

A Portrait of College Success: Grit, Theories of Intelligence, and Cumulative Life Adversity

By

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PREVIEW

A Dissertation Submitted in Partial Fulfillment of the Requirements for the
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PREVIEW

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ABSTRACT

The character strength grit, defined as a trait in which people have sustained interest and perseverance for long-term goals, has been identified as a predictor of success and positive outcomes in a number of domains including academic achievement. While grit has been described as a characteristic of those who accomplish extraordinary achievement, this study sought to examine whether grit influences why some people succeed and persist in a more common yet important endeavor, getting through one's first year of college. Using a sample of first-year college students at a private university in the Northeast, data was collected at two time-points; the beginning of first semester and the end of second semester. The longitudinal nature of this study allowed for an assessment of how grit may change over time. Furthermore, to gain a better understanding of how grit may influence achievement in the context of higher education, this study examined the relative importance of grit compared to other personality variables including conscientiousness. Additionally, this study also tried to provide a more comprehensive picture of academic success by exploring other variables that may influence grit including implicit theories of intelligence (ITI), life satisfaction, and the experience of past adverse events. Overall, this study sought to contribute to the burgeoning but mixed literature on how nonacademic factors affect student performance. Results supported the hypothesis that grit can provide independent predictive value for achievement over and above other personality variables and measures of academic aptitude. This study also found a small association between grit and life satisfaction. A small association was found between grit and ITI, although contrary to prediction, the association between grit and college GPA was not mediated by ITI. This study was not able to establish a connection between grit and retention into the second year of college, nor whether the attainment of grit is predicted by previous life adversities.

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PREVIEW

CHAPTER I

Introduction

In 2000, Martin Seligman and Mihaly Csikszentmihalyi inaugurated the positive psychology movement with an introduction in the *American Psychologist* calling for the pursuit of the scientific study of what makes life worth living. This new focus was in response to the predominant view, fashioned on the disease model, that psychology is about the study of pathology, weakness, and illness and how to repair those states. The alternative vision was one where psychology would not just be about fixing what is broken, but identifying and building upon the positive qualities that people and communities possess. There has been a wealth of research conducted in this relatively new sub-area of psychology since Seligman and Csikszentmihalyi's (2000) call to action. Although many of the studies have focused on happiness and well-being, other popular topics have included virtues, strengths, wisdom, and resilience (Donaldson, Dollwet and Rao, 2015). There is now considerable interest in trying to understand human excellence in its many different facets, including young adults transitioning to the role of college student.

Why do certain individuals thrive, while others languish? Environmental factors and dispositional personality traits have long been the focus of understanding individual differences. Again, often the focus has been about why people fail rather than succeed (Park & Peterson, 2006). However, more recent research has begun to widen the scope and look to other factors that might contribute to human flourishing. Some of this research has focused on positive characteristics or virtuous behaviors otherwise known as character strengths (Seligman, Park, and Peterson, 2004). Seligman and colleagues developed a common vocabulary for use by those interested in positive psychology that resulted in the Values in Action (VIA) Classification of

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Strengths. A growing body of research shows a relationship between character strengths and different indicators of well-being. For instance, endorsement of the character strengths of hope and zest have significantly predicted life satisfaction (Proctor, Maltby, & Linley, 2011). Even in young children, having the character strengths of love, hope, and zest positively predicted happiness (Park & Peterson, 2006). There are also studies that suggest that character strengths help people to flourish and reach their highest potential. For example, character strengths of perseverance, love of learning, zest, gratitude, hope and perspective have been correlated with school achievement in primary and secondary school (Wagner & Ruch, 2015) whereas persistence, judgment, self-regulation, love of learning, and prudence have been found to be the strengths most strongly correlated with college success (Lounsbury, Fisher, Levy, & Welsh, 2009).

One character strength in particular, though not included in the original 24 VIA strengths, has been identified as a predictor of success and positive outcomes in a number of domains including academic achievement (Strayhorn, 2014; Wolters and Hussain, 2014). That strength is *grit* and it is defined as a trait in which people have sustained interest and perseverance for long-term goals. Certainly grit is related to the VIA strength of perseverance which is embodied in those who finish what they start without getting sidetracked (Seligman, 2011). However, grit differs in its emphasis on maintaining stamina and interest, not just for a singular task or challenge but for the time it takes to accomplish an overarching valued goal. The character strength of grit, therefore, has the potential of helping individuals reach more than just their day to day accomplishments; it can be an asset that helps them reach their highest potential.

