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What Good is Engagement? Predicting Academic Performance and College Satisfaction from Personality, Social Support, and Student Engagement

Timothy Bono
Washington University in St. Louis

WASHINGTON UNIVERSITY IN ST. LOUIS

Department of Psychology

Dissertation Examination Committee:
Randy Larsen, Chair
Dave Balota
Tili Boon Cuille
Jim McLeod
Mike Strube
Simine Vazire

WHAT GOOD IS ENGAGEMENT?

PREDICTING ACADEMIC PERFORMANCE AND COLLEGE SATISFACTION

FROM PERSONALITY, SOCIAL SUPPORT, AND STUDENT ENGAGEMENT

by

Timothy Joseph Bono

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“If I have seen further…it is by standing upon the shoulders of giants.”

--Isaac Newton

To Randy,

for letting me stand on your shoulders

Abstract

This dissertation identifies variables that predict academic performance and university satisfaction among 146 undergraduate students at Washington University tested during their first semester of freshman year and later as sophomores or juniors. Hierarchical regression analysis reveals that, after controlling for SAT scores, freshman levels of conscientiousness and upperclass Academic Engagement predict higher GPA. Freshman levels of life satisfaction, Co-curricular Engagement, and low regret, and upperclass levels of happiness, social support, and low regret predict university satisfaction. A quantifiable model of Student Engagement is also offered. Further, results demonstrate that, over the college years, personality and student engagement change over time. Implications for strengthening academic performance and increasing student satisfaction are discussed.

Acknowledgements

This dissertation represents so much more than my spending the past year immersed in data collection and analysis, or even the past five years of graduate study in psychology. In fact, I trace its roots to my senior year of high school when I first was learning about Washington University.

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Chapter 1: Introduction

When they arrive for Orientation, college freshmen bring with them more than their high school records and standardized test scores. They possess personality traits, varying levels of happiness and satisfaction with their lives, social support, and a propensity to (or not to) become engaged in university life. Might these other variables be able to predict college performance beyond what is accounted for by standard college admissions criteria like SAT scores? Might they also predict college satisfaction? Perhaps a student's background, support during the college years, and engagement on campus could be key contributors to students' overall evaluations of their college careers. This dissertation will examine these questions, focusing on variables from three categories: personality, social support, and student engagement. In other words, could the experiences freshmen bring with them, along with those they have while transitioning to college life, be associated with outcomes as upperclassmen? It seems plausible that the nature of their early experiences could have predictive implications for other aspects of their college careers, including academic performance and overall reports of satisfaction with their university experiences. These are the topics I will focus on in this dissertation.

Personality as a Predictor of Academic Performance

Most college and university admissions offices use applicants' standardized test scores when determining which candidates to admit. However, some suggest that standardized tests—though almost uniformly used as college admissions criteria—are not necessarily the best predictors of academic performance. For example, Goff and

Ackerman (1992) note that standardized tests like the SAT and ACT are tests of a student's *maximal* instead of *typical* intellectual performance. In practice, it is unlikely that students will consistently exert their maximal effort, rendering the SAT and ACT imperfect measures to predict academic performance.

Personality, on the other hand, has been shown to reliably predict academic performance. In fact, compared to standardized test measures like the SAT, personality variables are better at predicting typical (rather than maximal) intellectual engagement (Goff & Ackerman, 1992). Hence, academic performance seems to have its roots in stable, inherent individual differences (i.e., personality traits) more so than a one-time assessment that can be prepared for strategically (i.e., the SAT). Conscientiousness, in particular, has emerged as a personality trait that positively predicts college GPA about as well as SAT scores, even when controlling for SAT scores (Noftle & Robins, 2007; cf. Poropat, 2009 for a review). That is, there is an effect of personality over and above what is accounted for by SAT.

Psychologists also have given attention to the implications of personality change during the college years. The "Maturity Principle" suggests that individuals increase in dominance, agreeableness, conscientiousness, and emotional stability throughout their lives (Caspi, Roberts, & Shiner, 2005, p. 468). During the college years in particular, students develop in a manner consistent with this maturity, becoming more open, conscientious, and agreeable, and less neurotic (Robins, Fraley, Roberts, & Trzesniewski, 2001). These changes are most dramatic earlier in the college years, with personality becoming increasingly stable over time (Vaidya, et al., 2008). These studies are

consistent with many others that suggest young adults mature over time. The trajectory of this maturation, however, will typically depend on the level of maturity an individual exhibits in adolescence. Because most young adults grow in maturity, those with the lowest levels when they are young have the most "catching up" to do to reach adulthood maturity. Hence, those individuals will show the least stability in personality because it will have to change so much to reach the levels of their already mature peers (Johnson, Hicks, McGue, & Iacono, 2007; Roberts, Caspi, & Moffitt, 2001). If the constellation of personality traits that college students bring with them determines their rate of psychological maturation, perhaps personality also plays a role in their academic success as well. This dissertation will provide insight into whether psychological maturity in the first few semesters of college relates to their course grades as upperclassmen.

When considering the relationship between psychological maturity and later course grades, recall the above comment that Conscientiousness (assessed at a single measurement occasion) predicts academic performance. However, there has not yet been any investigation into whether the rate at which this and other traits *change* is associated with performance. As I already have noted, the nature and change of personality determines psychological maturity: students become more open, conscientious, agreeable, and less neurotic throughout college (Robins et al., 2001), and those who already exhibit personality traits at these levels at the start of college are most stable in their personalities because they are closest to the mature persona to begin with. One question that has remained unanswered, therefore, is whether particular academic outcomes are associated with psychological maturity. I predict that having a head start

on psychological maturity in the freshman year will yield stronger academic performance during the first half of college.

Is a Happy Student a Successful Student?

Related to personality, happiness is a variable that has received even less attention in terms of its relationship to academic outcomes. Happiness has been shown to precede creativity and problem-solving, to increase productivity and the quality of one's work, and to raise the likelihood employees will keep their jobs (cf. Lyubomirsky, King, & Diener, 2005 for a review). However, no studies have yet investigated whether happiness also increases the productivity and academic livelihoods of college students. I expect to find this in my study. Not only does it seem a probable extension of the studies reviewed by Lyubomirsky et al. (2005), but it also fits with other research linking positive affect and cognition. For example, Fredrickson (1998) has shown that positive emotions broaden one's momentary thought-action repertoire, while simultaneously building the individual's intellectual resources (the Broaden-and-Build Theory of Positive Emotions). More specifically, positive emotions broaden the scope of one's cognition by facilitating learning and memory, "loosening" information-processing strategies, and increasing creative thinking. Although no studies have directly tested whether positive emotions predict coursework performance in the college setting, in light of the above research it seems likely that happiness could strengthen academic functioning. This dissertation will address this question by determining whether happiness at the start of college predicts GPA in subsequent semesters. If happiness increases the quality of a businessperson's work (Lyubomirsky, King, & Diener, 2005) and broadens intellectual resources across

diverse populations (Fredrickson, 1998), I expect it also will bolster the academic performance of college students. I also expect general happiness and satisfaction with life to carry over to college satisfaction. That is, those with the highest happiness scores on the Fordyce Emotions Questionnaire and Satisfaction With Life Scale will also report being the most satisfied with their college experiences.

Social Support

Other variables, such as the social contexts in which students adapt to college life, may also be intertwined in psychological maturity. College students regularly initiate relationships with others, from which they derive social support. There are many benefits of social support in a young adult's life. The presence of emotional support in a student's life provides a buffer against both negative affect (Harlow & Cantor, 1995) and loneliness (Oswald & Clark, 2003). Additionally, social support in the form of appraisal (someone to talk to), self-esteem (positive comparisons), and belongingness (others to do things with) all provide buffers against stress among college freshmen (Cohen, Sherrod, & Clark, 1986). Reporting positive events with others also yields higher positive affect and greater life satisfaction, and these benefits increase as a function of the breadth of the social network with which these events are shared (Gable, Reis, Impett, & Asher, 2004). That is, having more people with whom to disclose positive life events is better than having fewer people.

