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Re-Examining The Influence Of Non-Cognitive, Person Centered Factors On Academic Success

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RE-EXAMINING THE INFLUENCE OF NON-COGNITIVE, PERSON-CENTERED FACTORS ON ACADEMIC SUCCESS

A Masters Thesis

Presented to

The Graduate College of

Missouri State University

In Partial Fulfillment

Of the Requirements for the Degree

Master of Science, Psychology

By

Alexandra Pantze

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Psychology

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ABSTRACT

This project expands upon a previous study examining the effectiveness of non-cognitive variables in predicting cumulative grade point average for a sample of college students from Missouri State University. A total of 291 introductory psychology students and/or recipients of a multicultural leadership scholarship completed a questionnaire during the fall 2013 semester. The questionnaire assessed the following variables: (a) institutional integration, (b) university environment, (c) cultural congruity, (d) dispositional resilience/ hardiness, (e) academic self-efficacy, (f) big five personality factors, and (g) demographic variables- including family education and household income. The current data collection included cumulative GPA at the completion of summer and fall semesters of 2016. Regression analyses were conducted to examine which predictors were related to cumulative GPA. Intellectual and academic development was the only significant predictor for both summer and fall 2016 GPA. Future research should examine the impact of these non-cognitive variables in educational institutions when attempting to increase student retention.

KEYWORDS: academic success, non-cognitive factors, student retention, cumulative GPA, degree attainment

This abstract is approved as to form and content

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TABLE OF CONTENTS

LIST OF TABLES

INTRODUCTION

The primary objective of higher education institutions is the creation of competent, educated minds, able to assimilate as productive members of society (Chan, Brown & Ludlow, 2014). To accomplish this goal, educational institutions must successfully educate and graduate students. Completion of a degree is beneficial to recipients; providing psychological, economic, and even physical benefits (Orepoulos & Petronijevic, 2013). Students who complete a four-year degree are more likely to be employed (89%) compared to those who have some college education (76%), those with a high school education (67%), or less than high school (51%) (National Center for Education Statistics, 2015). Additionally, successful college graduates earn more money on average ($59,124) than those with some college ($41,496), a high school education ($35,256), or those who do not graduate from high school ($25,636) (Bureau of Labor Statistics, 2015). In addition to economic benefits, college graduates report higher self-esteem, increased job satisfaction, and better physical health habits compared to those without (Ishitani, 2006).

Despite the obvious benefits of attaining a college degree, many entering students withdraw before graduation. This is especially true for those from minority backgrounds. In 2015, the National Student Clearinghouse reported that only 36% of students achieved their goal of earning their four year degree within four years, and only 56% of students finished in a six year span of time. With almost 40% of accepted individuals failing to finish a college degree in a six year period, it is no surprise that student retention issues are an important topic among administrators in higher education (National Center for Education Statistics, 2015).

Completion rates for underrepresented minorities in higher education, African Americans, Hispanics and Native Americans, lag behind that of their Caucasian and Asian counterparts (US Census Bureau, 2015). For a four year degree, Asian individuals reported the highest educational completion rate (54%) followed by Non-Hispanic Whites (33%), African Americans (23%), and Hispanics (16%) (US Census Bureau, 2015).

There are many contributing factors implicated in lower completion rates for underrepresented groups. Issues such as stereotype threat, alienation, racial discrimination, and social exclusion may play leading roles (Carter, 2006). Other barriers such as financial difficulty, lack of resources, and academic under-preparedness may also contribute to higher dropout rates for these groups (Thomason, 1999). With potential to bring diverse perspectives to university settings, assisting underrepresented minorities in traversing the landscape of higher education, and remaining in and completing their education, are at the forefront of university agendas.

While non-completion results in financial loss for students and their families, there are also reputational implications for universities (Crosling & Thomas, 2009). In an attempt to increase completion rates, student success initiatives are a priority at many universities. This is encouraged by federal programs such as the American Graduation Initiative, founded by the Obama Administration. In 2009, Obama compelled institutions to regain the title of highest number of college graduates in the world.

Additionally, many state legislative bodies determine funding based upon student success. Consequently, it is no surprise that institutions are focused on achieving higher retention and graduation rates. This focus has resulted in numerous intervention

programs including, first year programs, writing centers, outreach programs, first generation support programs, and increased allocation of resources dedicated to funding these programs.

Many institutions utilize first-year seminars, living-learning communities, and/or similar programs, to build engagement and a sense of community among first-year students (Hunter, 2006). Delta State University attributes its successful retention of students to a red flag system, which serves as an early indicator for faculty and staff to identify struggling students. This system is now used in other universities, such as the University of South Carolina, and involves a campus wide dedication to retaining students (Hunter, 2006). Prevalence of student success programs such as these continues to spread as institutions strive to increase retention within their university (Wild & Ebbers, 2002).

The purpose of this study is to examine the relationship among person-centered, non-cognitive variables and academic success. This study is a continuation of the Perches (2014) study. All predictor measures were taken in the fall 2013 data collection. Current cumulative GPA was collected in following the summer 2016 as well as at the conclusion of the fall 2016 semester. It was desired that identifying variables, unrelated to cognitive aptitude, would provide avenues for increasing retention rates of students.

LITERATURE REVIEW

Student Success

For the past decade, higher education administrators have grappled with identifying a useful measure of student success. Student success is considered multidimensional and can be seen through various immediate and long-term outcomes (Venezi et al., 2005).

College grade point average (GPA), often referred to as cumulative GPA, is the most commonly used short-term measure of success and is calculated on a semester or trimester basis. GPA is defined as the mean of marks from weighted courses contributing to assessment of the final degree (Richardson, Abraham & Bond, 2012). GPA serves as an indicator of overall proficiency (Schwartz & Beaver, 2015), and can range from zero to a perfect 4.0. A 2.0 GPA is a C average, which is often used as a minimum requirement by many universities for a student to remain eligible and free from restrictions such as academic probation (Young et al, 2015). The obtainment of a high grade point average is not only advantageous to the student, but also provides numerous benefits to the university. When students achieve at a higher level, universities are able to be more selective and rise to a heightened level of academic prestige (Richardson, Abraham & Bond, 2012). Overall, GPA serves as an objective measure of performance, and is thought to have high internal reliability (Richardson, Abraham & Bond, 2012). Additionally, first year GPA has been reported as a predictor of retention (Allen, 1999, Reason, 2003).

