Role of the Big Five personality traits in predicting college students’ academic motivation and achievement

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ABSTRACT

College students (308 undergraduates) completed the Five Factor Inventory and the Academic Motivations Scale, and reported their college grade point average (GPA). A correlation analysis revealed an interesting pattern of significant relationships. Further, regression analyses indicated that conscientiousness and openness explained 17% of the variance in intrinsic motivation; conscientiousness and extraversion explained 13% of the variance in extrinsic motivation; and conscientiousness and agreeableness explained 11% of the variance in amotivation. Further, four personality traits (conscientiousness, openness, neuroticism, and agreeableness) explained 14% of the variance in GPA; and intrinsic motivation to accomplish things explained 5% of the variance in GPA. Finally, conscientiousness emerged as a partial mediator of the relationship between intrinsic motivation to accomplish and GPA. These results are interpreted within the context of what educators could do to encourage and nurture student motivation and achievement.

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1. Introduction

Academic success is strongly influenced by individual differences in motivation and achievement. Prior research has focused mostly on academic achievement among young students, and provides no clear and consistent evidence regarding the extent to which personality traits relate to academic motivation and achievement. The current study addresses these gaps by examining the relationship between the Big Five traits described by the Five Factor model of personality (Costa & McCrae, 1992), academic motivation, and academic achievement among college students in the United States.

1.1. The Big Five personality traits

The Big Five traits (neuroticism, extraversion, openness, agreeableness, and conscientiousness) have been related to a wide range of behaviors (Ozer & Benet-Martinez, 2005), including academic achievement and job performance (Costa & McCrae, 1992; Judge, Jackson, Shaw, Scott, & Rich, 2007). The relative convergence by researchers on the value of a Big Five organizing framework for personality makes it a promising starting point for examining the intricate relationship between personality, motivation, and achievement (Costa & McCrae, 1992).

1.2. Self-determination theory

We conceptualized motivation in terms of Deci and Ryan’s self-determination theory viewing motivation as a continuum with intrinsic and amotivation at either end, and extrinsic motivation in the middle (Deci & Ryan, 1985; Ryan & Deci, 2000). Intrinsically motivated individuals tend to have an internal locus of control, are driven to accomplish, seek intellectual stimulation, and are enthusiastic about learning new things. Extrinsically motivated individuals pursue education to achieve contingent goals, rather than for an intrinsic enjoyment of learning. There are three types of extrinsic motivations: external regulation (engaging in academic pursuits due to external rewards and punishments), introjected regulation (internalizing the importance of academic pursuits due to environmental influences) or identified regulation (choosing to identify with the values associated with academics). Finally, amotivated individuals are past caring and do not respond to environmental influences.

The Academic Motivations Scale (AMS, Vallerand et al., 1992) operationalizes self-determination theory by measuring intrinsic (three subscales), extrinsic (three subscales), and amotivation in academic contexts. Intrinsically motivated students seek challenge and competition, whereas amotivated students tend to disengage or drop out (Beaudoin, 2006; Harter, 1981; Vallerand & Bissonnette, 1992). Learning environments encouraging mastery foster intrinsic motivation, whereas environments emphasizing performance reduce...
student motivation and achievement (Ames & Archer, 1988; Barron & Harackiewicz, 2001; Meece, Anderman, & Anderman, 2006).

1.3. Personality and academic motivation

Only a handful of studies have examined personality and academic motivation. Ross, Rausch, and Canada (2003) found that the Big Five explained significant variance in cooperative, hypercompetitive, and personal development motivational orientations. Individuals high in conscientiousness, extraversion, and openness are more likely to experience a fear of failure and pursue avoidance performance goals. Komarraju and Karau (2005) found that engagement motivation (thinking and desire for self-improvement) was best explained by openness and extraversion, and achievement motivation (persisting and competing) by conscientiousness, neuroticism, and openness. Avoidance motivation (deactivating anxiety, withdrawing, and disliking school) was associated positively with neuroticism and extraversion, and negatively with conscientiousness and openness. Similarly, achievement motivation has been associated positively with conscientiousness and extraversion, and negatively with neuroticism, impulsiveness, and fear of failure (Busato, Prins, Elshout, & Hamaker, 1999; De Guzman, Calderon, & Cassaretto, 2003; Heaven, 1989; Kanfer, Ackerman, & Heggestad, 1996).

Individual differences in students’ achievement goals have also been documented. Students seeking performance goals, especially performance avoidance goals, tend to experience evaluation apprehension, view difficulties as threats, and are likely to give up (Cury, Elliot, Da Fonseca, & Moller, 2006; Dweck & Leggett, 1988; Elliott & Dweck, 1988; Elliot & Harackiewicz, 1996; Elliot & McGregor, 1999; Elliott & Sheldon, 1997; Elliot & Thrash, 2002). In contrast, those seeking mastery goals enjoy learning, perceive difficulties as challenges, and are persistent (Harackiewicz, Barron, Tauer, & Elliot, 2002). Ideally, a combination of mastery and performance goals is positively related to performance, interest, and motivation (Harackiewicz, Barron, Carter, Lehto, & Elliot, 1997). Thus, there is initial documentation of some influences of personality on academic motivation and achievement goals, though our understanding is clearly rather preliminary.

