The role of personality and motivation in predicting early college academic success in non-traditional students at a Hispanic-serving institution

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Published online on 20 November 2007; accepted 22 November 2007

Abstract

Non-cognitive factors represent a chance to learn more about how to help students succeed in early college experiences. This study examined personality and motivation as predictors of first-quarter GPA in a sample of 315 non-traditional undergraduates at a Hispanic-serving institution. Our results provide support for the importance of high levels of conscientiousness, intrinsic motivation, and low levels of extrinsic motivation in first-quarter school success. Implications and possible interventions are discussed.

Keywords: Non-cognitive; School achievement; College; Hispanic; Motivation; Personality

Almost 15 years ago, Mouw and Khanna (1993) noted that there was considerable variance in college GPA that could not be explained by the traditional pre-college predictors (e.g., high school GPA, SAT and ACT scores). Since then, Robbins et al. (2004) identified three types of predictors: traditional (e.g., SAT scores), demographic (e.g., gender), and psychosocial factors (e.g., personality, motivation). Robbins, Allen, Casillas, Peterson, and Le (2006) found that several psychosocial factors were related to academic performance and retention.

The important factors, which they dub “Student Readiness” indicators, included Academic Discipline, Social Activity, Emotional Control, Commitment to College, and Social Connection. Indeed, one can argue, as did Robbins et al. (2004), that such a descriptive approach is a valuable one. Such approaches integrate more traditional concepts, such as the five-factor personality model or the intrinsic–extrinsic theory of motivation, allowing past research to be utilized.

Indeed, there have been many studies of personality and academic success, mostly using the Big-Five model that argues five basic factors underlie traditional personality assessment. The personality factor most repeatedly linked to academic achievement is conscientiousness (e.g., Higgins, Peterson, & Rihl, 2007; Noftle & Robins, 2007). Other studies have occasionally found evidence to support a different factor (for example, Lounsbury, Welsh, & Gibson, 2005, found evidence for openness to experience), but nothing close to the strong pattern arguing for the importance of conscientiousness.

The relationship between motivation and school success is also well established (e.g., Pintrich & Schunk, 1996), if less clearly. Several studies have looked at academic success and motivational orientation. Intrinsic motivation and its related goals have been found to relate to classroom success (e.g., Church, Elliott, & Gable, 2001). The research is not as consistent as it is with personality; for example, Baker (2004) found that motivation was not related to academic achievement.

Studies that have examined both personality and motivation have found highly conflicting results (e.g., McKenzie, Gow, & Schweiter, 2004; Phillips, Abraham, & Bond, 2003). In this paper, we study personality and motivation variables on a unique population of non-traditional students at a Hispanic-serving institution to determine if past results are replicated. Most of the previously discussed studies have been conducted on traditional populations. Yet non-traditional students can often have different needs, demands on their time, and reliance on different types of cognitive abilities (e.g., Chao & Good, 2004).
beliefs in Hispanic populations have been studied (e.g., Gloria, Castellanos, & Lopez, 2005); in contrast, variables such as personality and motivation have not been studied in depth. Given the extensive studies showing the importance of personality and motivation, this oversight should be rectified. Based on past results, we anticipate that, in replication of past work, conscientiousness and intrinsic motivation will be related to academic achievement in a population of non-traditional students at a Hispanic-serving institution.

Experiences during the early stages of college have been found to be critical to student adjustment and, ultimately, to long-term academic success (Harackiewicz, Barron, Tauer, & Elliot, 2002). In fact, researchers have suggested that even the first two weeks of school can have long-term impact on college academic achievement (Woosley, 2003). This study will examine the relationship of personality and motivation on first-quarter academic success.

1. Method

1.1. Educational institution

The host University is mid-sized (approximately 14,000 students), and serves a student body that comprises a substantial portion of non-traditional students. Specifically, the mean age of the student body is 25.9 years. The student population is ethnically diverse (32.75% Hispanic, 11.74%, African American, 4% Asian-Pacific Islander), and the University is recognized by the US Federal Department of Education as a Hispanic-serving institution. Further, the University draws from a population that is substantially economically disadvantaged, evidenced in part by the fact that the most recent data (2005–2006) reveals 57% of the student population received the need-based Pell grant. In addition, more than 50% of the student population is first-generation college student, and nearly 40% of the student population has dependents.