Of course, intellectual ability is also an important factor in predicting achievement, one that has a much longer history of inquiry (Galton, 1948; Gottfredson & Saklofske, 2009; May,

1923; Ridgell & Lounsbury, 2004). However, recognizing that individuals of equal intelligence often reach different levels of accomplishment, researchers are currently looking closer at the non-cognitive attributes that contribute to success (Duckworth, Peterson, Matthews, & Kelly, 2007; Ericsson & Charness, 1994; Strayhorn, 2014). Personality has been identified as one of those contributors, particularly conscientiousness, as well as individual characteristics such as creativity and desire to learn. However, in interviews of high achieving professionals in banking, art, journalism, academia, medicine, and law, one of the qualities most consistently attributed to success was grit, even as often as talent (Duckworth et al., 2007). This should be no surprise if one looks at the characteristics of those who hold this quality – gritty people work hard, climb over obstacles on the way to success, tolerate boredom, stick with their goals despite distant rewards, and engage in the type of training that will foster expert performance. It should then be no wonder that when comparing two people of comparable skill or talent, it will be the grittier person who emerges as the most successful.

The strongest cases for the value of grit have come from the often-cited studies on National Spelling Bee champions and United States Military Academy recruits in which grit predicted final rounds in the highly competitive spelling competition and retention in a grueling summer of basic training, respectively (Duckworth et al., 2007). Grit has also been found to predict performance and retention of novice teachers in a challenging inner city school district (Robertson-Kraft & Duckworth, 2014). Given these positive outcomes, can grit also predict the academic achievement of college students? According to the current research, it may. Grit has predicted retention of USMA cadets during their first year of academic training (Maddi et al., 2012), higher GPAs for black males in a predominantly white college (Strayhorn, 2014), and higher GPAs at an elite university (Duckworth et al., 2007). However, less research has been

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conducted on the effects of grit on achievement within less select college population. This is surprising, considering that grit is not supposed to be exclusive to select groups. Given the importance of a college education in today's economy where a degree is related to job satisfaction, job stability, and financial security (Pew Research Center, 2014) there is considerable value in taking a closer look at what predicts success at the college level. Therefore, this study attempted to expand on the current literature on grit and its relationship to academic success in terms of performance and retention of college students.

Furthermore, while the literature on grit has a lot to say about the qualities of the gritty person and the positive outcomes predicted by those qualities, there is less known about what makes a person gritty. Previous research suggests two possible explanations, the first based on implicit theories of intelligence, and the second based on experiences of adversity.

According to implicit theories of intelligence, individuals have different beliefs about their own intelligence – that it is either fixed (an entity theory) or is something that can develop and increase with effort (an incremental theory) (Dweck & Leggett, 1988). Accordingly, an incremental theory of intelligence may be more likely to promote grit in college students than an entity theory. With an incremental theory, students will be more likely to believe in their ability to achieve in college even when met with the inevitable challenges of learning. Belief in their abilities may make it more likely for them to set higher goals for themselves and set out to achieve those goals. On the other hand, having an entity theory of intelligence would undermine grit, as students who lack trust in their ability to learn and grow will be less likely to exert the effort necessary to overcome academic challenges.

The gritty student may also be someone who has experienced a moderate amount of adversity in his or her lifetime. According to recent research (Seery, Holman, & Silver, 2011)

experiencing some adversity in life, as opposed to no adversity or an abundance of adversity, predicted less global distress and functional impairment, and provided protection from the negative impact of more recent adverse events. Similar to how inoculations are meant to protect against pathogens through exposure to modified versions of those same pathogens, studies have shown that repeated brief exposure to negative experiences in conditions that allow people to cope with those experiences may make them more resilient (Rutter, 2013). Accordingly, the person who has had some experience with adversity may be more likely to tolerate the obstacles and negative experiences of a college education, and will thus be grittier in the face of those obstacles.