But are the benefits of social support confined only to a social context, or could there be benefits of social support that carry over to other areas? Another question this dissertation will address is whether having someone to confide in predicts academic

performance and university satisfaction. Not having others to share events with gives rise to emotional suppression, which leads to negative outcomes in the domains of social support, closeness to others, and social satisfaction (Srivastava, Tamir, McGonigal, John, & Gross, 2009). Because emotional suppression is also a cognitively taxing exercise, it seems plausible that fewer resources remain to tend to academic commitments. Therefore, I expect students who consistently report having a social support system to turn to in times of stress will perform best academically. Further, considering Gable et al.'s (2004) work linking social support with life satisfaction, I expect social support in the university setting to translate to higher reports of university satisfaction.

The Multifaceted Nature of College Performance

The primary function of an educational institution is to provide opportunities for intellectual engagement and academic success (i.e., learning) on the part of its students. The extent to which this happens, however, depends on a number of factors including students' personalities, overall happiness and satisfaction with their lives, the quality of their social networks, and, of course, their inherent ability to learn. As I have noted, traditional criteria like high school grades and SAT scores (i.e., estimates of ability to learn) are not alone in predicting whether a student will succeed in college. Therefore the question remains, what else could predict success? Could particular combinations of a student's background and early college experiences set the stage for success or failure? Could the nature of, or changes in, personality, social network, or other aspects of their experiences, be associated with later outcomes?

The present study attempts to provide insight into these questions by linking an intensive snapshot of the freshman transition with outcomes later in college. When controlling for traditional predictors of academic performance like high school grades and standardized test scores, does the nature of one's early experiences predict academic achievement and overall satisfaction? This dissertation will be the first study that takes a multifaceted approach to predicting these outcomes while statistically controlling for past performance (high school GPA) and current ability (SAT scores).

Defining Engagement

Student Engagement has become a priority that many college administrators identify as an important outcome for the programs and services they provide. Kuh (2009) posits that engagement in the college experience "builds the foundation of skills and dispositions people need to live a productive, satisfying life after college" (p. 5). That is, the consequences of engagement are not confined just to one's four years in college, but rather have implications that are long-lasting. As such, universities have been charged to design programs that encourage student engagement marked by effortful involvement in academic, interpersonal, and co-curricular realms (Pascarella & Terenzini, 2005).

Though everyone seems to agree that student engagement has great benefits, efforts to define the concept have produced little more than an amorphous sketch. Many studies (cf. Kuh, 2009; Pace, 1980) discuss engagement as the quality of effort or amount of time students invests in their studies and on-campus social interactions. This hardly provides the basis for an operational definition, or particular strategy with which to design student services programs. Given the lack of an operational definition heretofore,

I believe that a useful starting place would be items that gauge students' feelings toward their university experiences, both inside and outside the formal classroom setting.

To this end, I will use the data collected in the present study to identify items that cluster together revealing aspects of student engagement. Once an empirical measure is defined, I hypothesize that students who report high levels of engagement during their first semester will have the strongest academic performance in the semesters that follow, and report the greatest satisfaction with their university experiences. Importantly, I expect engagement to relate to academic performance over and above the contributions of traditional predictors (e.g., SAT scores). I predict further that personality maturation, happiness, and life satisfaction will also contribute to the quality of these experiences. In particular, I expect that those who exhibit the most mature personality and report the highest levels of happiness and life satisfaction when entering college will achieve the greatest academic outcomes by their sophomore and junior years, over and above what high school performance and standardized test scores would predict.

In short, my dissertation will test the model below, and identify the unique contributions of each input on the left to each outcome on the right: Academic Performance and University Satisfaction. First, I will take into consideration the traditional criteria that are used to select students, namely standardized test scores and high school GPA. Of greatest interest, of course, is the effect that personality, social support, and student engagement have after controlling for the traditional predictors. That is, I will test the effects of individual differences, relationships with others, and experiences on campus, over and above what is already accounted for by SAT and high

school GPA. I will also measure the bottom three predictors during the participants' freshman *and* upperclass years. Freshman levels of these variables will provide insight into the outcomes that we can predict for college students given the background characteristics they enter college with (i.e., personality) as well as the experiences they have once they are on campus (i.e., social support and student engagement). Upperclass levels of these variables will provide insight into whether change in these variables predicts later outcomes as well.

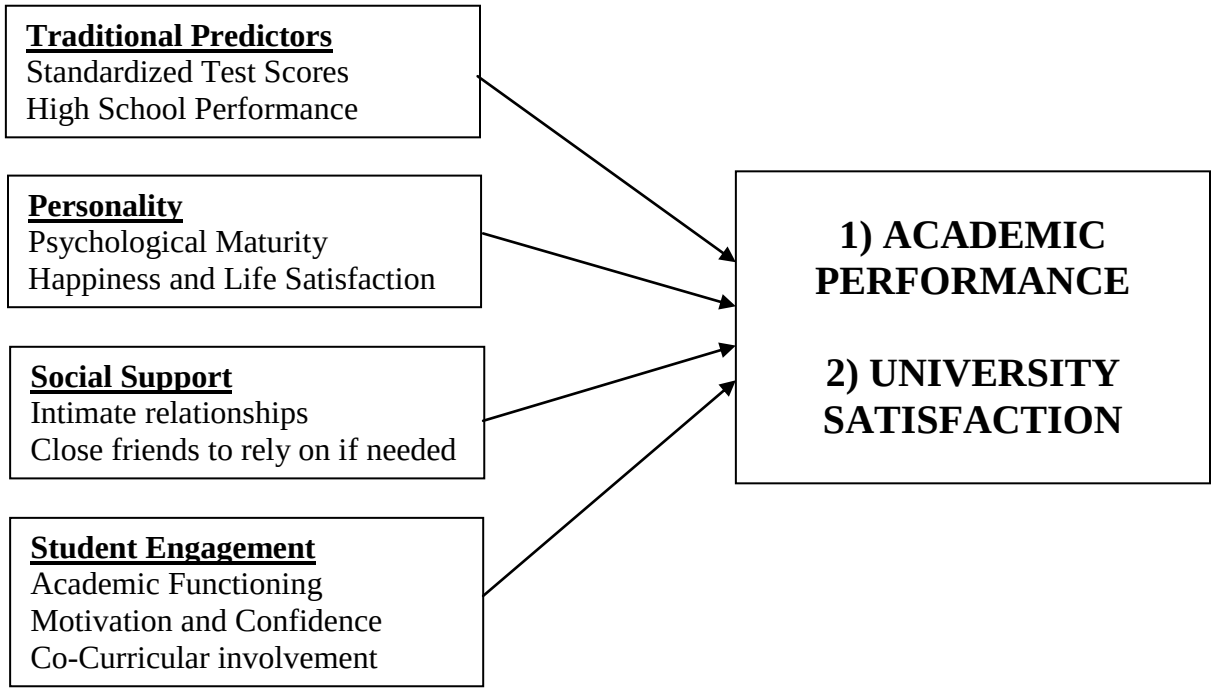

Figure 1. The model tested in this Dissertation. Variables are on the left will be tested as predictors of the Outcomes on the right.

Chapter 2: Method

Participants

Study participants were Washington University undergraduates who had been enrolled in a Psychology survey course during their first semester at the University. Altogether, 228 students had been enrolled in the survey course during their freshman year (n = 92 in 2008, n = 129 in 2009). In Fall 2010, all students still enrolled at the University were contacted to participant, and 146 volunteered to complete follow-up questionnaires assessing their personality and current college experiences (n = 63 from the 2008 cohort and n = 83 from the 2009 cohort). Participants who participated in the follow-up were paid $10 for their time.

Scales

Weekly Form

Each week during their first semester of freshman year, the students answered a series of 21 items that assessed their relationships with others, emotional experiences, involvement on campus, and academic well-being (see Appendix A for the complete list of items). Students who missed more than three of the weekly questionnaires assessing these items were excluded from analyses. This was the case for one participant from the 2008 cohort and for two participants from the 2009 cohort.

The 21 items fell into the following categories:

1) Emotions (homesickness, loneliness, and boredom) were measured on a Likert scale ranging from *Not at all* (0) to *Extremely Much* (6).

2) Relationships satisfaction with Resident Advisor and friends was assessed on a Likert scale ranging from *Very Dissatisfied* (0) to *Very Satisfied* (6).