1.2. Participants

Participants (n = 315) were undergraduate students completing their first quarter of study at a four-year university in the southwestern United States. The sample was predominantly women (245; 79%) and represented a mix of racial/ethnic backgrounds including European American/Caucasian (46%), Hispanic American/Latino (27%), African American/Black (10%), and Asian American (9%), with the remaining 8% indicating “other.” The mean age of participants (M = 23.53, SD = 8.55) was slightly lower than the overall University population (25.9), but is consistent with the mean age (23.33) of undergraduates. This difference was expected given the sample comprises new students. The mean GPA in the present sample (M = 3.11, SD = .66) was slightly higher than the GPA for the overall University population (3.01).

1.3. Procedure

Participants were recruited through in-class announcements, flyers, and an invitation sent via email during the initial weeks of the Fall quarter of 2003. Each form of communication included a description of the study and information on how to participate. In order to assure confidentiality, each interested student was assigned a unique password which served as their access code to the on-line survey. The survey included one hundred ninety-three Likert-type items, and a single page of demographics. One hundred ten items were used in the present study. The remaining items measured similar individual academic characteristics, but were not germane to the current research. Participation required approximately 45 min, and each participant was entered into a drawing for $5.00 gift certificates. Academic information, coded by participant password, was obtained from the University’s institutional research office and combined with survey data. Personality, motivation, and demographic data were collected from participants during the first several weeks of the Fall quarter. Subsequent academic performance data (i.e., participants’ Fall Quarter GPA) were gathered at the beginning of the Winter quarter (i.e., roughly three months after survey data were gathered).

1.4. Measures

1.4.1. Motivation orientation

The Kaufman–Agars Motivation-orientation Scale (KAMS: Kaufman & Agars, in press) was used to measure participant motivation. The KAMS comprises nine scenarios (such as choosing a college class) and 60 items. Participants respond using a 10-point Likert-type scale to indicate the extent to which each statement represents his or her likely behavior or preference. The scale includes intrinsic and extrinsic factors, with 30 items representing each. The intrinsic factor represents individual preferences for activities that are worthwhile, provide opportunity for growth, and suggest that intelligence is malleable. The extrinsic factor represents individual preferences for tasks that achievement, rewards and recognition, and the belief that intelligence is fixed. In the present study, coefficient alphas were .91 (intrinsic) and .93 (extrinsic).

1.4.2. Personality

The five-factor model of personality was measured using the 50-item version of the International Personality Item Pool (IPIP; Goldberg, 1999; International Personality Item Pool, 2001). The IPIP comprises 10 Likert-type items to measure each of five personality dimensions including extroversion, agreeableness, conscientiousness, emotional stability, and openness to experience. Coefficient alphas for each dimension were: extroversion (α = .87), agreeableness (α = .76), conscientiousness (α = .78), emotional stability (α = .85), and openness to experience (α = .76).

1.4.3. Academic success

Academic success was measured using first-quarter grades. The University’s Institutional Research Office provided academic information which was combined with
survey data. As a result, success data were represented by actual GPA values.

1.4.4. Control variables

High school GPA and parental education levels were measured and included as control variables in subsequent analyses. Each participant provided a self-report high school GPA (using a 1.0–4.0 scale). Parental education level was measured using two separate single-item responses to “Mother’s Education” and “Father’s Education.” Responses were coded a value from one to seven, with higher values indicating higher levels of education (e.g., “1”=“Grade 5 or below”, “3”=“Some high school but didn’t finish”, and “7”=“Graduate degree”).

2. Results

Data screening for missing data, univariate and multivariate outliers, and violations of normality (Tabachnick & Fidell, 2001), resulted in the exclusion of 13 cases who were outliers and were found to have used a non-valid response patterns. Once removed, the final data set (n=315) met the assumptions for subsequent analyses. Means, standard deviations, and bivariate correlations for all study variables are presented in Table 1.

In order to examine the relationships between personal characteristics and first-quarter performance, hierarchical multiple regression in SPSS was used. Variables were entered in two steps and examined for the prediction of first-quarter GPA.

As the primary intention of the study was to examine the predictive impact of personality and motivation orientation beyond that explained by traditional measures of success, we entered High School GPA and parental education level in Step 1. In Step 2, the seven individual difference variables were entered simultaneously, including intrinsic and extrinsic motivation orientation and measures of the five personality dimensions (extraversion, agreeableness, conscientiousness, emotional stability, and openness to experience). Results of the analyses are presented in Table 2.