Finally, although there is increasing evidence that the character strength of grit promotes achievement and success, there still remains the question as to whether it promotes emotional well-being. Is the gritty person a happy person or does the relentless pursuit of a singular goal detract from overall well-being? There is some evidence of the former, for instance, grit has been linked to positive affect and life satisfaction (Singh and Jha, 2008), and along with gratitude, it has been linked with a decrease in suicidal ideation (Kleiman, Adams, Kashdan, & Riskind, 2013). Further, grittier college students have reported greater positive affect along with commitment to a purpose (Hill, Burrow & Bronk, 2014). These findings offer the intriguing possibility that college students higher in grit might not only do better in academic domains, but also report higher subjective well-being.

The following study sought to extend and clarify previous research on the importance of noncognitive factors in predicting student success, with a particular focus on one of the more promising of these factors, grit. Although interest has even extended into the public domain, with increasing calls for grit to be introduced into the classroom, there remains a need to clarify the

effects of grit on academic success, particularly within adolescents transitioning to college.

Besides examining whether grit predicts achievement and retention, it also sought to provide a better understanding of what helps determine grit in the first place. Are certain mindsets and life experiences more conducive to grit? Finally, this study sought to expand on previous research by examining whether the effects of grit extend beyond achievement and are also implicated in general life satisfaction.

Correlates of Academic Success

Cognitive Factors

It is well established that cognitive ability is a strong predictor of achievement (Gottfredson, 2002; Neisser, 1996). As explained by Neisser (1996), studies finding a relationship between intelligence test scores and academic achievement is ubiquitous, accounting for about a quarter of the variance. In the context of post-secondary academic achievement, standardized tests such as the SAT and ACT have been the traditional measure of cognitive ability and have been found to be consistent predictors of achievement (Kuncel & Hezlett, 2010; Schmitt et al., 2009). For example, in a study on the relationship between four-year college GPA and cognitive as well as non-cognitive factors, Schmitt et al. (2009) found SAT/ACT scores and high school GPA to be the strongest predictors of cumulative college GPA ($r = .53$) though non-cognitive factors provided incremental predictability. As explained by Alarcon and Edwards (2013), standardized tests such as the ACT can predict retention because it reflects the ability to process, integrate, and apply new information, qualities that are important for remaining in school. Indeed, their research found that students who scored one standard deviation below the mean on standardized tests were .98 times more likely to leave the university. ACT scores were even found to predict the quality of creative pursuits in a population of college students

(Dollinger, 2011). Indeed, Kuncel and Hezlett (2010), following their summary of meta-analysis on admission test score correlations with academic performance, argued that “the vast body of accumulated knowledge about these [standardized] tests is clear: They are among the strongest and most consistent predictors of performance across academic and work settings” (p.344).

Non-Cognitive Factors

However, researchers are finding cognitive ability does not tell the whole story about achievement and have turned to other non-cognitive factors, such as personality traits, to explain the variance in college success (Chamorro-Premuzic, 2003; Richardson, Abraham, & Bond, 2012). O’Conner and Paunenon (2007) have summarized three factors that can provide rationales for looking at personality traits as a major factor in achievement. First, personality traits may affect behaviors and habits that can influence academic success. Second, while cognitive ability reflects what a person *can do*, personality reflects what a person *will do*. This difference can be better explained by looking at the typical measures of cognitive ability and personality; while cognitive ability scales generally look at an individual’s maximal performance or potential, personality measures look more at actual performance and behaviors, a measure that is more likely to predict long-term academic performance. Finally, O’Conner and Paunenon (2007) point out that cognitive ability, which is so important at the primary and secondary level because of its emphasis on critical thinking, development of ability, and learning styles, becomes less important at the post-secondary level where domain specific knowledge becomes more critical (Ackerman, Bowen, Beier, and Kanfer, 2001), making way for the importance of other factors such as personality.

There have been many non-cognitive variables studied in the context of academic achievement, including self-regulation (e.g. Pintrich & De Groot, 1990), emotional intelligence

(e.g. Downey, Mountstephen, Lloyd, Hansen, & Stough, 2008), and emotions (Mega, Ronconi, & De Beni, 2014). In a review of studies that focused on the antecedents of college GPA Pintrich and Groot (1990) looked at non-cognitive factors from five different research domains: personality traits, motivation, self-regulatory learning strategies, student approaches to learning and, psychosocial contextual influences. They found GPA to be significantly correlated with 41 of the 50 constructs they reviewed, the strongest of which were performance self-efficacy, grade goal, effort regulation, and academic self-efficacy.