3) Productivity was measured on a Likert scale ranging from *Unproductive* (0) to *Productive* (9); academic functioning was rated work on a scale with anchors at *Much Worse than Usual* (0), *About the Same* (3), and *Much Better than Usual* (6); confidence that they would ultimately graduate from the University, as well as how much they felt motivated to do well in school, was measured on a Likert scale ranging from *Strongly Disagree* (0) to *Strongly Agree* (6).

4) Participants also indicated how many co-curriculars they were involved with, and how many hours that week they spent in meetings or other commitments relevant to these co-curricular activities.

Personality

I used the NEO Five-Factor Inventory (Costa & McCrae, 1992) to provide an index of personality along each of the Big 5: Openness, Conscientiousness, Extraversion, Agreeableness, Neuroticism. This inventory consists of 60 items altogether (12 devoted to each personality trait), which respondents rated on a Likert scale ranging from *Strongly Disagree* (1) to *Strongly Agree* (5). Sample items include "I am not a worrier" (Neuroticism), "I like to have a lot of people around me" (Extraversion), and "I try to be courteous to everyone I meet" (Agreeableness). Participants completed this at the beginning of their freshman year, and were invited back in Fall 2010 to complete the inventory again. At that time, approximately half of the participants were sophomores and half were juniors. For each participant, I calculated change scores for all five traits.

Consistent with the discussion of Psychological Maturity above, changes were expected in the direction of increases in Openness, Conscientiousness, and Agreeableness, and decreases in Neuroticism. I expect the greatest change to be among students who, upon entering college, were lowest in Openness, Conscientiousness and Agreeableness, and highest in Neuroticism.

Subjective Well-being

I assessed both Happiness and Satisfaction With Life at the beginning of the participants' freshman years, as well. Happiness was measured with the Fordyce Emotions Questionnaire (Fordyce, 1988), which asks respondents to indicate the percent of time they felt happy, unhappy, and neutral over the last three months. Life Satisfaction was measured with the Satisfaction With Life Scale (Diener, Emmons, Larsen, & Griffin, 1985). This scale comprises five items, including "I am satisfied with my life," and "If I could live my life over, I would change almost nothing," which respondents rated on a Likert scale ranging from *Strongly Disagree* (1) to *Strongly Agree* (7).

Academic Performance

I obtained students' academic records from the Dean's office to identify standardized test scores (SAT), high school GPA, and college GPA (through the Fall 2010 semester). There was considerable variability in the scales different high schools use to compute GPA. Some scales appear to be based on 4 or 5 point maximums whereas others are based on a 100-point maximum. Further, some are weighted whereas others are not. The GPAs themselves do not provide any indication of how they were calculated.

Because there is no common metric that allows their comparison or standardization, I am unable to include High School GPA as a control variable in my analyses.

Regarding standardized test scores, most students took the SAT. For those who took only the ACT, their score was transformed to an SAT equivalent based on concordance rates provided by ACT and the College Board. For each individual ACT score, an SAT range is provided, and I selected the midpoint to determine the precise equivalent for analyses.

Student Engagement

The 21 items that students rated as freshmen and upperclassmen on the nature of their social networks, academic functioning, and co-curricular involvement were submitted to Principal Components Analysis to identify dimensions underlying engagement.

Student Satisfaction

Students were asked at the end of their first college semester, and again in Fall 2010, to respond to the following question: Taking all things together, please give an overall rating for how satisfied you have been so far with your experience at Washington University. Students provided this rating on a Likert scale ranging from *Very Dissatisfied* (0) to *Very Satisfied* (6). They were encouraged to use the full range of the scale to select the value that most closely corresponded with their actual satisfaction level. Results from this one-item scale were used as one of the criterion variables in the regression analyses described later.

Representativeness of sample

To determine the extent to which my sample is representative of students at the University overall, each participant completed the PULSE (Perceptions of Undergraduate Life and Student Experiences) Survey, which the Provost's office administers biannually to all Washington University undergraduates. The PULSE Survey consists of six sections, plus an additional section with demographic questions. Each of the six substantive sections asks students to rate a series of statements about their university experiences on a 4-point Likert Scale. The anchors of each scale vary depending on the particular questions in each section.

I selected 15 items in all from the PULSE Survey that I felt tapped the aspects of Social Support and Student Engagement that I tested in this dissertation. Those items appear in Appendix B. Example questions and the anchors used for each section are as follows: 1) Satisfaction with University life (overall quality of instruction, social life on campus), on a scale from *Very dissatisfied* (1) to *Very Satisfied* (4); 2) Academic Involvement (How often have you participated in class discussions or been excited by a class) on a scale ranging from *Rarely or never* (1) to *Very Often* (4); 3) Extracurricular and Social Involvement (How many hours do you spend in extracurricular activities) on a scale from *None* (1) to *21+* (6); 4) Health and Well-Being (During the current school year, how often, if ever have you felt out of place or felt overwhelmed by all you had to do) on a scale ranging from *Rarely or never* (1) to *Very Often* (4); 5) a general appraisal of the student's overall experience (would you attend WU if you could start over) on a scale ranging from *Definitely* (1) to *Definitely not* (4).

I will compare responses from my sample with data collected by the provost's office on the university population. I expect that data from my sample will not be significantly different from patterns obtained with the normative data. I acknowledge that it is possible that it might not be perfectly so, because participants in my sample were not randomly selected from the University, but instead were recruited from a psychology survey course in which they voluntarily enrolled. At very least, comparing data from participants in the present study with the data from PULSE respondents will provide insight into whether it is appropriate to generalize my findings to the entire population of Washington University undergraduates.

Chapter 3: Results

Component Structure of the "College Experience" Items

To determine theoretical constructs underlying the 21 items that students rated as freshman and later as upperclass students, I performed an oblique principal components analysis (PCA) with oblimin rotation on each wave of data. Oblique PCA allows the components to be correlated, which is appropriate here because it seems plausible that the components underlying the freshman transition would be at least somewhat related to each other. The scree plot in both waves had an apparent bend at the fourth component; hence, I decided to examine the items in component structures that ranged from three to five principal components. I compared each component structure from the first wave to that of the second wave with the corresponding number of principal components. To determine the exact items that would define each component, I established the following criteria: the item had to load above 0.3 on the first wave of data and above 0.25 on the corresponding component in the second wave. The greatest corresponding component structure between both waves of data occurred when tested with four principal components (See Table 1; the highest component loadings for each item for the first wave appear under the corresponding component label).

Table 1

"College Experience" Items from Freshman Year with highest loadings on each of the Four Components highlighted

	"College Experience" Components			
	Social Support	**Regret**	**Co-Curricular Engagement**	**Academic Engagement**
Close with others on floor	**.89**	-.15	.06	-.09
Glad to live on floor	**.87**	-.23	.04	-.17
Relationship with RA	**.81**	.04	.03	-.06
Relationship with friends at school	**.75**	-.17	.01	.13
If in trouble, had family or friends to count on	**.68**	.41	.01	.18
Relationship with friends at home	**.68**	.05	-.05	.09
Connected with others	**.50**	-.20	-.09	.28
Social during the past week	**.50**	-.15	.01	.39
Homesick	.11	**.83**	-.03	.02
Wanted to get away from Washington University	-.09	**.77**	.01	-.08
Lonely	-.33	**.65**	.04	-.13
Bored	-.10	**.64**	-.10	-.04
Regretted the decision ever to come to Washington University	-.08	**.62**	-.05	-.27
Hours in extra-curricular activities	-.06	-.05	**.85**	-.04
Number of extra-curricular activities involved with	-.03	-.03	**.83**	-.10
Felt involved on campus	.19	.12	**.72**	.36
Academic functioning	-.09	.11	-.02	**.94**
Felt productive during the past week	.02	-.01	.04	**.88**
Felt motivated to do well in school	.00	-.25	.06	**.75**
Felt successful in the classroom	.17	-.12	.01	**.68**
Felt confident I will graduate from Washington University	.08	-.35	.02	**.55**

After considering the nature of the items in each component, I labeled them as follows: 1) the first component taps Social Support (e.g., If I was in trouble…); 2) the second component taps Regret Toward the University (e.g., homesick, wanting to get away); 3) the third component taps Co-Curricular Engagement (hours spent in co-curricular activities, felt involved); 4) the fourth component taps Academic Engagement (felt motivated to do well, felt successful in the classroom). These four components fit well with constructs related to two of the hypotheses I outlined above (Social Support and Student Engagement) and add breadth and depth to them as well. Regarding breadth, the emergence of the second component (i.e., "Regret"), though not initially given a formal hypothesis in the introduction, will allow me to understand the effects of negativity toward the institution on later outcomes. Therefore, I included this component in later analyses to test whether negative feelings students have early on (as tested in Wave 1) or later (as tested in Wave 2) figure into their academic performance or overall satisfaction with the University. Regarding depth, the component structure distinguishes nuances in one of the primary theoretical constructs I was interested in, Student Engagement. According to the data I collected here, I am inclined to consider Engagement as a bi-dimensional construct: one dimension accounts for engagement with activities in campus life that are beyond the traditional academic setting (component three), and the other accounts for engagement within the formal classroom setting (component four).