Despite the suggested benefits, measures of GPA are not without limitation. Much has been written about grade inflation and institutional differences in grading

policies and practices (Richardson, Abraham & Bond, 2012). Ultimately, degree attainment is considered to be the most conclusive measure of student success (Kuh, et al, 2006).

Cognitive and Non-cognitive Predictors of Student Success

Historically, the two most common predictors of student success are high school grade point average (HSGPA), and scores from the American College Testing Exam (ACT) or the Scholastic Assessment Test (SAT) (National Education Association, 2011). In a study conducted at the University of California, with almost 80,000 students, HSGPA served as the best predictor of first year performance across various disciplines (Geiser & Santelices, 2007). Additionally, HSGPA has reduced adverse impact against underrepresented minority groups as compared to standardized tests (Geiser & Santelices, 2007). Despite this, standardized tests are still required for many degree applications, causing their use to be a topic of interest in higher education admission decisions. According to the National Center for Education Statistics (2015), the SAT, ACT and other similar standardized assessments are designed to predict first year college grades, but do not serve as a proper indicator for student achievement or retention. College Board validity studies indicate that the combination of both high school grades and SAT scores serve as the best predictor of first year grade point average, accounting for 38% of the variability in GPA. Thus indicates both should be are utilized when making admission decisions (College Board, 2014). Of the individual SAT sections, SAT writing correlated the highest with first year GPA ($r = 0.51$, corrected) (College Board, 2014). While tests like the SAT and ACT are considered measures of aptitude, they are frequently viewed as

a proxy for cognitive ability. ACT and measures of cognitive ability are significantly related and Koenig, Frey and Detterman (2008) reported that the ACT is indistinguishable from intelligence test scores. High school GPA and ACT are the major predictors of college grade point average and in hierarchical regressions both explain a significant amount of unique variance (Schmidt, et al., 2009).

Student Satisfaction

Student satisfaction, often termed degree satisfaction, is another important predictor of student success and persistence (Rubin, et al, 2016). Student satisfaction is defined as the degree to which students receive the academic and social benefits they anticipated (Billups, 2011). Researchers agree that satisfied students are more likely to remain in, and ultimately graduate from the university (Pascarella & Terenzini, 2005). Conversely, dissatisfied students, often lacking organizational fit, have decreased commitment to the university, and therefore increased attrition (Bryant, 2006).

Measures of student satisfaction serve as useful indicators to higher education administrators. Surveys and similar methods provide feedback regarding student perception of the university environment. Utilization of this information can be used to fill voids, targeting areas which address and correct student concerns (National Student Survey, 2016).

Models of Student Persistence

There are several models which explain student persistence in higher education. Tinto's Longitudinal Model of Student Departure (1975, 1987, 1993) provides a

theoretical foundations for this field. Tinto's (1993) interactionist based model attempts to explain why students depart from their chosen institution prior to completion of an academic degree. His central proposition indicates that students enter the university setting with their own individual characteristics which drive behavior (Braxon et al, 1997). Goal commitment, institutional commitment, and social and academic integration serve as major predictors for student attrition or departure. Tinto (1993) cites nearly 75% of students leaving the university setting due to difficulties between academic and social fit, and only 25% departing due to academic failure. Because of this, encouraging social integration through involvement in organizations, clubs, and academic integration through mentoring and faculty-student relations will serve as essential components of academic persistence. Despite its thousands of citations and widespread popularity, Tinto's model is criticized for its inability to generalize across different groups of university students (Braxon et al, 1997). To combat critics, Tinto has revised his model twice (1987, 1993), and it continues to dominate in this body of research.

In attempt to operationalize the components of Tinto's model, Pascarella and Terenzini (1980) developed the Institutional Integration Scale. The items for the scale measure Tinto's facets through sub-scales which include; peer-group interaction, faculty interaction, faculty concern, academic and intellectual development, and institutional and goal commitment.

Perches (2014) utilized the Institutional Integration Scale to evaluate these constructs in our participants, performing exploratory factor analysis to evaluate meaningful differences, including minority and majority distinctions. In this study I related it to cumulative grade point average two years later (summer 2016 and fall 2016).

Because college GPA is related to persistence, it is expected that the constructs in Tinto's model will be related to GPA:

Hypothesis 1a: Students with more positive perceptions of peer group interactions will have a higher cumulative GPA.

Hypothesis 1b: Students with more positive perceptions of faculty interaction will have a higher cumulative GPA.

Hypothesis 1c: Students with more positive perceptions of faculty concern will have a higher cumulative GPA.

Hypothesis 1d: Students with more positive perceptions of academic and intellectual development will have a higher cumulative GPA.

Hypothesis 1e: Students with more positive perceptions of institutional and goal commitment will have a higher cumulative GPA.

University Environment and Cultural Congruity

Gloria and Kurpius (1996) highlight university environment and cultural congruity as leading components in academic persistence for racial and ethnic minority students.

The university environment consists of social and cultural conditions, which include practices and behaviors which make up the working and learning context (Castillo et al, 2006). There are two major components: physical aspects of the university, and demographics of enrolled students (Centra & Rock, 1971). Commonly, the university environment is influenced by the majority culture, typically composed of beliefs, values and practices of white Americans (Castillo et al, 2006). Thus, integration

to this environment often requires minorities to abandon their cultural distinctions to successfully assimilate. Recent research on Latino students indicates a negative perception of the university environment, acknowledging inequalities, and hostility on many campus settings (Hurtado, Carter & Spuler, 1996). This results in a lack of cultural congruity, which is defined as the match between a student's cultural beliefs and behaviors with those of the predominant campus population (Gloria & Kurpuis, 1996).

In a similar study, researchers looked at the cultural congruity and perception of the university environment in Asian American undergraduates (Gloria & Ho, 2003). Authors point out limited research on this minority highlighting psychological experience in a university setting, and an increased focus on academic achievement. Results indicate that Chinese and Korean Americans reported lower cultural congruity and more negative perceptions of any Asian ethnic group (Gloria & Ho, 2003).