The overall model was significant [\( F(12, 306)=4.491, \ p=.001 \] in the prediction of first-quarter GPA. The first Step, including high school GPA and parental education level, accounted for 10% of the variance in the school performance outcome [\( F(3,315)=11.458, \ p=.001 \]. The addition of intrinsic and extrinsic motivation and the big five personality factors in Step 2 explained an additional 6% of the variance in first-quarter GPA. This change was also significant [\( F_{\text{change}}(9,306)=2.054, \ p=.03 \]. In the final model, four variables produced significant coefficients. These were high school GPA (\( \beta=.24 \)), intrinsic motivation orientation (\( \beta=.15 \)), extrinsic motivation orientation (\( \beta=-.16 \)), and conscientiousness (\( \beta=-.12 \)). Complete results of the regression analysis are presented in Table 2.

3. Discussion

The results provide support for non-cognitive characteristics in the prediction of early academic success in a sample drawn from a largely non-traditional college student population at a Hispanic-serving institution. Specifically, results provide support for the personality trait conscientiousness, and for individual motivation orientation, considering both intrinsic and extrinsic orientations independently. Each and all of these variables offered significant prediction of first-quarter academic performance, even taking into account the effects of high school GPA and parental education.

### Table 1
Means, standard deviations, and inter-correlations of all study variables

<table>
<thead>
<tr>
<th>Variable</th>
<th>Mean (SD)</th>
<th>1</th>
<th>2</th>
<th>3</th>
<th>4</th>
<th>5</th>
<th>6</th>
<th>7</th>
<th>8</th>
<th>9</th>
<th>10</th>
<th>11</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. GPA</td>
<td>3.11 (.66)</td>
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<tr>
<td>2. HSGPA</td>
<td>3.31 (.47)</td>
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<td>3. Mother education</td>
<td>4.51 (1.69)</td>
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<td>4. Father education</td>
<td>4.62 (1.77)</td>
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<td>5. KAMS-I</td>
<td>7.50 (1.21)</td>
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<tr>
<td>6. KAMS-E</td>
<td>5.23 (1.27)</td>
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<tr>
<td>7. Extraversion</td>
<td>3.15 (.80)</td>
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<td>8. Agreeableness</td>
<td>4.09 (5.55)</td>
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<tr>
<td>9. Conscientiousness</td>
<td>3.71 (.61)</td>
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<tr>
<td>10. Emotional stability</td>
<td>3.20 (.78)</td>
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<tr>
<td>11. Openness</td>
<td>3.66 (.57)</td>
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Note: Listwise N=315. Scale alphas are italicized and presented diagonally where appropriate.

### Table 2
Regression results for predicting first-quarter GPA

<table>
<thead>
<tr>
<th>Step 1</th>
<th>Variable</th>
<th>B</th>
<th>SE B</th>
<th>B</th>
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<td></td>
<td>HSGPA</td>
<td>.34</td>
<td>.08</td>
<td>.25</td>
</tr>
<tr>
<td></td>
<td>Mother ed</td>
<td>.03</td>
<td>.03</td>
<td>.07</td>
</tr>
<tr>
<td></td>
<td>Father ed</td>
<td>.04</td>
<td>.03</td>
<td>.11</td>
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<table>
<thead>
<tr>
<th>Step 2</th>
<th>Variable</th>
<th>B</th>
<th>SE B</th>
<th>B</th>
</tr>
</thead>
<tbody>
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<td></td>
<td>HSGPA</td>
<td>.34</td>
<td>.08</td>
<td>.24</td>
</tr>
<tr>
<td></td>
<td>Mother ed</td>
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<td>.03</td>
<td>.08</td>
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<tr>
<td></td>
<td>Father ed</td>
<td>.03</td>
<td>.03</td>
<td>.09</td>
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<tr>
<td></td>
<td>KAMS-I</td>
<td>.08</td>
<td>.04</td>
<td>.15</td>
</tr>
<tr>
<td></td>
<td>KAMS-E</td>
<td>.08</td>
<td>.04</td>
<td>.16</td>
</tr>
<tr>
<td></td>
<td>Extraversion</td>
<td>.02</td>
<td>.05</td>
<td>-.16</td>
</tr>
<tr>
<td></td>
<td>Agreeableness</td>
<td>-.08</td>
<td>.08</td>
<td>-.06</td>
</tr>
<tr>
<td></td>
<td>Conscientious</td>
<td>.12</td>
<td>.06</td>
<td>.12</td>
</tr>
<tr>
<td></td>
<td>Emotional stability</td>
<td>.04</td>
<td>.05</td>
<td>.05</td>
</tr>
<tr>
<td></td>
<td>Openness</td>
<td>.07</td>
<td>.07</td>
<td>.06</td>
</tr>
</tbody>
</table>