Correspondence between component structures

Table three lists the component loadings for each item on each component for both waves of data. To ensure that items were most appropriately selected for each

component, I calculated the following: First, I computed the average component loading for the target component. That is, for the "Social Support" component, I averaged the loadings for its items (e.g., "I felt close to others" and "I felt glad to live on my floor") and then did the same for all of the items that did not load on this component (e.g., "Bored" and "Hours in extra-curriculars"). Table 2 lists the component loading means and standard deviations for each component. In all cases, mean component loadings for target components were substantially higher than those for the other components.

I also computed the correlations between corresponding components in both waves as seen in Table 3. The correlations between corresponding components are always higher than the correlations between other components in the opposite wave. Such high correspondence between the components across both waves lends credence to the notion that the same component structure is present for both data sets.

Reliability of the Components

Cronbach's alpha was computed on each component to determine each one's internal consistency. Results are listed in Table 2. All were high ($\alpha > 0.80$) except for Component 3, Co-Curricular Engagement ($\alpha = .49$). This is likely because this component was defined by only three items. However, the correlation between the components in both waves for this component was high ($r = .65$) and the mean loadings on this component were much greater than that of the other three components (See Table 2 for exact values). Hence, I feel it is appropriate to include this component in analyses.

Table 2

Psychometric Properties of the Four Components

		Internal Consistency	**Component Loadings for items defining the Component**		**Component Loadings for all other items (those that define other components)**	
Component	**N**	**Cronbach's Alpha**	**Mean**	**SD**	**Mean**	**SD**
Freshman Social Support	8	.91	**.71**	*.15*	**.02**	*.17*
Freshman Regret	5	.85	**.69**	*.09*	**-.08**	*.12*
Freshman CoCurricular Engagement	3	.69	**.77**	*.08*	**.04**	*.15*
Freshman Academic Engagement	5	.89	**.77**	*.15*	**-.02**	*.13*
Upperclass Social Support	8	.80	**.59**	*.21*	**.06**	*.20*
Upperclass Regret	5	.81	**.57**	*.10*	**-.15**	*.15*
Upperclass CoCurricular Engagement	3	.49	**.67**	*.04*	**.05**	*.15*
Upperclass Academic Engagement	5	.89	**.82**	*.15*	**-.02**	*.09*

Table 3

Correlations among Freshman and Upperclass Components

	Freshman Social Support	**Freshman Regret**	**Freshman CoCurricular Engagement**	**Freshman Aacdemic Engagement**	**Upperclass Social Support**	**Upperclass Regret**	**Upperclass CoCurricular Engagement**	**Upperclass Academic Engagement**
Freshman Social Support	1.00	-.54**	.26**	.63**	**.69****	-.42**	.26**	.39**
Freshman Regret		1.00	-.26**	-.59**	-.41**	**.66****	-.25**	-.41**
Freshman CoCurricular Engagement			1.00	.30**	.23**	-.32**	**.65****	.21*
Freshman Aacdemic Engagement				1.00	.50**	-.51**	.23**	**.66****
Upperclass Social Support					1.00	-.49**	.29**	.50**
Upperclass Regret						1.00	-.32**	-.52**
Upperclass CoCurricular Engagement							1.00**	.25
Upperclass Academic Engagement								1.00

p < .05,p < .01*

Computing composite scores

For the sake of simplicity, I applied unit weighting to the items selected for each component. That is, for each participant, I averaged the values for the items that made up each component. Because individual items were measured on different scales, I first standardized the items so that they would all be on the same metric. Because I was also interested in comparing scores between the waves of data and between the two cohorts, I combined the data for the two cohorts before standardizing. That is, I combined raw scores from the first and second waves into one file and computed *z* scores for each variable taking both waves into account. Had I created *z* scores keeping the two waves of data in separate files, the mean for each variable would be 0, preventing comparisons between the two waves.

Prediction of Outcomes

The primary outcome variables were upperclass academic performance and overall university satisfaction. Because the data comprise two separate cohorts, I ran preliminary analyses on each group separately to see whether different patterns emerged and whether it would therefore be worthwhile to test for cohort effects. In comparing regression analyses from the two groups, there were occasionally beta weights that were significant in one cohort and not in the other, but there was no consistent pattern that justified testing cohort interactions in the major analyses. Further, an independent samples *t* test revealed no differences between any of the corresponding variables in the two cohorts (all *p*s > .05). Hence, the analyses presented here reflect all of the data from both cohorts combined.

Model Structure of Regression Analyses

Hierarchical multiple linear regression analysis was applied to investigate the key predictors of academic performance and University satisfaction. I will report results for each outcome variable separately below. For both outcome variables, the same variables were entered in the same order (with one exception, discussed below). The first step included SAT score because that variable is determined before students set foot on campus and is used to select students due to its presumed ability to predict college academic performance. With SAT accounted for in the first step I am able to see what else about the students or their experiences contributes to academic performance. The second step included another set of variables that students bring with them to college: individual differences (the Big 5 Personality Traits, percentage of days they report being happy on the Fordyce Emotion Questionnaire, and Satisfaction with Life Scores), which I measured at the beginning of the participants' freshman year. The third step included variables that underlie the experiences students have once on campus: Social Support, Regret, Academic Engagement, CoCurricular Engagement, and Satisfaction with their first semester of college (the first four are the component scores discussed above). The fourth block included the participants' upperclass personalities and university experiences (the same variables in steps two and three, measured as upperclassmen). The only difference between the two regression models (one predicting GPA, the other university satisfaction) was that overall Satisfaction with University experience was not tested in step four of the model testing Satisfaction with University experience because

one cannot have one variable being both the criterion and a predictor. Below I discuss the results for each dependent variable separately.

Prediction of Academic Performance

Table 4 outlines the effects of personality and student experiences on later GPA. As expected in step one, SAT had a significant main effect and was positively related to later academic performance ($\beta = .30$, $p < .01$). In Step two, the only personality trait that emerged as significant was Conscientiousness ($\beta = .35$, $p < .01$), replicating findings from previous studies (e.g., Poropat, 2009). In other words, even after controlling for SAT score, levels of Conscientiousness that students enter college with predicts their GPA as upperclassmen. None of the freshman transition variables tested in step three were significant (all ps > .10). In step four, upperclass Academic Engagement was significant ($\beta = .54$, $p < .01$). Hence, Academic Engagement also predicts GPA. It is worthy to note that this effect holds even after controlling for freshman of Academic Engagement, suggesting that it is *increases* in this variable that lead to higher GPA.