Gloria and Kurpuis (1996) developed the Cultural Congruity scale in an attempt to assess students' perception and persistence, based on congruency or incongruence of values. Because positive perceptions are related to persistence, it is expected that these constructs will be related to GPA:

Hypothesis 2a: Students who perceive congruency with their own cultural values and the values of the dominant student population will have a higher cumulative GPA.

Hypothesis 2b: Students who perceive a positive university environment will have a higher cumulative GPA.

Dispositional Resilience/ Hardiness

Luthar, et al (2000) define resilience as a dynamic process which encompasses positive adaptation within the context of significant adversity. In other definitions, resilience is viewed as the capacity to remain sound, recover, and thrive in the face of adversity (Hardy, Concato & Gill, 2004). Tugade and Fredickson (2004) see resiliency as effectively coping with personal adversity. Higher education literature recognizes personal resiliency as an essential psychosocial factor which contributes to academic success (Prince- Embury, 2015).

Rooted in the existential theory, psychological hardiness is commonly viewed as an individual resiliency resource (Sheard, 2009). Hardiness is defined as a culmination of three independent traits; commitment, control and challenge (Bartone, 2000). Commitment (compared to alienation), is considered a long term orientation and is present in individuals who are deeply devoted and connected to activities in their lives (Lemay, 2016). Control (rather than powerless), indicates individual desire to have an influence in the outcome of decisions in their lives (Sheard, 2009). Lastly, challenge (compared to security), describes unforeseen obstacles which play a leading role in individual development (Sheard, 2009). Combined, these qualities help researchers assess an individual's ability to respond in stressful situations (Hystad et al, 2015).

Studies of psychological hardiness have been evaluated in a wide range of settings from first year cadet basic training (Kelly, Matthews & Bartone, 2014) to medical professionals (Lambert & Lambert, 1993). In academia, hardiness is consistently associated with increased academic performance (Golf, 2011, Sheard, 2009, Sheard & Golby, 2007). In fact, researchers found that students who encompassed the "Three C's" of hardiness (Bartone, 1995) were more likely to demonstrate a proactive coping style

under stressful circumstances (Sheard, 2009). Compared to their counterparts, hardy individuals showed increased initiative in actively completing coursework on time, rather than displaying avoidant behaviors (Khoshaba & Maddi, 1999). In a 2000 study, hardiness served as a better predictor of undergraduate retention than both the Scholastic Aptitude Test (SAT) and high school class rank (Lifton, Seay, & Bushke, 2000). Lastly, individuals scoring higher in hardiness were less likely to react to stressful situations with drugs and alcohol, as compared to those who scored low (Further, Maddi, Wadhwa, & Haier, 1996).

Bartone (1995) Dispositional Resilience/ Hardiness scale operationalized these constructs, in the attempt to measure the psychological hardiness of individuals. Because resilience is related to persistence, it is expected that these constructs will be related to GPA:

Hypothesis 3a: Students higher in dispositional resilience/hardiness will have a higher cumulative GPA.

Academic Self-Efficacy

Self- efficacy is a belief about one's capabilities to learn or perform behaviors at a designated level (Bandura, 1986). Self-efficacy is grounded in Social Cognitive Theory, which posits that achievement is dependent upon interactions between behaviors, personal factors and the environment (Bandura, 1986, 1987). Academic self-efficacy refers to a person's belief that they can complete academic tasks (Zajacova, Lynch & Espenshade, 2005). Research on self-efficacy in educational settings indicates self-efficacy is related to academic performance and persistence (Multon, Brown, & Lent, 1991).

Individual learners begin to evaluate their academic self-efficacy based on past performances, vicarious experiences, verbal persuasion, and physiological reactions (Bandura, 1997). Gist and Mitchell (1992) explain that there is a three step assessment process, used by individuals to assess their self-efficacy. First, individuals complete an analysis of task requirements, which is the determination of whether the individual has the capabilities to perform the given task (Gist & Mitchell, 1992). Next, individuals perform an attributional analysis of the experience, resulting in individual perception and interpretation of how task behavior affected performance (Gist & Mitchell, 1992). Lastly, individuals assess personal and situational resources and constraints which may have helped or hindered their performance (Gist & Mitchell, 1992).

For those with high academic self-efficacy outcomes of these evaluations influence individual persistence, resilience, and effort (Bandura, 1997). Efficacious individuals set more challenging goals for themselves and will be more committed to achieving goals despite roadblocks (Bandura, 1995). Highly efficacious individuals tend to be less immobilized by anxiety and therefore more able to perform in stressful situations. Academic self-efficacy is related to individual confidence in mastering academic subjects, and therefore serves as a primary predictor in academic performance (Zimmerman, 1995).

Because academic self-efficacy is related to persistence, it is expected that these constructs will be related to GPA:

Hypothesis 4a: Students who report higher levels of academic self-efficacy will have higher cumulative GPA's.

Big Five Personality

Recent literature highlights the importance of non-cognitive predictors on academic performance (Garriot et al, 2015, Harackiewicz et al, 2002, Martin et al, 2003, Rothstein et al, 1994). One such predictor is personality and the Big 5 Personality theory has received much of this research attention (Goldberg, 1990, Higgins et. al, 2007, Lievens et al, 2009, Higgins et. al, 2007). The Big Five is intended to assess five key dimensions of personality; conscientiousness, agreeableness, neuroticism, openness, and extraversion (Goldberg, 1990). Several studies indicate that these dimensions of personality provide incremental validity of college success beyond traditional predictors of HSGPA and standardized tests (Goldberg, 1990). In a meta-analysis performed of all five factors of the model, conscientiousness emerged as the most robust predictor of college grades (Noftle & Robins, 2007). The remaining dimensions of the Big 5 yielded inconsistent results in the prediction of academic performance (extraversion, agreeableness, neuroticism, and openness to experience) (Noftle & Robins, 2007).

As indicated above, conscientiousness is considered the strongest correlate of GPA (r = .19) (Richardson, Abraham, & Bond, 2012). Individuals scoring high in conscientiousness are viewed as hard-working, achievement- oriented, and persistent when faced with challenging material (Furnham, Monsen & Ahmetoglu, 2009). Conscientiousness has been shown to be a stable predictor of achievement across both high school and college (Gough, 1964). In a recent study, effects of college achievement were mediated by increased effort and self-efficacy (Noftle & Robins, 2007).

Hypothesis 5a: Students who score higher in Conscientiousness will have higher cumulative GPA's.

