3-2010

The role of personality traits and The Big Five in predicting future success of interior design students

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Abstract

Determining a student's potential is a serious endeavor in higher education. In this high stakes decision-making, most programs utilize a combination of assessment measures to obtain a full picture of the candidate student. In programs where only a limited number of slots are available, this selection process becomes particularly important. This process is based on the underlying assumption that academic units want to select the students who will be the most "successful" or who will succeed, given their conceptions success. Historically, admissions criteria have encompassed a narrow definition and set of tools, even when program or department mission statements included a broad range of student learning goals (Camara, 2005).

In the past 20 years, there has been a large body of research that demonstrates the validity of personality measures in predicting job performance criteria (Judge, Higgins, Thorensen, & Barrick, 1999). Researchers have also shown that personality measures predict academic criteria such as GPA and absenteeism (Paunonen & Nicol, 2001). Empirical support has been shown for the Big Five model as a theoretical framework for the study of personality in different settings and populations (Costa & McCrae, 1994; Digman, 1997). The five personality factors are: 1) Neuroticism—level of stability versus instability, 2) Extraversion—tendency to be assertive, sociable, and energetic 3) Openness—disposition to be curious, open to new situations, and imaginative, 4) Agreeableness—disposition to be cooperative, and supportive, and 5) Conscientiousness—disposition toward purposeful, determined, and goal-directed behavior.

The focus of this study is to analyze a set of personality measures in predicting college success in an undergraduate interior design program at a large Midwestern university in the United States. The criterion measure used to define success in college is the student's cumulative grade point average. This study is important for several reasons. First, there is limited current research on admissions criteria assessment for interior design programs. Second, because of the nature of design and the design student, these programs must not fall back on criteria and research that is not domain specific and does not holistically look at the candidate student. Lastly, admissions decisions are high-stakes decisions that should have a transparent and rigorous process, where the admission criteria are consistent with the program's mission and vision. This is a responsibility to the students, their parents, and to society as a whole.

Disciplines
Art Education | Educational Assessment, Evaluation, and Research | Interior Architecture

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ABSTRACT

Determining a student's potential is a serious endeavor in higher education. In this high stakes decision-making, most programs utilize a combination of assessment measures to obtain a full picture of the candidate student. In programs where only a limited number of slots are available, this selection process becomes particularly important. This process is based on the underlying assumption that academic units want to select the students who will be the most "successful" or who will succeed, given their conceptions success. Historically, admissions criteria have encompassed a narrow definition and set of tools, even when program or department mission statements included a broad range of student learning goals (Camara, 2005).

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NARRATIVE

INTRODUCTION

Research suggests that the Big Five traits, collectively, outperformed academic motivation, IQ, high school GPA, SAT scores, and ability, to predict academic success (Conrad, 2006; Noftle & Robins, 2007; Duckworth & Seligman, 2005). Interestingly, admissions decisions are rarely based on personality trait scores. The predominant form of admissions criteria include initial GPA, standardized tests, and portfolio reviews in the case of interior design programs.

In a previous study, Brunner (2009) looked at what variables best predict future academic success. The criterion measure used was a performance assessment of a design project. Results of this study indicated that the portfolio, essay, and freshman GPA had no predictive power. High school GPA did predict academic success, and three of the ACT subscores showed a significant relationship to the criterion measure. Personality measures were not collected and analyzed in this study. These participants are currently seniors, and part of this paper analysis looks at the personality measures with the other predictor variables collected earlier.

The purpose of this paper is to investigate the Big Five personality traits in predicting academic success. The main research question of this study is how well do students' personality traits predict academic success, using final, cumulative GPA as the criterion measure. Other research questions compare the personality trait results to other predictor variables collected, such as high school GPA, ACT, portfolio, and essay scores.

LITERATURE REVIEW

Big Five Personality Traits / Big Five Inventory. Currently the most popular approach among psychologists for studying personality traits is the five-factor model or the Big Five dimensions of personality. These five factors were derived from factor analyses of a large number of self- and peer reports on personality-relevant adjectives and questionnaire items. The Big Five personality dimensions are: 1) Neuroticism—level of stability versus instability, 2) Extraversion—tendency to be assertive, sociable, and energetic 3) Openness—disposition to be curious, open to new situations, and imaginative, 4) Agreeableness—disposition to be cooperative, supportive, trusting and 5) Conscientiousness—disposition to-

ward purposeful, determined, and goal-directed behavior. These factors are dimensions, not types, so people vary continuously on them with most people falling in between the extremes. The factors have been shown to be stable over a 45-year period beginning in young adulthood (Soldz & Vaillant, 1999), and they are heritable at least in part (Loehlin, McCrae, Costa, & John, 1998).

The Big Five and workplace and academic success. Industrial and organizational researchers, as well as psychology scholars have rediscovered the importance of personality traits, specifically the Big Five, to academic and work achievement. Persons scoring high in Openness have completed more years of academic training by middle adulthood (Goldberg, Sweeney, Merenda, & Hughes, 1998). Openness also predicts success in artistic jobs, while Conscientiousness predicts success in conventional jobs (Barrick, Mount, & Gupta, 2003; Larson, Rottinghaus, & Borgen, 2002). This is using Holland's RIASEC typology of vocations, which include six types—realistic, investigative, artistic, social, enterprising, and conventional (Holland, 1996).