Table 4
Results of Regression Predicting GPA

		B	***SE***	**β**	***t***
Step 1	(Constant)	1.72	.51		3.35
	SAT Score	**.00**	**.00**	**.30**	**3.54***
Step 2	(Constant)	.77	.66		1.18
	SAT Score	.00	.00	.31	3.77
	FRSH Neuroticism	.00	.04	.00	0.02
	FRSH Extraversion	-.03	.07	-.05	-0.50
	FRSH Openness	.00	.06	.01	0.07
	FRSH Agreeableness	.07	.06	.10	1.13
	FRSH Conscientiousness	**.20**	**.05**	**.35**	**4.02***
	FRSH FEQ Happy	.00	.00	.01	0.07
	FRSH SWLS Score	.00	.01	.00	-0.03
Step 3	(Constant)	1.14	.66		1.72
	SAT Score	.00	.00	.27	3.22
	FRSH Neuroticism	.05	.05	.12	1.12
	FRSH Extraversion	-.06	.07	-.08	-0.82
	FRSH Openness	.01	.06	.02	0.21
	FRSH Agreeableness	.06	.06	.09	1.01
	FRSH Conscientiousness	.14	.05	.24	2.65
	FRSH FEQ Happy	.00	.00	.08	0.77
	FRSH SWLS Score	-.00	.01	-.05	-0.45
	FRSH Satisfaction with WU experience	.02	.03	.09	0.75
	FRSH_Social Support	-.02	.06	-.04	-0.28
	FRSH_Regret	-.07	.06	-.13	-1.10
	FRSH_CoCurricular Engagement	.07	.05	.13	1.43
	FRSH_Academic Engagement	.06	.07	.13	0.91
Step 4	(Constant)	1.61	.69		2.32
	SAT Score	.00	.00	.22	2.84
	FRSH Neuroticism	-.00	.06	-.00	-0.03
	FRSH Extraversion	.04	.09	.06	0.45
	FRSH Openness	.03	.07	.05	0.47
	FRSH Agreeableness	-.06	.08	-.09	-0.73
	FRSH Conscientiousness	.05	.07	.08	0.64
	FRSH FEQ Happy	.00	.00	.17	1.72
	FRSH SWLS Score	.00	.01	-.00	-0.01
	FRSH Satisfaction with WU experience	.01	.03	.05	0.45
	FRSH_Social Support	-.05	.07	-.10	-0.73
	FRSH_Regret	-.08	.06	-.17	-1.34
	FRSH_CoCurricular Engagement	.07	.06	.13	1.25
	FRSH_Academic Engagement	-.05	.07	-.11	-0.70
	FL10 Neuroticism	.07	.06	.16	1.25
	FL10 Extraversion	-.08	.09	-.12	-0.94
	FL10 Openness	-.01	.07	-.01	-0.13
	FL10 Agreeableness	.12	.08	.18	1.50
	FL10 Conscientiousness	.02	.07	.04	0.26
	FL10 FEQ Happy	-.00	.00	-.18	-1.58
	FL10 SWLS Score	-.01	.01	-.10	-0.87
	FL10 Satisfaction with WU experience	.01	.03	.05	0.46
	FL10 Social Support	.02	.06	.04	0.28
	FL10 Regret	-.02	.05	-.04	-0.34
	FL10 CoCurricular Engagement	-.01	.05	-.01	-0.12
	FL10 Academic Engagement	**.21**	**.05**	**.54**	**4.30***

$p < .01$
n.b. The proportions of variance accounted for in Steps 1, 2, 3, and 4 were 0.09, 0.22, 0.30, and 0.49, respectively.

Prediction of University Satisfaction

Table 5 outlines the effects of personality and student experiences on student satisfaction. Step one showed no effect of SAT on University Satisfaction ($p > .50$). In step two, the only freshman-level individual differences that had a main effect on University upperclass satisfaction was Satisfaction With Life ($\beta = .23$, $p < .05$). Step three showed main effects for Freshman levels of Regret ($\beta = -.28$, $p < .05$) and CoCurricular Engagement ($\beta = .22$, $p < .05$). In step four, three upperclass variables had significant main effects: happiness levels measured by the Fordyce Emotions Questionnaire ($\beta = .25$, $p < .05$), Social Support ($\beta = .43$, $p < .01$), and Regret ($\beta = -.22$, $p < .05$). Hence, students' overall satisfaction with their lives when they enter college predicts university satisfaction as upperclassmen. Further, early on in their college careers (i.e., during the first semester), the extent to which they exhibit low levels of regret toward the institution, as well as high levels of involvement in campus life, also predict upperclass university satisfaction. Increases in Happiness, Social Support, and decreases in Regret by the time the students are upperclassmen also contribute to high university satisfaction.

Table 5

Results of Regression Predicting University Satisfaction

		B	***SE***	**β**	***t***
Step 1	(Constant)	4.43	1.96		2.25
	SAT Score	.00	.00	.03	0.32
Step 2	(Constant)	4.64	2.52		1.84
	SAT Score	.00	.00	.02	0.20
	FRSH Neuroticism	-.27	.16	-.17	-1.69
	FRSH Extraversion	.12	.25	.05	0.48
	FRSH Openness	-.30	.22	-.11	-1.31
	FRSH Agreeableness	.00	.23	.00	0.00
	FRSH Conscientiousness	.07	.19	.04	0.39
	FRSH FEQ Happy	-.01	.01	-.09	-0.86
	FRSH SWLS Score	**.05**	**.03**	**.23**	**2.10***
Step 3	(Constant)	6.80	2.38		2.86
	SAT Score	.00	.00	-.03	-0.40
	FRSH Neuroticism	.11	.17	.07	0.63
	FRSH Extraversion	-.14	.25	-.05	-0.56
	FRSH Openness	-.32	.21	-.12	-1.52
	FRSH Agreeableness	.02	.21	.01	0.08
	FRSH Conscientiousness	-.18	.19	-.09	-0.94
	FRSH FEQ Happy	.00	.01	.02	0.20
	FRSH SWLS Score	.03	.02	.14	1.32
	FRSH Satisfaction with WU experience	.02	.11	.03	0.23
	FRSH_Social Support	.26	.23	.14	1.12
	FRSH_Regret	**-.51**	**.21**	**-.28**	**-2.44***
	FRSH_CoCurricular Engagement	**.45**	**.18**	**.22**	**2.52***
	FRSH_Academic Engagement	.18	.25	.10	0.71
Step 4	(Constant)	4.34	2.21		1.97
	SAT Score	.00	.00	-.01	-0.14
	FRSH Neuroticism	-.09	.18	-.06	-0.49
	FRSH Extraversion	.02	.28	.01	0.08
	FRSH Openness	-.05	.23	-.02	-0.23
	FRSH Agreeableness	-.19	.26	-.08	-0.72
	FRSH Conscientiousness	.06	.24	.03	0.27
	FRSH FEQ Happy	-.00	.01	-.06	-0.66
	FRSH SWLS Score	.00	.02	.01	0.05
	FRSH Satisfaction with WU experience	.07	.09	.07	0.72
	FRSH_Social Support	-.28	.23	-.15	-1.23
	FRSH_Regret	-.19	.20	-.10	-0.93
	FRSH_CoCurricular Engagement	.21	.19	.10	1.08
	FRSH_Academic Engagement	-.25	.24	-.14	-1.05
	FL10 Neuroticism	.23	.18	.15	1.32
	FL10 Extraversion	-.22	.28	-.09	-0.79
	FL10 Openness	.00	.23	.00	0.01
	FL10 Agreeableness	.20	.25	.08	0.80
	FL10 Conscientiousness	-.17	.22	-.09	-0.76
	FL10 FEQ Happy	**.01**	**.01**	**.25**	**2.55***
	FL10 SWLS Score	.03	.02	.14	1.31
	FL10 Social Support	**.74**	**.19**	**.43**	**3.80****
	FL10 Regret	**-.32**	**.15**	**-.22**	**-2.14***
	FL10 CoCurricular Engagement	.07	.14	.04	0.47
	FL10 Academic Engagement	.20	.16	.15	1.30

**p < .05; **p < .01*

n.b. The proportions of variance accounted for in Steps 1, 2, 3, and 4 were 0.00 (*ns*), 0.14, 0.32, and 0.59, respectively.

Change over Time

To test whether students changed over time among any of the dimensions measured, I computed paired samples *t* tests for all variables, which tests whether the average values for each pair of variables are statistically equivalent or different. Results are reported in Table 6. The *p* values for most of the variables in this table are based on two-tailed significance tests. However, because I had *a priori* hypotheses that four of the personality traits I measured would change according to the directions suggested by the "Maturity Principal" (Caspi et al., 2005; Robins et al., 2001), I have reported significance values for change in Neuroticism, Openness, and Agreeableness, Conscientiousness as one-tailed tests.