The dimension of agreeableness plays an important role in understanding social functioning of individuals. Individuals scoring high in agreeableness have better relationships, experience increased social support, and tend to be more cooperative with others (Bresin & Robinson, 2015). While theoretical basis of agreeableness indicate potential correlations with academic performance, this appears to be an inconsistent area of literature (Hilbig et al, 2014). However, researchers do acknowledge that agreeableness generally plays a mediating role in the relationship (McAbee & Oswald, 2013). On average, individuals scoring higher in this facet are generally more likely to attend classes, coordinate group projects, and work collaboratively in team environments (Field, Tobin & Reese-Weber, 2014).

Hypothesis 5b: Students who score higher in Agreeableness will have higher cumulative GPA's.

Individuals scoring high in facets of neuroticism are often plagued with anxiety, depression, and an increased vulnerability to stressors (Noftle & Robins, 2007, Tamir, 2005). Neuroticism is negatively correlated with GPA and academic performance (McAbee & Oswald, 2013), particularly when students are assessed through examinations (Landra et al, 2007). Researchers attribute this finding to an increased test anxiety, which often limits academic performance in college (Noftle & Robins, 2007).

Hypothesis 5c: Students who score higher in Neuroticism will have lower cumulative GPA's.

Openness to Experience is described as the willingness to consider new ideas (Hildenbrand, Sacramento & Binnewies, 2016). Individuals high in Openness have increased imagination, curiosity, and intellectual curiosity and engagement (McAbee &

Oswald, 2013). The relationship between openness to experience and academic performance yields inconsistent results, and only indicates a weak correlation between the two constructs (Wolfe & Johnson, 1995, Noftle & Robbins, 2007).

Hypothesis 5d: Students who score higher in Openness to Experience will have higher cumulative GPA's.

Extraversion is defined as the disposition to behave in a sociable manner (Eysenck, 1967). Individuals scoring high in Extraversion show increased activity levels, positive affect, and talkativeness (McAbee & Oswald, 2013). Meta-analysis reviews indicate extraversion is positively associated with higher GPA in grade school, but negatively associated with GPA in a college environment (Noftle & Robins, 2007). These results are largely attributed to social components which make an individual distracted more easily and unable to focus on academic coursework (McAbee & Oswald, 2013).

Hypothesis 5e: Students who score higher in Extraversion will have lower cumulative GPA's.

METHOD

Participants

The participants in this project were taken from data originally collected in a 2013 study (Perches, 2014). The initial project received approval from the Internal Review Board during the Fall 2013, and informed consent included permission to access cumulative grade point average across semesters. This portion of the study completes gathering of that data. All data collection in this phase was actuarial in nature and once current GPA was matched with the initial data set, all identifying information (M-numbers) were removed.

Since retention and academic performance are important, I gathered information about the current standing of Perches participants following summer and fall 2016 semesters. I specifically assessed their current status (continuing, graduated, withdrawn) and most recent or last recorded GPA from the university's online student information system. The resulting sample consisted of a total of 291 students (originally enrolled in introductory psychology and/or multicultural leadership scholarship recipients). All participants originally completed an online self-report questionnaire.

Of the 291 participants, 242 identified as White or Caucasian, 13 identified as Black or African American, 12 identified as more than one race, six were non-resident alien, ten were Hispanic or Latino, six were Asian, and two were Native American or Alaskan Native. There were a total of 80 men, 207 women, and four individuals who did not disclose their gender. The average age of the participants was 18 years with a minimum age of 17 years and a maximum age of 49 years.

The average household income of participants was $50,000 - $59,000. The average ACT composite score was 23 and the average cumulative GPA was 3.19. Approximately 50% (n = 148) of the sample were first semester freshman and had completed less than 29 credits at the time they completed the survey. Approximately 20% (n = 60) of the sample had earned 30-59 college credit hours at the time they completed the survey.

Measures

Demographics. Perches (2014) collected demographic information from the students. This information included ethnicity, age, gender, family household income, number of college credit hours, parental education level, and Missouri State student identification number. Students were asked for permission to collect their ACT composite score and cumulative GPA information.

Institutional Integration Scale. This scale was developed to assess fundamental constructs of Tinto's (1975) model of student attrition, which included student persistence and decisions to withdrawal from the university (Pascarella & Terenzini, 1980). The 30-item scale included five subscales, rated on a five point Likert- type scale, ranging from 1= *strongly disagree*, to 5 = *strongly agree* (see Appendix B). A total was obtained from the scale by summing scores across the items, where higher scores indicated negative outcomes to continued persistence in the academic environment. Individual subscales were designed with the intention of assessing Tinto's (1975) dimensions, and included: peer-group interactions (7 items), faculty interaction (5 items), faculty concern (5 items), academic and intellectual development (7 items), and institutional and goal commitment (6 items) (Terenzini, et al., 1981). Pascarella and

Terenzini (1991) report a Cronbach's Alpha for each of the five factors ranging from .71 to .84. Totals were averaged for each subscale to make reporting more meaningful.

Cultural Congruity Scale (CCS). This scale was developed to determine the degree of perceived match between students' cultural or personal values with those of the university (Gloria & Kurpuis, 1996). The origin of the scale derived from the six-item Perceived Threat Scale, used to assess perceptions of threat among students from historically excluded groups on Ivy League campuses (Ethier & Deaux, 1990). Gloria and Kurpuis (1996) added eight additional items and factor analyzed the scale resulting in the 13- item questionnaire used in Study 1. This scale is rated on a 7 point Likert-type scale, ranging from 1 = *not at all*, to 7 = *a great deal* (see Appendix B). Scores on this measure can range from 13-91, with a higher score indicating a greater sense of cultural congruity (Gloria & Kurpuis, 1996). The scale has high reliability with a Cronbach's Alpha of .89. For this study I reported individual averages across the 13 items to make interpretation more meaningful. Internal reliability for this scale resulted in a Cronbach's Alpha of .77.

University Environment Scale (UES). This scale was developed to assess students' perception of the university environment (Gloria & Kurpuis, 1996). The scale consists of 16- items, rated on a 7 point Likert- type scale, ranging from 1 = *not at all*, to 7 = *very true* (see Appendix B). Of the 16 items, five were reverse coded. After two items were removed for detracting from the scale's internal consistency, the fourteen item scale resulted in a Cronbach's Alpha of .84 (Gloria & Kurpuis, 1996). For this study I reported individual averages across the 16 items to make interpretation more meaningful. Internal reliability for this scale resulted in a Cronbach's Alpha of .84.