1.4. Personality and academic achievement

The larger and richer literature on personality and academic achievement suggests that conscientiousness has a consistently positive association with GPA beyond that explained by SAT scores (Conard, 2006), high school GPA (Nofle & Robins, 2007), or IQ (Duckworth & Seligman, 2005). Conscientiousness also predicts academic success (Dollinger & Orf, 1991; Furnham, Chamorro-Premuzic, & McDougall, 2003; Paunonen & Ashton, 2001), including exam performance (Chamorro-Premuzic & Furnham, 2003a), and GPA (Busato, Prins, Elshout, & Hamaker, 2000; Wagerman & Funder, 2007). Besides conscientiousness, both openness and agreeableness are positively related to academic performance (Lounsbury, Sundstrom, Loveland, & Gilson, 2003; Farsides & Woodfield, 2003), and neuroticism is associated with impaired academic performance (Chamorro-Premuzic & Furnham, 2003b, Furnham & Mitchell, 1991; Heaven, Mak, Barry, & Ciarrochi, 2002). Nofle and Robins (2007) also report that conscientiousness is the strongest predictor of academic performance, and the other four traits have weak or mixed relationships with GPA.

Most recently, researchers note that grit and self-discipline go beyond IQ in explaining academic success (Duckworth, Peterson, Matthews, & Kelly, 2007; Duckworth & Seligman, 2005). An individual’s work drive also explains significant variation in GPA beyond that explained by the Big Five and intelligence (Lounsbury et al., 2003; Ridgell & Lounsbury, 2004). Traits representing prudence, self-control, dominance, and perfectionism, as well as academic discipline and commitment to college, are significant predictors of GPAs and remaining in school (Martin, Montgomery, & Saphian, 2006; Mills & Blankstein, 2000; Pritchard & Wilson, 2003; Robbins, Allen, Casillas, Peterson, & Le, 2006; Wolfe & Johnson, 1995). Academic performance is also higher among sociable (Furnham & Medhurst, 1995), emotionally stable, and introverted (Entwistle & Entwistle, 1970) individuals. A recent meta-analysis showed that academic self-efficacy and achievement motivation were the best predictors of GPA and persistence (Robbins, Lauver, Le, Davis, Langley, & Carlstrom, 2004). Thus, after controlling for ability, certain aspects of personality and motivational orientations clearly do contribute to academic success.

1.5. Rationale for the current study

Although previous research suggests links between various personality traits and some aspects of academic motivation and achievement, not much research has examined the relationship between the Big Five traits, academic motivation, and academic achievement within the same study. We address this gap by directly assessing the role of the Big Five personality traits in explaining variations in college students’ motivation and achievement.

Table 1
Correlations between the Big Five personality traits, academic motivation subscales and academic achievement (GPA)

<table>
<thead>
<tr>
<th>Big Five personality traits</th>
<th>Academic motivation subscales</th>
<th>Extrinsic motivation</th>
<th>Amotivation</th>
<th>Achievement</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Intrinsic motivation</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Total</td>
<td>Know</td>
<td>Acco</td>
<td>Stim</td>
</tr>
<tr>
<td>Neuroticism</td>
<td>−.06</td>
<td>−.05</td>
<td>−.06</td>
<td>−.03</td>
</tr>
<tr>
<td>Extraversion</td>
<td>.15***</td>
<td>.16***</td>
<td>.10</td>
<td>.14*</td>
</tr>
<tr>
<td>Openness</td>
<td>.24**</td>
<td>.27**</td>
<td>.10</td>
<td>.24**</td>
</tr>
<tr>
<td>Agreeableness</td>
<td>.14*</td>
<td>.15**</td>
<td>.13*</td>
<td>.08</td>
</tr>
<tr>
<td>Conscientiousness</td>
<td>.28**</td>
<td>.23**</td>
<td>.33**</td>
<td>.17**</td>
</tr>
<tr>
<td>GPA</td>
<td>.20**</td>
<td>.17**</td>
<td>.22**</td>
<td>.13*</td>
</tr>
</tbody>
</table>

Note: N ranges from 258 to 308.
*p <.05.
**p <.01.
IM = Intrinsic motivation.
EM = Extrinsic motivation.
AM = Amotivation.
Know = Intrinsic motivation to know.
Acco = Intrinsic motivation to accomplish.
Stim = Intrinsic motivation to experience stimulation.
Ident = Extrinsic motivation identified.
Introj = Extrinsic motivation introjected.
Reg = Extrinsic motivation externally regulated.
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