Perhaps one of the more salient topics in academic achievement research, however, is personality, specifically the “Big Five” personality traits as described by Barrick and Mount (1991) in their seminal study on the relationship between personality and work performance. Looking at (1) conscientiousness (dependability and will to succeed), (2) neuroticism (adjustment vs. anxiety), (3) agreeableness (reflecting likability and friendliness), (4) extraversion (activity and sociability), and (5) openness to experience (imaginativeness, broad-mindedness, and artistic sensibility) Barrick and Mount (1991) found conscientiousness to be the most consistent predictor of job performance and argued for the use of this five factor model as a meaningful framework for classifying personality in the study of personnel psychology.

Extending this conclusion into academic achievement, Poropat (2009) performed a similarly rigorous meta-analysis on the relationship between personality and performance in primary, tertiary, and secondary education, agreeing with Barrick and Mount (1991) that using the Big Five provided an effective and simple measure that encompassed most of the variance in personality. Poropat (2009) argued that this study, using a cumulative sample size of over 70,000, was superior to previous studies on personality and academic performance due to its exhaustive literature search, consistency of measures, and its investigation into various moderators such as

age and academic level. Poropat (2009) found that while agreeableness and openness were significant predictors of academic performance, they were not as strong as conscientiousness. Furthermore, only conscientiousness was significantly correlated to tertiary academic performance when secondary academic performance was controlled for. Controlling for intelligence had only minor effects on the validity of the Big Five, indicating that the effects of the Big Five on academic performance was not based on its relationship to intelligence.

Poropat (2009) confirmed what a number of other studies had been finding; the important contribution of conscientiousness to academic success (e.g. O’Conner & Paunonen, 2007; Trapmann, Hell, Hirn, & Schuler, 2007). For example, in O’Conner and Paunonen’s (2007) review of all the Big Five personality factors, conscientiousness showed the most consistent link to post-secondary academic success. Positive relationships were found for GPA, final grades, mid-term exams, essay grades, and thesis research grades. Their meta-analysis showed mean population correlations between conscientiousness and academic performance was $r = .24$ indicating the importance of conscientiousness to academic success. It should be mentioned, however, that they also found some research suggesting that very high levels of conscientiousness may have a detrimental effect on academic performance. Mixed results were found for openness and extraversion with the meta-analysis showing correlations of $r = .06$ and $r = -.05$ respectively, while both extraversion and agreeableness were generally found to be unassociated with academic performance

More recently, Furnham (2012) conducted two studies in which they looked at how the Big Five, as well as learning styles and different measures of cognitive abilities, predicted university grades. In the first study, overall first year grades were predicted only by conscientiousness and a measure of general intelligence. Learning style did not predict overall

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first year grade. The second study was similar to the first but added other measures of intelligence and also included specific academic results as the criterion variables, namely a statistics exam score and an “introduction” paper score. In study two, only agreeableness significantly correlated with overall final year scores. Those who scored highest on one of the fluid intelligence measures, general intelligence, and low on deep (intrinsic) learning strategies were most successful on the statistics exam. Those who scored high in fluid intelligence and crystallized intelligence, and had low deep learning strategies, scored higher in their introductory paper. In a regression analysis, conscientiousness and fluid intelligence predicted statistics exam scores and fluid intelligence and low deep learning predicted introduction paper scores. Finally, in a step-wise regression, none of the regressions for the overall score were significant. However, the statistics and introduction paper scores followed a similar pattern; personality was not significant, low deep learning style predicted success accounting for approximately 10% of the variance, and intelligence added another 6-10% of the variance. Based on these results, Furnham suggested that the relationship between individual differences such as personality and ability and academic success are dependent on the criterion variable being considered. Intelligence may be more salient for variables based on timed exams that cover highly specific topics, such as statistics, while personality may be more salient for more general areas and course work, which is much less constrained.

Zyphur, Bradely, Landis, and Thoresen (2007) examined not just the correlations between intelligence, personality, and achievement, but also whether personality and intelligence can predict change in performance over time. Both intelligence and personality were found to be important predictors of initial performance (first semester college GPA). Interestingly however, after controlling for initial status, only conscientiousness predicted performance change

throughout the rest of the participants' college careers. Furthermore, conscientiousness was a better predictor of performance beyond third semester. This study suggests that while some students may not be able to "hit the ground running" upon entering college, conscientiousness may be able to propel them toward achievement in a way that cognitive ability does not.