Dispositional Resilience/ Hardiness Scale (DRS-15). This scale was developed to assess psychological hardiness using a self-report format (Wong, et.al, 2014). The scale consisted of three sub-scales, measuring commitment, control, and challenge, which are considered fundamental hardiness facets (Bartone, 1995). The 15-item scale is keyed both positively and negatively (See Appendix B). Cronbach Alpha levels for each of the factors consisted of; commitment (.77), control (.71), and challenge (.70), with a Cronbach's Alpha for the entire scale of .83 (Bartone, 1995). For this study I reported individual averages across the items to make interpretation more meaningful.

Academic Self- Efficacy. This scale consists of 27 school related tasks, scored on a 1-10 scale where 1 = *not confident*, and 10 = *extremely confident* (See Appendix B) (Zajacova, Lynch, & Espenshade, 2005). Tasks included statements such as "studying", "asking questions in class", and "keeping up with the required readings". Internal reliability for this scale was calculated with a Cronbach's Alpha of .95. For this study, we reported individual averages across the items to make interpretation more meaningful.

Big 5 Inventory (BFI). This scale was developed to assess the Big 5 factors of personality, which includes extraversion, neuroticism, conscientiousness, agreeableness, and openness to experience (John & Srivastava, 1999). Each personality facet consisted of 10-item scales, rated on a five point Likert-type scale where 1 = *very inaccurate*, and 5 = *very accurate* (see Appendix B). For each domain, five items were keyed positively, and the other five were keyed negatively and were therefore reverse coded. Cronbach Alpha levels for each of the factors consisted of; neuroticism (.86), extraversion (.86), conscientiousness (.81), agreeableness (.77), and openness to experience (.82) (Gosling,

et. al, 2003). Totals were averaged for each of the dimensions items to make reporting more meaningful.

Procedures

This study received IRB approval in 2013. Undergraduate students were recruited and completed the questionnaire through the Missouri State University Department of Psychology Experiment Participation System (Sona Systems). The informed consent obtained permission to access current and future academic performance information (i.e., cumulative grade point average).

The survey was administered through use of Qualtrics, an online survey site. Students were sent a link to complete the survey, where they were also instructed to complete an informed consent form. Research credit was awarded to students for completion of the questionnaire. Research credit was later converted to class points by respective instructors.

RESULTS

Preliminary Analysis

Values for all variables were screened for plausible values by examining ranges, means, and standard deviations. All values were plausible (see Table 1). The data were screened for multivariate outliers. No multivariate outliers were deleted. Univariate outliers were not deleted, because the outliers were typical of GPA. All analyses were conducted using SPSS v.21.

Descriptive Statistics

Data were collected to analyze continuance status of the sample for both summer 2016 and fall 2016. Of the 291 participants who were surveyed in the Perches study, 80 had graduated (mean GPA= 3.44), 124 were currently enrolled (mean GPA= 3.35), and 87 were not currently enrolled for the spring 2017 semester (mean GPA= 2.72). Table 1 presents descriptive statistics for all study variables. One-way ANOVAs computed on cumulative GPA and continuance for both summer 2016 ($F(2,288) = 2.25$, $p > .05$) and fall 2016 ($F(2, 288) = 1.85$, $p > .05$) were not significant.

Graduation, continuance and withdrawal status was also examined by ethnicity. All minority groups were combined because of the low number of minority respondents in the sample (16.8% of the sample). Table 2 presents a comparison of graduation, continuance and withdrawal by ethnicity. Between groups ANOVAs were computed for cumulative GPA summer 2016, fall 2016, and continuance. Summer 2016 GPA was marginally significant $F(1, 289) = 3.84$, $p < .05$. Neither cumulative GPA fall 2016 $F(1, 289) = 3.12$, $p > .05$ nor continuance status ($F(1, 289) = .64$, $p > .05$) were significant.

Table 1 Descriptive Statistics for Study Scales

Variable	*N*	*M*	SD	Range	Skew	Kurtosis
Institutional Integration						
Peer-Group Interaction	290	3.23	0.38	(2.25-5)	-0.13	-0.30
Interaction with Faculty	289	3.41	0.70	(1.80-5)	0.09	-0.33
Faculty Concern for Student Development and Teaching	290	3.55	0.73	(1.80-5)	0.17	-0.87
Academic and Intellectual Development	290	3.77	0.54	(1.83-5)	-0.49	0.47
Institutional and Goal Commitment	290	4.53	0.52	(2.00-5)	-1.67	3.74
Cultural Congruity	290	5.93	0.77	(3.31-7)	-0.99	0.82
University Environment	290	5.73	0.82	(3.30-7)	-0.67	0.01
Big 5 Personality						
Neuroticism	290	2.46	0.67	(1.00-4.60)	0.49	0.03
Extraversion	290	3.51	0.71	(1.20-5)	-0.37	0.21
Openness to Experience	290	3.54	0.62	(1.30-5)	-0.20	0.14
Conscientiousness	290	4.03	0.58	(2.20-5)	-0.78	0.40
Agreeableness	290	3.99	0.52	(1.60-5)	-0.72	1.61
Resiliency	288	3.01	0.34	(2.13-4)	-0.01	-0.29
Academic Self-Efficacy	288	8.33	1.48	(2.67-10)	-0.63	0.44
Age	283	19.80	4.22	(17-49)	1.32	16.125
GPA Summer 2016	291	3.19	0.62	(1.06-4.00)	-0.89	0.52
GPA Spring 2017	291	3.18	0.61	(1.06-4.00)	-0.85	0.45

Table 2: Rates of Graduation, Continuance and Withdrawal from the University

	White	Percent	Other Ethnicity	Percent
Graduated	66	27.3	14	28.6
Continuing	105	43.4	19	38.6
Withdrew	71	29.3	16	32.7

Hypothesis Testing

The following hypotheses were supported. These hypotheses and the results for fall and summer 2016 GPA are summarized below and correlation coefficients can be found in Table 3.