Table 6

Results of *t* tests comparing variables and Freshman and Upperclass Levels

	M_{Fresh}	M_{FL10}	*t*	*df*
FRSH_Social Support - FL10 Social Support	0.03	-0.03	1.35	142
FRSH_Regret - FL10 Regret	-0.03	0.031	-1.08	142
FRSH_CoCurricular Engagement - FL10 CoCurricular Engagement	-0.27	0.26	-10.62**	142
FRSH_Academic Engagement - FL10 Academic Engagement	-0.27	0.25	-9.15**	142
FRSH Neuroticism - FL10 Neuroticism	2.77	2.74	0.61	138
FRSH Extraversion - FL10 Extraversion	3.56	3.58	-0.59	133
FRSH Openness - FL10 Openness	3.59	3.65	-1.68*	134
FRSH Conscientiousness - FL10 Conscientiousness	3.62	3.64	-0.59	136
FRSH Agreeableness - FL10 Agreeableness	3.71	3.78	-2.15*	137
FRSH FEQ Happy - FL10 FEQ Happy	57.68	56.85	0.43	144
FRSH SWLS Score - FL10 SWLS Score	27.27	27.17	0.23	144
FRSH Satisfaction with WU experience - FL10 Satisfaction with WU experience	5.04	5.07	-0.24	135

p < .05, one-tailed;p < .01, two-tailed*

N.B. negative values indicate increases from freshman to upperclass years

Altogether, there were four variables that yielded significant changes. Students increased in each of the following: Co-Curricular Engagement (t = -10.61, p < .01), Academic Engagement (t = -9.15, p < .01), Agreeableness (t = -2.15, p < .05), and Openness (t = -1.68, p < .05). According to the "Maturity Principal," I also should have observed changes in Conscientiousness and Neuroticism. However, it is worth noting that there were at least trends in the expected directions for these traits: Conscientiousness trended upward and Neuroticism trended downward (both ps < .3).

Representativeness of the Sample

To test whether students in my sample were representative of the larger student body, I ran an independent samples t test on 15 items from the PULSE Survey described above. Results appear in Table 7. Because the PULSE Survey was last administered in the spring of 2009 (when students in the 2008 cohort were currently enrolled and therefore could have contributed responses to it), I split the responses by class level to ensure sampling independence in the data. That is, I compared the data from students in the 2008 cohort (who were sophomores when they contributed data for this dissertation and freshmen when the PULSE was administered) to data from sophomores in the PULSE survey. Likewise, I compared the data from students in the 2009 cohort (who were freshmen when they contributed data for this dissertation and still in high school when the PULSE was administered) to data from freshmen in the PULSE survey.

Table 7

Results of *t* tests comparing present sample and larger University PULSE data

Comparing 2008 sample to WU Juniors	***t***	***df***
Overall quality of instruction	1.95	773
Social life on campus	1.37	773
Sense of community on campus	1.79	772
Sense of community where you live during the academic year	0.91	772
How would you evaluate your entire educational experience at WU?	-1.72	772
Attending scheduled classes or labs	0.32	772
Working on academic work outside of class or lab (e.g., homework, research project, etc.)	**2.97****	**765**
Participated in class discussions	1.73	773
Been excited by a class	0.23	772
Worked with others on a group assignment, project, or presentation	**2.25***	**773**
Participating in other extracurricular activities (student organizations, fraternity or sorority, etc.)	-0.75	770
Felt out of place or that you just did not fit in on your campus	1.18	770
Felt overwhelmed by all you had to do	0.25	769
I have found a community at WU where I feel like I belong	0.92	770
If you could start over again, would you go to WU?	0.21	770

Comparing 2009 sample to WU Sophomores	***t***	***df***
Overall quality of instruction	0.74	762
Social life on campus	0.85	762
Sense of community on campus	-1.35	761
Sense of community where you live during the academic year	-0.75	761
How would you evaluate your entire educational experience at WU?	-0.40	762
Attending scheduled classes or labs	-0.18	760
Working on academic work outside of class or lab (e.g., homework, research project, etc.)	0.88	756
Participated in class discussions	1.14	761
Been excited by a class	-1.49	762
Worked with others on a group assignment, project, or presentation	**3.65****	**110.50**[1]
Participating in other extracurricular activities (student organizations, fraternity or sorority, etc.)	0.67	759
Felt out of place or that you just did not fit in on your campus	1.01	760
Felt overwhelmed by all you had to do	**2.71****	**754**
I have found a community at WU where I feel like I belong	-0.04	757
If you could start over again, would you go to WU?	1.83	757

p < .05,p < .01*

n.b. positive t *values indicate <u>smaller</u> levels of these values in the present sample as compared to the larger WU PULSE data*

[1] Did not pass Levene's Test for Equality of Variances; Equal variances not assumed

Of the 15 items I measured, there were two in each cohort that were different from the corresponding PULSE class. The 2008 cohort reported being less likely to work with others on a group assignment, project, or presentation ($t = 3.65$, $p < .01$), and they reported less frequently feeling overwhelmed by all they had to do ($t = 2.71$, $p < .01$). The 2009 cohort reported being less likely to work on academic work outside of class or lab ($t = 2.97$, $p < .01$), and like the 2008 cohort, they reported being less likely to work with others on a group assignment, project, or presentation ($t = 2.25$, $p < .05$). Overall, out of 30 comparisons, four emerged as significant where one might expect one or two by chance. Still, on most PULSE dimensions that were relevant to this dissertation, my sample is fairly representative of the population from which it was drawn. Hence, I feel it is appropriate to generalize these findings and the implications discussed below to the larger student population at the University.

Chapter 4: Discussion

In this dissertation, I identified characteristics that contribute to important outcomes for colleges and universities to understand and for individual students to achieve: academic performance and student satisfaction. I investigated these characteristics to account for the relatively large amount of unexplained variance from traditional predictors of academic performance (i.e., SAT scores) and the largely unexplored area of what contributes to student satisfaction levels. Results from a longitudinal study over two cohorts provide insight into the key variables that are most strongly at play for each outcome.

Defining Engagement

One of my additional aims with this dissertation was to provide a concrete, empirically-based definition of "Student Engagement." I began by conducting PCA on the 21 items participants rated as freshmen and later as upperclassmen. Four components emerged, which I have here referred to as the four "College Experience" components (See Table 2 for the particular items that define each). The first component is Social Support, which reflects participants' relationships with others: those with whom they live, friends on campus and back home, and whether those relationships provide outlets for socialization, connection, and support in times of trouble. The second component is Regret, which indicates negative feelings toward the university, such as loneliness and boredom, and a desire to leave altogether. The third component is Co-Curricular Engagement, which reflects the number of co-curricular activities in which a student holds membership, the amount of time spent in each, and the extent to which they

promote a sense of campus involvement. The fourth component is Academic Engagement, which taps feelings of academic functioning, productivity, motivation, classroom success and confidence they will graduate. Each of these four components, at either the freshman level or upperclass level, predicted at least one of my main criterion variables.

The third and fourth components, together, capture the essence of Student Engagement. As I mention above, Engagement can thus be conceptualized as a bi-dimensional construct with Academics along one vector and Co-Curriculars along the other. Working in tandem, they quantify the previously abstract notions of academic, interpersonal, and co-curricular engagement (Pascarella & Terenzini, 2005), and investment of time and effort in such domains (Kuh, 2009). The advantage of a quantitative approach as outlined in this dissertation is that it eliminates some of the ambiguity inherent in qualitative work and provides specific, measurable characteristics that are assessed with measures that have acceptable psychometric properties, and that give evidence of their validity. It also provides a set of measures for future researchers who wish to replicate, or expand upon these findings.

Perhaps most importantly, because the components introduced here provide a way to measure these constructs, we can develop programs and interventions to manage them. If a university wishes to promote one of these components it can start by targeting particular items that make up these components. Over time, institutions can also monitor how these components change. In the present study, both Co-Curricular Engagement and Academic Engagement increased from freshman to upperclass years. Students therefore

feel more motivated, productive and confident they will graduate (Academic Engagement) as they move forward from semester to semester. They also spend more time participating in a greater number of co-curricular activities, which increases their involvement on campus (Co-Curricular Engagement). Perhaps the more experience students gain at college, the more proficient they become academically and socially.

Future research will be important to refine the construct of "Student Engagement" and seeing whether it replicates in other settings. I am optimistic that I have at least provided a starting point for concretizing this otherwise nebulous topic. In the sections that follow I will discuss the roles that these and other variables play in predicting Academic Performance and University Satisfaction.

