the range of measures used to predict college achievement may require the inclusion of cognitive measures in conjunction with a variety of non-cognitive measures to fully capture the multidimensional nature of college success.

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