Hypothesis 1a: The relationship between peer group interaction and cumulative GPA was significant for both summer 2016 ($r = .13$, $p < 0.00$) and fall 2016 semester ($r = .13$, $p < 0.01$), supporting Hypothesis 1a.

Hypothesis 1c: The relationship between faculty concern and cumulative GPA was significant for summer 2016 ($r = .12$, $p < 0.04$) and fall 2016 *(*$r = .14$, $p < 0.02$), supporting Hypothesis 1c.

Hypothesis 1d: The relationship between academic and intellectual development and cumulative GPA was significant for summer 2016 ($r = .21$, $p < 0.00$) and fall 2016 ($r = .22$, $p < 0.00$), supporting Hypothesis 1d.

Hypothesis 4a: The relationship between academic self-efficacy was significant for summer 2016 ($r = .21$, $p < 0.01$) and fall 2016 ($r = .22$, $p < 0.01$), supporting Hypothesis 4a.

Hypothesis 5a: The relationship between conscientiousness and cumulative GPA was significant for summer 2016 (r = .15, p < 0.01) and fall 2016 (r = .14, p < 0.02), supporting Hypothesis 5a.

The following hypotheses were not supported:

Hypothesis 1b: The relationship between faculty interaction and cumulative GPA was not significant, for either summer 2016 (r = .02, p = .749), or fall 2016 (r = .04, p =.550).

Hypothesis 1e: Surprisingly, the relationship between institutional and goal commitment and cumulative GPA was not significant for summer 2016 (r = -.04, p = .481) or fall 2016 (r = -.05, p = .425).

Hypothesis 2a: The relationship between cultural congruity and cumulative GPA was not significant for summer 2016 (r = .11, p = .067), or fall 2016 *(*r = .09, p = .137).

Hypothesis 2b: The relationship between university environment and cumulative GPA was not significant for summer 2016 (r = .03, p = .580) or fall 2016 (r = .04, p =.528).

Hypothesis 3a: The relationship between dispositional resiliency and cumulative GPA was not significant for summer 2016 (r = .00, p = .950) or fall 2016 (r = .02, p = .714).

Hypothesis 5b: The relationship between agreeableness and cumulative GPA was not significant for summer 2016 (r = .04, p = .473) or fall 2016 (r = .06, p = .327).

Hypothesis 5c: The relationship between neuroticism and cumulative GPA was not significant for summer 2016 *(*r= -.09, p =.133) or fall 2016 (r= .09 p = .139).

Hypothesis 5d: The relationship between openness to experience and cumulative GPA was not significant for summer 2016 (r = -.11, p =.071) or fall 2016 (r = -.09, p = .143).

Hypothesis 5e: Finally, the relationship between extraversion and cumulative GPA was not significant for summer 2016 (r = .05, p = .429) or fall 2016 (r =.05, p = .423).

Table 3- Bivariate Correlations: Correlations Among Study Variables

	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
1. GPA Summer 2016	-																			
2.GPA Fall 2016	.98**	-																		
3.Age	-.19**	-.18**	-																	
4.Mother's Education	.19**	.19**	-.24**	-																
5.Father's Education	.21**	.19**	-.21**	.47**	-															
6.Total Family Household Income	.24**	.24**	-.34**	.34**	.42**	-														
7.Peer-Group Interaction	.13*	.13*	-.13*	.13*	.10	.15*	-													
8.Faculty Interaction	.02	.04	.08	-.08	-.11	-.11	-.02	-												
9.Faculty Concern	.12*	.14*	-.16**	.02	-.01	.10	.25**	.18**	-											
10.Academic Development	.21**	.22**	-.06	-.03	.02	.06	.27**	.30**	.36**	-										
11.Goal Commitment	-.04	-.05	-.02	-.09	-.02	-.03	.23**	.16**	.23**	.34**	-									
12.Cultural Congruity	.11	.09	-.07	-.03	-.03	.05	.18**	.12*	.16**	.23**	.20**	-								
13.University Enviornment	.03	.04	-.09	-.06	.12	-.03	.21**	.35**	.31**	.45**	.31**	.51**	-							
14.Neuroticism	-.09	-.09	-.04	.03	.06	.03	-.12*	-.18**	-.15*	-.25**	-.13*	-.36**	-.36**	-						
15.Extraversion	.05	.05	-.11	-.01	.08	.08	.11	.18**	.04	.23**	.19**	.19**	.24**	-.30**	-					
16.Openness	-.11	-.09	.16**	-.11	-.11	-.18**	.07	.15*	.15*	.22**	.02	.08	.20**	-.05	.22**	-				
17. Agreeableness	.04	.06	.05	-.08	-.04	.08	.13	.16**	.20**	.29**	.13*	.33**	.41**	-.41**	.26**	.29**	-			
18.Conscientiousness	.15**	.14*	.07	-.12*	-.08	.08	.15*	.17**	.11	.30**	.16**	.36**	.43**	-.33*	.26**	.16**	.57**	-		
19. Dispositional Resiliency	.00	.02	.03	-.03	-.10	-.08	.18**	.20**	.11	.31**	.22**	.27**	.44*	-.52**	.39**	.23**	.43**	.44**	-	
20.Academic Self-Efficacy	.21**	.22**	-.09	-.00	.01	-.03	.13*	.16**	.29**	.26**	.19**	.24**	.31**	-.29**	.18**	.17**	.23**	.39**	.28**	-

* Correlation is significant at the 0.01 level (2-tailed). * Correlation is significant at the 0.05 level (2-tailed)

Regression Analyses

Hierarchical regressions were computed for cumulative GPA at the conclusion of the summer and fall 2016 semesters. Only variables that were significant in the bivariate correlations were included in the analysis. Variables were entered based upon a logical ordering (personality, individual motivation, peer interactions and faculty concern).

For both semesters, only one predictor emerged as a significant predictor of academic performance- academic and intellectual development. Conscientiousness, peer group interaction, and faculty concern for students were not significant when academic and intellectual development was considered (see Tables 4 and 5).