Academic Performance

First, my data confirmed what is by this point common knowledge, that college entrance exams like the SAT predict academic performance during the college years better than chance (but not much better). This is even the case years after the SAT was originally taken; it still predicted GPA for my sample when they were sophomores and juniors. However, SAT only accounts for a relatively small proportion of the variance (~9%) in GPA. This dissertation identifies some of the other variables that comprise the variance not explained by SAT. Specifically, my data add to mounting evidence that personality also predicts academic performance, particularly Conscientiousness (e.g., Poropat, 2009). Indeed, in the second step of my regression model, freshman Conscientiousness, was a stronger predictor of upperclass GPA than was SAT score (β = .35 and .30, respectively). Moreover, Conscientiousness predicts GPA above and beyond

SAT scores, emerging as a significant predictor even after controlling for SAT. This finding corresponds with previous studies showing that Conscientious students have a stronger will to achieve (Digman, 1989) and are more successful in exerting effort and setting goals (Barrick, Mount, & Strauss, 1993), which ultimately contributes to academic success (Steel, 2007), and time management and effort regulation (Bidjerano & Dai, 2007).

The other variable that emerged as a significant predictor of academic performance was upperclass Academic Engagement, one of the four components that emerged from the items completed during their freshman and upperclass years. Those students who reported the highest levels of Academic Engagement as upperclassmen also had the highest GPAs. Because upperclass Academic Engagement emerged as significant, after controlling for freshman levels in the previous step, the regression targets *increases* in Academic Engagement, not just the level in the upperclass years. Hence, universities ought to direct efforts toward boosting each student's Academic Engagement from freshman year to later years.

The individual items that define this component are feeling productive, motivated, successful in the classroom, confident they would graduate from Washington University, and functioning at a high level academically. Whereas SAT and GPA are objective measures of intellect and academic performance, the items that make up this component are based on an individual's subjective appraisal of performance.

This would suggest, then, that the beliefs and appraisals students have toward their educational experiences is another important contributor to coursework performance

as measured by grades. In other words, how students feel about their work may be just as important as the actual quality of the work. For example, it is conceivable that two students could each earn the same grade on a Psychology exam (e.g., a "C"). Although it is the same objective grade, each student could have a very different appraisal about the grade. One student could interpret the grade as a disaster and a sign that he is not as a good of a student as originally thought and begin to worry about the potential implications for gaining admission to graduate or professional school. The other student, however, could interpret the grade as a learning experience and a lesson on the nature of college exams, inspiring a different study approach for subsequent exams. In both cases, the objective grade is the same. However, the subjective appraisal is very different: for the first student it is a disaster; for the second student, an opportunity.

A number of attributional retraining efforts have been made with college students that suggest these appraisals can be altered (cf. Perry, Hechter, Menec, & Weinberg, 1993, for a review). These interventions typically aim to change attributions for poor performance that are internal and stable to attributions that are unstable and modifiable (Van Overwalle & De Metsenaere, 1990). For example, freshmen who watched videotapes of upperclassmen talking about their academic improvements following weaker performance early on ultimately achieved higher Graduate Record Exam items, had higher GPAs, and had greater college retention (Wilson & Linville, 1982). In this way, students learn to attribute poor performance to the difficulty of adjusting to freshman year (i.e., an external cause), and are provided role models who still made it through college successfully. Perry et al. (1993) suggest attributional retraining programs

hold their utility in producing "the necessary emotional and expectancy changes needed to facilitate subsequent motivation and achievement striving" (692). Specifically, attributing poor academic performance to external, specific causes maintains a healthy mindset that prevents the student from becoming discouraged and losing motivation to perform well on later work.

According to the data presented here, students whose upperclass Academic Engagement was higher ultimately had higher GPAs as upperclassmen as well. One limitation of this argument, of course, is that it could easily be the case that students who had been receiving high grades on exams and papers throughout the semester were more likely to report high levels of Academic Engagement, indicating high levels of confidence and functioning based on the positive feedback they already had received up to that point in the semester.

One way to tease this apart in the future would be to assess Academic Engagement itself at multiple times throughout the semester along with grades received on exams and assignments throughout the semester. By assessing Academic Engagement before and after student received an exam grade, we could determine whether change in this construct leads or lags subsequent exam grades. If so, we could infer whether Academic Engagement determines, or is determined by, academic performance.

There already exists some evidence that positive beliefs about the self are beneficial. Self-efficacy predicts academic performance (Lane & Lane, 2001) and mediates the relationship of previous performance on later performance (Lane, Lane, & Kyprianou, 2004). Likewise, internal locus of control is related to academic

achievement: students who endorse the belief that events are within their own control, and that they are essentially the masters of their own destinies (as compared to attributing life outcomes to fate, luck, or others), achieve greater academic performance (Findley & Cooper, 1983). Given the extant literature showing the benefits of self-efficacy and internal locus of control on academic performance, it seems appropriate to interpret my data on Academic Engagement and academic performance in a similar manner. That is, Academic Engagement leads to better grades, rather than vice versa.

Satisfaction with University Experience

Student Satisfaction is an important criterion variable because it is used by many universities as one benchmark for their success. When Washington University unveiled its Strategic Plan in 2008, one of its four goals focused specifically on the undergraduate experience, which will be measured and evaluated by student and alumni satisfaction. Because student satisfaction is an important indicator of University success, it is useful to know the particular student characteristics and experiences that give rise to high satisfaction ratings.

A search for articles investigating overall satisfaction with university experience yields a relatively small return. The work that has been done in this area has focused primarily on satisfaction with particular courses (Corts, Lounsbury, Saudargas, & Tatum, 2000; DeWitz & Walsh, 2002; Liu, Lin, & Chang, 2010) rather than more general appraisals of the college experience. Given the relatively small amount of research on college student satisfaction, there is no dominant or consensual theoretical framework or measurement precedent for this construct. Hence, I used the variables that had already

been measured to predict Academic Performance to see whether they also predicted satisfaction.

There was no effect of SAT score on University Satisfaction, which suggests that students' appraisals of their university experiences are not affected by intellectual ability. Of the individual difference variables entered in the second step, Satisfaction with Life was the sole predictor of later satisfaction with Washington University. That is, those students who were generally satisfied with their lives at the start of college went on to give the high satisfaction ratings for their college careers up to two years later. A propensity for satisfaction, therefore, may be a trait that governs one's contentment with life circumstances, including the college environment. It could be the case that some people are simply more satisfied than others, which itself accounts for greater reported satisfaction with their lives at the start of college and greater satisfaction with their college experiences.

Over and above the variability accounted for by Satisfaction With Life Scores, two of the freshman-level "College Experience" components also predict university satisfaction. Freshman Regret is negatively associated with later satisfaction, and freshman Co-Curricular Engagement is positively related. In others, students who report high levels of homesickness, loneliness, boredom, wanting to get away from the University, and regret about the decision to enroll at the institution went on to report lower levels of satisfaction with their overall experiences one to two years later. These findings highlight the ability of early experiences to set the tone for subsequent college years.

Likewise, early engagement in campus life beyond the classroom predicts later satisfaction. Those students who reported the greatest number of hours participating in co-curricular activities, the largest number of co-curricular activities to which they belonged, and the greatest level of involvement on campus ultimately reported the greatest satisfaction with their experiences when assessed as upperclassmen. Virtually all colleges and universities offer students the opportunity to become involved with clubs, organizations, and other student activities. Early and committed membership in activities that offer the student a sense of involvement in campus life lead students to report greater satisfaction with their university experience overall. It is appropriate then that many colleges invest substantially in departments dedicated to student involvement in campus life. The return on the investment comes in the form of higher levels of student satisfaction with the institution.

Upperclass levels of Happiness, Social Support and Regret also predict university satisfaction. That upperclass happiness is associated with satisfaction is in many ways intuitive. In the present study, I modified the Fordyce Emotions Questionnaire (to gauge happiness levels) by asking students to report the percentage of days throughout their college careers that they were happy (normally the FEQ asks participants to report only on the last three months). Those who reported the largest percentage of happiness were also most satisfied with their college experience overall, providing evidence that satisfaction reflects memory for—or at least a reconstruction of—more positive (or happy) life experiences than negative (or unhappy) life experiences.