Note: N=315. Step 1 \( r^2=.10 \) (adjusted \( r^2=.09 \)); Overall \( r^2=.16 \) (adjusted \( r^2=.14 \)). Significant Beta’s are in italics (\( p<.05 \).
Conscientiousness, intrinsic motivation, and extrinsic motivation were all significant predictors of first-quarter academic success. These results are consistent with past studies, including the finding of Robbins et al. (2006) on the importance of academic discipline (a key component of conscientiousness) and commitment to college (a key component of intrinsic motivation). In addition, our work adds to the literature on the previously discussed relationship between motivation and college success by providing support for the importance of intrinsic motivation and for the possible harm of extrinsic motivation (e.g., Cooper, Clasen, Silva-Jalonen, & Butler, 1999).

The primary finding from this study is that non-cognitive constructs proved to be significant predictors of performance at a Hispanic-serving institution with a population comprised substantially of non-traditional students. The general consistency of the current findings with past research on traditional populations suggests that key variables that have previously surfaced may be equally important across different ethnicities and populations. Indeed, one practical implication of this study is that diverse college communities may equally benefit from research findings conducted on traditional populations. Although the effects of personality and motivation are not large (i.e., explaining 6% of the variance in GPA after high school performance and parental education are accounted for), they represent a meaningful contribution. Even modest predictors of academic performance are rare, and these findings encourage the continued consideration of factors that may enhance the early academic experiences of college students.

Building on these and previous results, interventions can be developed to maximize student success. Such interventions are currently used with success, typically focusing on academic-related topics such as study skills (e.g., Sayer, De Saintonge, Evans, & Wood, 2002). Additional programs could be tailored to more individual characteristics that are associated with academic success. Conscientiousness, for example, was shown to be an important predictor in this and other studies. This factor is comprised of such traits as being organized and following a schedule (Kyllonen, Walters, & Kaufman, 2005). One skill that requires the same traits is time management – which has also been found to be correlated with higher grades (Britton & Tesser, 1991). A possible intervention could be to help students develop time management skills by holding seminars on how to use the calendar function on Microsoft Outlook or by giving out free software that helps students plan out their semester. Such interventions, which would dovetail well with pre-existing interventions, could lead to better time management skills and, perhaps, encourage conscientious behavior.

It is worth noting, however, that high school GPA explained less variance in college GPA in our sample than past studies have shown (e.g., Daugherty & Lane, 1999). One likely reason for this discrepancy is that first-quarter performance represents only one small sample of overall college performance, which is more susceptible to the influence of external factors than cumulative college GPA after one or more years of education. Another possibility is that in a sample of non-traditional college students, high school GPA may be a less valid indicator of current abilities. Some students transferred in from community college; others graduated high school many years ago. The same factors that limited the relationship between high school and first-quarter college GPA, however, may have also had an effect on personality and motivation. Consequently, these results may not generalize to all college populations, and continued consideration of non-traditional populations is warranted. Another caveat to the study is that survey response itself may be related to college success. Woosley (2003) found that the simple variable of whether college first year students responded to a survey predicted first-quarter success. It is possible that participating students were already primed for higher levels of success. Finally, the positive correlation between intrinsic and extrinsic motivation orientation suggests that the dimensions may not be as independent as proposed (Kaufman & Agars, in press). Despite this, the regression weights for each are consistent in direction with their respective zero-order correlation to GPA, which provides support for their meaningful and independent relationship with college performance.

Our study adds to the growing body of research that identifies individual-level variables that predict first-quarter academic success. Specifically, this study demonstrates the importance of high levels of conscientiousness, intrinsic motivation, and low levels of extrinsic motivation in a non-traditional population. We see future work continuing to explore these differences at the individual level – and moving beyond motivation and personality to include such variables as thinking styles, emotional intelligence, self-efficacy, creativity, and other non-cognitive variables (e.g., Kyllonen et al., 2005).

References