Table 4
Hierarchical Multiple Regression Analysis Predicting GPA Summer 2016 with Study Variables as Predictors

	Source	*B*	*SEB*	β	*t*	*p*	ΔR^2	ΔF^2
Step 1:	Conscientiousness	.16	.06	0.15	2.59	0.01	0.02	6.73
Step 2:	Conscientiousness	.05	.07	0.05	0.61	0.10		
	Academic Development	.21	.07	0.18	3.06	0.01	0.03	9.34
Step 3:	Conscientiousness	.10	.06	0.09	1.52	0.13		
	Academic Development	.19	.07	0.17	2.66	0.01	0.01	1.57
	Peer-Group Interaction	.12	.10	0.08	1.25	0.21		
Step 4:	Conscientiousness	.10	.06	0.09	1.53	0.13		
	Academic Development	.18	.08	0.15	2.33	0.02	0.00	0.40
	Peer-Group Interaction	.11	.10	0.07	1.13	0.29		
	Faculty-Concern for Student Development	.03	.05	0.04	0.63	0.53		
Total R^2 (2,285) =.12								
Total Adjusted R^2 = .09								

Table 5
Hierarchical Multiple Regression Analysis Predicting GPA Fall 2016 with Study Variables as Predictors

	Source	*B*	*SEB*	β	*t*	*p*	ΔR^2	ΔF^2
Step 1:	Conscientiousness	.15	.06	0.14	2.44	0.02	0.02	5.96
Step 2:	Conscientiousness	.09	.06	0.09	1.43	0.15		
	Academic Development	.22	.07	0.19	3.18	0.02	0.03	10.1
Step 3:	Conscientiousness	.09	.06	0.08	1.35	0.18		
	Academic Development	.20	.07	0.17	2.81	0.01	0.00	1.32
	Peer-Group Interaction	.12	.10	0.07	1.15	0.25		
Step 4:	Conscientiousness	.98	.06	0.08	1.36	0.18		
	Academic Development	.18	.08	0.15	2.35	0.02	0.00	1.04
	Peer-Group Interaction	.10	.10	0.06	0.97	0.34		
	Faculty-Concern for Student Development	.05	.05	0.06	1.02	0.31		
Total R^2 (2,285) =.12								
Total Adjusted R^2 = .09								

Exploratory Analyses

Much is made of the challenges of particular majors; hence, a one-way ANOVA was conducted to examine meaningful differences in cumulative GPA across academic colleges. However, results yielded no statistically significant findings in GPA across Missouri State academic colleges for summer 2016; $F(2, 289)=.904$, $p < .728$. There were also no statistically significant findings for GPA for fall 2016; $F(2,289)=.975$, $p <.562$.

Next, a one-way ANOVA was also conducted to examine meaningful differences between continuance status (graduated, enrolled, or not currently enrolled at Missouri State) and cumulative GPA. Results indicated that those who were not currently enrolled

at Missouri State (n=87) had GPA's which were significantly different from those who had graduated and those who were still currently pursuing their degrees: $F(2,289)= 47.65$, $p < 0.01$.

DISCUSSION

While withdrawal rates were slightly greater for minorities at this institution, there were no meaningful differences in continuance rates or most recent grade point average as a function of ethic identification.

Correlational hypotheses for this study were partially supported. Perceptions of peer group interaction, faculty concern, academic development, and academic self-efficacy were all found to be significantly related to both measures of Cumulative GPA. Conscientiousness was the only dimension of the Big 5 Personality traits which was significantly correlated with Cumulative GPA. Total family household income was also significantly related to Cumulative GPA.

Academic and intellectual development was the only variable that was a significant predictor of cumulative GPA across both semesters over and beyond other predictors. Academic development items appeared to largely reflect an underlying theme of satisfaction. Unsurprisingly, it appeared that students who were satisfied intellectually, performed better in the classroom. Providing intellectual stimulation through cultural events, keynote speakers, and developmental conferences are suggestions of tactics used by some universities to encourage academic development (National Student Survey, 2017). Utilizing the knowledge of Missouri State academic advisors, freshman in their first semester could be matched to courses based on their intellectual capability and career interests. This is a technique which could be implemented early in the university experience.

It is our recommendation that future research should continue to highlight academic self-efficacy, which was significantly related to cumulative GPA across both

semesters. Literature in academic self-efficacy shows that individuals high in this characteristic across academic domains have increased conviction in task accomplishment, and are more likely to persist (Eccles & Wigfield, 2002). For educators and advisors in the university setting, building academic self-efficacy during a students' first semester will be imperative. Using Bandura's Self-Efficacy Theory (1971), enactive attainment, vicarious experiences and verbal persuasion strategies could be implemented. In addition, because faculty concern was significantly related to cumulative GPA, increasing the frequency of meetings with advisors during the first semester may be beneficial in establishing strong academic relationships. Missouri State attempts to encourage this with its SOAR (Student Orientation, Advisement and Registration) and URSA sessions which occur prior to the academic year, with the hopes of creating a smooth transition to Missouri State (Missouri State, 2017). They should continue to expand upon these efforts.

Limitations

There are several limitations of this study which should be considered when evaluating results. First, the dataset was inherited from Perches (2014), and therefore researchers had limited mobility regarding sample population and measures chosen. As noted previously, the sample used primarily introductory psychology students, who likely had not yet formed a strong impression of some of the constructs included in the questionnaire. Tinto (1975) notes that students' perceptions of the campus should be evaluated longitudinally, which can provide an accurate assessment of how perceptions affect college success. While updated cumulative GPA information was assessed at two

different points throughout this project, it would also have been interesting to re-distribute the original questionnaire to the sample of participants, for a better evaluation of how perceptions had changed over the course of time.

A more ethnically diverse sample would also be beneficial in future studies. The demographics documented for this sample are largely reflective of the university's demographic population. However, a more diverse sample would provide an inclusive view into minority student perspectives, and contribute significantly to the literature regarding minority retention issues.

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Appendix

Survey Measures

The following items were coded 1= Not At All, to 7= A Great Deal
Cultural Congruity Scale

1. I feel that I have to change myself to fit in at school. (R)
2. I try not to show the parts of me that are "ethnically" based. (R)
3. I often feel like a chameleon, having to change myself depending on the ethnicity of the person I am with at school. (R)
4. I feel that my ethnicity is incompatible with other students. (R)
5. I can talk to my friends at school about my family and culture.
6. I feel I am leaving my family values behind by going to college. (R)
7. My ethnic values are in conflict with what is expected at school. (R)
8. I can talk to my family about my friends from school.
9. I feel that my language and/ or appearance make it hard for me to fit in with other students. (R)
10. My family and school values are often conflict. (R)
11. I feel accepted at school as an ethnic minority.
12. As an ethnic minority, I feel that I belong on this campus.
13. I can talk to my family about my struggles and concerns at school.