In college, Conscientiousness also predicts higher academic grade-point averages GPAs in school (Komarraju, Karau, & Schmeck, 2009; Noftle & Robins, 2007; Paunonen, 2003). This personality trait has consistently positive association with GPA beyond that explained by SAT scores (Conard, 2006), high school GPA (Noftle & Robins, 2007), IQ (Duckworth & Seligman, 2005), or motivation (Komarraju, Karau, & Schmeck, 2009). Conscientiousness, beyond primary and secondary schooling, has emerged as a general predictor of job performance across a wide range of jobs (Barrick & Mount, 1991; Mount, Barrick, & Stewart, 1998).

METHODOLOGY

The participants in this study included 100 interior design undergraduates in a large Midwestern university, including 29 seniors, 31 juniors, and 40 sophomores. Personality trait information was collected using the Big Five Inventory (BFI). This instrument is a 44-item survey developed to represent the Big Five prototype definitions. The goal of this instrument was to create a brief inventory that would allow efficient and flexible assessment of the five dimensions when there is no need for more differentiated measurement of individual facets. The BFI items retain the advantages of adjectival items (brevity and simplicity) while avoiding some of their pit-

falls (ambiguous or multiple meanings and salient desirability (Goldberg & Kilkowski, 1985).

RESULTS

Linear regression models were run using the statistical software, SPSS. The dependent variable or criterion measure was the students' cumulative GPA (finalGPA). Data sets included information from students' high school and freshmen years. Five main analyses were run, which included: 1) The Big Five dimensions and finalGPA for all participants, 2) the Big Five dimensions and the students' high school data for all participants, 3) the Big Five dimensions and the students' freshmen or Core Program[1] data for all participants, 4) the Big Five dimensions, and students' high school and freshmen data for all participants, and 5) the seniors cohort, using their previous criterion, which were scores from their performance assessment of a design project; this analysis also includes results using the finalGPA as the criterion measure.

The Big Five and final GPA. When all five dimensions were run in a regression analysis, the Conscientiousness dimension significantly predicted a student's finalGPA. Running each dimension separately as the independent variable, both Conscientiousness and Extroversion were significant predictors of finalGPA. This is consistent with previous academic success literature which found that the Conscientiousness dimension was a strong predictor in determining a student's final GPA. The significant Extroversion dimension has been found to predict workplace leadership in previous studies, but not necessarily academic success as measured by GPA.

The Big Five and high school data. The high school data for this analysis included the HS GPA, HS Rank, ACT subscores of Elementary Algebra (ACT_ALG), Geometry-Trigonometry (ACT_GEOM-TRIG), and ACT Math (ACT_MATH)[2]. Results showed that Conscientiousness and Agreeableness of the Big Five dimensions were significant predictors, along with HS GPA. The best regression model included Conscientiousness and HS GPA. The ACT subscores proved to not be significant predictors of success.

The Big Five and freshmen data. The freshmen data included the students' portfolio and essay scores, as well as their freshmen GPA. These are also the variables that are used in the current admissions process in the participants' interior design program. In this analysis, the freshmen GPA, and the Big Five dimension, Conscientiousness, were significant predictors. The Extroversion score was not significant, nor were the portfolio and essay scores. The interior design program admissions criteria include a student's freshmen GPA, portfolio, and essay scores.

The Big Five and both high school and freshmen data. When regression models were run using both high school and freshmen data, the best model consisted of the Big Five Conscientiousness score, freshmen GPA, and HS GPA. These results imply that a person's prior GPAs are the best predictor of future GPAs. This is also consistent with the literature that discusses a strong relationship between a person's Conscientiousness score and their GPA performance or academic performance.

Previous study with current seniors. In this analysis the first criterion measure used was the students' performance assessment score of a design project. Here, only the three ACT subscores were significant predictors. None of the Big Five dimensions, nor the HS GPA or freshmen GPA were significant. Interestingly, when the criterion measure was the students' final GPA, the Interior Design Rank[3] score was shown to be negatively significant.

DISCUSSION

The results of this study confirmed previous research describing a strong relationship between the Big Five dimension of Conscientiousness and a person's GPA. Intuitively this makes sense since Conscientiousness is described as a disposition toward purposeful, determined, and goal-oriented behavior. If one agrees with the definition of academic success as measured by GPA, then Conscientiousness would be a reasonable score to obtain from a prospective student. This Conscientiousness score may also be helpful in predicting those students who will do well in the workplace after

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1 In the College of Design of this university, all freshmen design majors enroll in the college's Core Program. This consists of foundational courses, important to all design programs, which students begin in their sophomore year.

2 In a previous study, these variables were shown to be significant predictors (Brunner, 2009) of success.

3 The ID rank score consisted of a student's rank based on their portfolio, essay, and freshmen GPA scores. A ranking of 1, indicated the top scoring student admitted into the interior design program.

graduation.

The results also indicated that the current admissions criteria variables, as a whole, are not good predictors of a student's future academic success. The Interior Design Rank score showed a significantly negative relationship to a person's final GPA.

CONCLUDING REMARKS

As design educators, the question remains: are we looking for students who have the potential to obtain high GPAs in college, have a high intelligence level, or show strong design ability? Certain personality measures seem to better predict GPA than standardized test scores, portfolio and essay scores. Results indicated that GPA and performance assessments uncover different predictor variables, adding to the complexity of predicting design student success.

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