In Kappe and van der Flier's (2012) study of college students in the Netherlands, conscientiousness was again found to predict achievement independent of intelligence. Using multiple measures of achievement including time it took to graduate and grades on lecture exams, skills training, group projects, internships, and written thesis, Kappe and van der Flier (2012) found that 33% of the variance in GPA and 30% of the variance in time till graduation was explained by a combination of intelligence, personality, and motivational factors. Intelligence only accounted for 5% of the variance in GPA when entered in the first step of a regression equation. After controlling for intelligence, conscientiousness accounted for 22% of the variance for GPA and 17% of the variance for time till graduation. Intrinsic motivation was found to account for twice as much variance in GPA as intelligence.

Not all studies, however, support the relationship between personality and academic achievement as demonstrated by Ridgell & Lounsbury's (2004) study on general intelligence, the Big Five traits, the construct of work ethic, and two measures of academic achievement – a grade in a single undergraduate course and self-reported GPA. While intelligence and work drive predicted both GPA and single course grades, personality did not predict either, with the exception of emotional stability which predicted single course grades but not GPA.

Nevertheless, meta-analyses primarily support the strength of conscientiousness in predicting academic achievement. Trapmann et al. (2007) looked at 58 studies across 15 countries, to analyze the relationship between personality traits and a number of measures

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including GPA, academic satisfaction and retention of college students. Of the five, only conscientiousness had a strong correlation with college grades, with a validity coefficient of .27 indicating that 7.2% of the variance can be explained by that trait. While agreeableness also predicted grades, that relationship was much weaker. Moreover, neuroticism was found to be a strong, negative predictor of satisfaction while retention was not predicted by any of the Big Five traits.

In contrast, Poropat's (2009) meta-analysis found significant relationships between academic achievement and all five factors of the Big Five traits, though conscientiousness was found to have the strongest, albeit moderate, effect ($d = .46$). Furthermore, in the secondary and post-secondary levels of education, conscientiousness rivaled the predictive validity of intelligence for achievement. Because the predictive validity of conscientiousness increased when controlling for intelligence, Poropat (2009) argued that the link between academic performance and personality could not be merely due to the common links between those two constructs.

Noftle and Robins (2007) took the added step of adding SAT scores as a predictor variable, something that had not been widely done in previous research. In that longitudinal study using four samples of college students, the authors found that of the Big Five, only openness was consistently related to SAT scores, and only for the verbal portion of the SAT (ranging from $r = .20$ to $r = .26$). For the relationship between the Big Five and GPA, conscientiousness was the strongest and most consistent predictor of both college and high school GPA (ranging from $r = .18$ to $s = .26$), even when controlling for gender, SAT, and high school GPA. Openness had a significant but weak relationship to college GPA in three of the

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four samples, however, that relationship disappeared when controlling for gender, SAT, and high school GPA.

Academic achievement can also be measured in terms of retention. Though the literature is not as vast, there are some consistent findings that conscientiousness is a predictor of retention. In a study of students at a large public university, conscientiousness accounted for 3% of the variance and it was the only predictor of retention when compared to high school GPA, SAT, achievement, and resiliency (Tross, Harper, Osher and Kneidinger, 2000). According to the authors, conscientiousness had both a direct effect on retention as well as indirect effect through its impact on GPA. The authors argued that students who are conscientious are more likely to feel commitment to their school and less likely to consider other academic or professional options, hence, they are more likely to remain at their school. Laskey and Hetzel (2011) also found conscientiousness related to retention in their study of “at-risk” college students who were part of a special program for students who did not meet the typical acceptance standards of their school. That study found that students high in conscientiousness and agreeableness were more likely to remain in school because those students were also more likely to utilize the school’s tutoring services and positively accept direction from adults. In a more recent study Alarcon and Edwards (2013) hypothesized that conscientiousness predicted retention because the facets of self-discipline, organization, and need for achievement provide resources for dealing with the stressors of the novel school environment. They found support for that prediction as students who were one standard deviation below the mean in conscientiousness were 66% more likely to leave school.

Di Domenico and Fournier’s (2012) study on personality and academic achievement of university students put the role of conscientiousness in a larger context by examining its