The following items were coded 1= Not At All, = Very True
University Environment Scale

1. Class sizes are so large that I feel like a number. (R)
2. The library staff is willing to help me find materials/ books.
3. University staff has been warm and friendly.
4. I do not feel valued as a student on campus. (R)
5. Faculty has not been available to discuss my academic concerns. (R)
6. Financial aid staff has been willing to help me with financial concerns.
7. The university encourages/ sponsors ethnic groups on campus.
8. There are tutoring services available for me on campus.
9. The university seems to value minority students.
10. Faculty has been available to help me outside of class.
11. The university seems like a cold, uncaring place to me. (R)
12. Faculty has been available to help me make course choices.
13. I feel as if no one cares about me personally on this campus. (R)
14. I feel comfortable in the university environment.

The following items were coded 1= Strongly Disagree, to 5 = Strongly Agree
Institutional Integration Scale

Scale I: Peer-Group Interactions

1. Since coming to this university I have developed close personal relationships with other students.
2. The student friendships I have developed at this university have been personally satisfying.
3. My interpersonal relationships with other students have had a positive influence on my personal growth, attitudes, and values.
4. My interpersonal relationships with other students have had a positive influence on my intellectual growth and interest in ideas.
5. It has been difficult for me to meet and make friends with other students. (R)
6. Few of the students I know would be willing to listen to me and help me if I had a personal problem. (R)
7. Most students at this university have values and attitudes different from my own (R)

Scale II: *Faculty Interaction*

8. My non-classroom interactions with faculty have had a positive influence on my personal growth, values, and attitudes.
9. My non-classroom interactions with faculty have had a positive influence on my career goals and aspirations.
10. My non-classroom interactions with faculty have had a positive influence on my career goals and aspirations.
11. Since coming to this university, I have developed a close, personal relationship with at least one faculty member.
12. I am satisfied with the opportunities to meet and interact informally with faculty members.

Scale III: Faculty Concern for Student Development and Teaching

13. Few of the faculty members I have had contact with are generally interested in students. (R)
14. Few of the faculty members I have had contact with are generally outstanding or superior teachers. (R)
15. Few of the faculty members I have had contact with are willing to spend time outside of class to discuss issues of interest and importance with students. (R)
16. Most of the faculty members I have had contact with are interested in helping students grow in more than just academic areas.
17. Most faculty members I have had contact with are genuinely interested in teaching.

Scale IV: Academic and Intellectual Development

18. I am satisfied with the extent of my intellectual development since enrolling in this university.
19. My academic experience has had a positive influence on my intellectual growth and interest in ideas.
20. I am satisfied with my academic experience at this university.
21. Few of my courses this year have been intellectually stimulating. (R)
22. My interest in ideas and intellectual matters has increased since coming to this university.
23. I am more likely to attend a cultural event (for example, a concert, lecture, or art show) now than before coming to this university.
24. I have performed academically as well as I anticipated I would.

Scale V: Institutional and Goal Commitment

25. It is important for me to graduate from college.
26. I am confident that I made the right decision in choosing to attend this university.
27. It is likely that I will register at this university next fall.
28. It is not important for me to graduate from this university. (R)
29. I have no idea at all what I am going to major in. (R)
30. Getting good grades is not important to me. (R)

The following items were coded 1= Very Inaccurate, to 5 = Very Accurate

Big 5 Inventory

Openness to Experience

1. I believe in the importance of art.
2. I have a vivid imagination.
3. I tend to vote for liberal political candidates.
4. I carry the conversation to a higher level.
5. I enjoy hearing new ideas.
6. I am not interested in abstract ideas. (R)
7. I do not like art. (R)
8. I avoid philosophical discussions. (R)
9. I do not enjoy going to art museums. (R)
10. I tend to vote for conservative political candidates. (R)

Conscientiousness

1. I am always prepared.
2. I pay attention to details.
3. I get chores done right away.
4. I carry out my plans.

5. I make plans and stick to them.
6. I waste my time. (R)
7. I find it difficult to get down to work. (R)
8. I do enough work just to get by. (R)
9. I don't see things through. (R)
10. I shirk my duties. (R)

Extraversion

1. I feel comfortable around people.
2. I make friends easily.
3. I am skilled in handling social situations.
4. I am the life of the party.
5. I know how to captivate people.
6. I have little to say. (R)
7. I keep in the background. (R)
8. I would describe my experiences as somewhat dull. (R)
9. I don't like to draw attention to myself. (R)
10. I don't talk a lot. (R)

Agreeableness

1. I have a good word for everyone.
2. I believe that others have good intentions.
3. I respect others.
4. I accept people as they are.
5. I make people feel at ease.
6. I have a sharp tongue. (R)
7. I cut others to pieces. (R)
8. I suspect hidden motives in others. (R)
9. I get back at others. (R)
10. I insult people. (R)

Neuroticism

1. I often feel blue.
2. I dislike myself.
3. I am often down in the dumps.
4. I have frequent mood swings.
5. I panic easily.
6. I rarely get irritated. (R)
7. I seldom feel blue. (R)
8. I feel comfortable with myself. (R)
9. I am not easily bothered by things. (R)
10. I am very pleased with myself. (R)

The following items were coded 1 = Not Confident to 10 = Extremely Conflict

Academic Self-Efficacy

1. Studying.
2. Asking questions in class.
3. Keeping up with the required readings.
4. Understanding my professors.
5. Writing term papers.
6. My parents' expectations of my grades.
7. Making friends at school.
8. Doing well on exams.
9. Getting papers done on time.
10. Having more tests in the same week.
11. Taking good class notes.
12. Managing both school and work.
13. Preparing for exams.
14. Managing time efficiently.
15. Getting along with family members.
16. Improving my reading and writing skills.
17. Researching term papers.
18. Getting the grades I want.
19. Having enough money.
20. Talking to my professors.
21. Getting help and information at school.
22. Doing well in my toughest class.
23. Talking to college staff.
24. Finding time to study.
25. Understanding my textbooks.
26. Participating in class discussions.
27. Understanding college regulations.