Social Support as an upperclassman also contributes to satisfaction with the university. The three highest-loading individual items that define this component emphasize the importance of one's living arrangements during the college years: feeling close with others on one's floor, being glad to live there, and having a strong relationship with one's Resident Advisor (RA). Other items in this component point to the importance of feeling connected to friends at the University as well as maintaining relationships with friends back home. Having others to turn to in times of need also is important, and consistent with previous research on this topic (e.g., Srivastava et al., 2009).

Upperclass Regret is negatively associated with satisfaction. It is interesting this variable emerged as significant in the regression at both the freshman level as well as at the upperclass level. Even after statistically controlling the initial levels of regret the students felt as freshmen, increasing levels of Regret as the semesters go by is also associated with less university satisfaction. Students, on average, did not significantly increase in their overall levels of Regret (see Table 6). Those who did, however, gave lower ratings for satisfaction when considering their college careers overall. This suggests that it is worthwhile to target students' negative feelings toward the University early on in their college careers, and also any increases in negative feelings over time that they might develop.

Unsupported Hypotheses

Not all of my hypotheses were supported. I predicted that change in personality would be associated with increased academic performance. Although both Openness and

Agreeableness increased, there were no significant outcomes associated with personality change. It may be important to assess change over the entire four years of one's college career to determine Psychological Maturity. Because my participants were assessed midway through their college careers (instead of waiting until their senior years), they may not have had enough time for said maturity to occur. Following up these two cohorts through the next two years would allow me to test whether changes in personality over the entire four years of college is predictive of four-year GPA and satisfaction with the complete experience of college. This would be a more appropriate test of my original hypotheses than that done in the current project.

The changes in Agreeableness and Openness, though, are interesting in light of research relating these variables to common aspects of the college experience. Agreeableness is positively correlated with more satisfying interpersonal relationships (Graziano, Jensen-Campbell, & Hair, 1996) and coping with communal living (Hogan, 1983), which contribute to socioemotional adjustment and, ultimately, to greater academic performance, work ethic, and intelligence (Vandell & Hembree, 1994). Additionally, Openness is associated with being foresighted, intelligent, resourceful, original, and artistic (Gough, 1966). Openness also shares features of self-regulated learning, as engagement in an intellectual pursuit underlies both (Winne, 1995).

Another hypothesis that was not supported was my expectation that freshman happiness levels would predict later GPA. Given the vast research on other benefits happiness has for creativity and problem-solving (Lyubomirsky et al., 2005), including cognitive functioning (cf. Fredrickson's 1998 Broaden-and-Build Theory of Positive

Emotions), I was surprised happiness did not predict academic outcomes. Perhaps academic tasks in the college setting are different in some ways from cognitive tasks assessed in previous studies. Or perhaps this hypothesis would be supported had I examined the entire four-year span of college life.

Okun, Levy, Karoly, and Ruehlman (2009) also found a null relationship between dispositional happiness and college GPA, explaining it as the sum total of two other effects of happiness that act in opposite ways and cancel each other out: first, happier students are more committed to college, which boosts academic performance; second, happier students tend to be more satisfied with their peer relationships, which undermines academic performance. The combined benefit of the former and detriment of the latter yields the null relationship. The constructs I measured in this dissertation are not quite comparable to "commitment to college" and "peer relationships," so I am unable to test whether the same pattern holds for my data as well. Future research, however, would be worthwhile to understand what, if any, benefits happiness has for students in the college setting.

One of the strongest personality correlates of happiness is Extraversion. In fact, Extraversion is more strongly associated with happiness than all other demographic characteristics about a person combined (Rusting & Larsen, 1998). However, Extraversion can negatively impact a student's academic performance. University students high in extraversion tend to be least academically successful (Broadbent, 1958; Furneaux, 1957; Goff & Ackerman, 1992) and may be more inclined to spend time socializing with friends, detracting from time spent on studies (Eysenck, 1992). In the

present study, both happiness and extraversion trended toward a (non-significant) negative association with later academic performance. These findings fit with the above research highlighting the negative impact of positive emotions in the college setting. Too much happiness may have negative consequences for academic performance.

I also predicted that social support would lead to greater academic performance. No evidence to support this hypothesis was found. This null relationship could be explained in a similar way to the null relationship between happiness and academic performance: those who are spending their time socializing are spending less time focused on academics (Eysenck, 1992). In the present study, Social Support is related both to Extraversion ($r = .38$, $p < .01$ for freshmen and $r = .48$, $p < .01$ for upperclassmen) and Happiness as measured by the Fordyce Emotions Questionnaire ($r = .33$, $p < .01$ for freshmen and $r = .48$, $p < .01$ for upperclassmen). As discussed above, Extraversion and Happiness do not by themselves bode well for better academic performance.

Implications for University Practice

One advantage of a longitudinal study is that it provides insight into the time course of a given population. Because students in the present study were assessed at multiple times in their college careers, I was able to identify not only the characteristics that lead to particular outcomes, but also the particular times when those characteristics will have the strongest impact. Both admissions offices as well as university administrators may be able to use this information to promote an academically successful and satisfied student body.

Traditionally, colleges use standardized test scores, like the SAT, as a major criterion in determining who will be admitted. It would also be useful to glean how conscientious the applicants are because this personality characteristic does as well as—if not better than—SAT score in predicting academic outcomes. For those institutions interested in graduating students who report high levels of college satisfaction, it would be prudent to select students who already are highly satisfied with their lives so far. Because students bring these background characteristics with them when they arrive at college, selecting applicants who are on the high end of conscientiousness and life satisfaction increases the likelihood the student body will achieve high GPAs and be satisfied with their experiences.

Of course, it is important for college admissions offices to use a holistic approach in selecting members of the freshman class. Life satisfaction scores alone, like any single variable, are incapable of perfectly predicting what a student's college experience will be like. In fact, students who have enjoyed the most satisfying lives and who always have had what they wanted in life may be in for some surprises when they start college. It is possible, for example, that students who report the most excellent life conditions, and who would change almost nothing if they could live their lives over, might encounter difficulty negotiating the inevitable challenges that accompany the college years such as roommate conflicts and more demanding coursework. On the other hand, students whose lives has been far from their ideal due to adverse circumstances they have had to overcome may have developed a strong level of resilience that will propel them past hurdles they encounter in college. That is, even though the life satisfaction scores of the

first group of students may be higher than the second, the latter may have developed other attributes that will pave the way for a successful and satisfying college experience. Future research will be important to understand how resilience—derived from overcoming previous life challenges—plays into later college outcomes. Perhaps if an admissions office has knowledge not only of raw levels of life satisfaction, but also of the life circumstances contributing to those levels, it can predict how students will handle the challenges and distress they may come across during college.

Once the students have arrived on campus, the university can foster their experiences in key ways to promote these outcomes as well. This begins as early as the first semester. Recall that low levels of freshman Regret and high levels of freshman Co-Curricular Engagement both predict later satisfaction. Therefore, Residential Life or the First Year Center might develop programs that identify students who express high levels of homesickness or wanting to get away from the university and intervene accordingly. Another logical intervention would be to encourage involvement in campus. Regular involvement with clubs or organizations that allow the student to form relationships with other students who have similar interests would certainly assuage loneliness and boredom (characteristics of the Regret component), while simultaneously increasing a sense of involvement on campus and the amount of time spent in co-curriculars (both characteristics of the Co-Curricular Engagement component).

For students in the upperclass years, the university ought to focus on promoting subjective well-being, Social Support, and continued efforts to minimize Regret, all of which translate to higher satisfaction ratings. Many universities focus a great deal on

freshman living environments and the resources available there, but the present study demonstrates the importance of living arrangements later in the college experience as well. Ensuring students feel connected with others, have social ties, and have close others to whom they can turn when problems arise also would strengthen Social Support. Continued efforts to diminish feelings of homesickness and loneliness and other key components of Regret also are important in the upperclass years.

The university also should encourage high levels of Academic Engagement during the upperclass years. Students who report high levels of academic functioning, feel motivated and productive, and view their college graduation as attainable also have the strongest GPAs. Perhaps faculty and other academic officers have the greatest influence here and could be trained on how to encourage these feelings in their students.

Future Research

The research presented here offers insights into characteristics during the college years that most strongly predict later outcomes, and paves the way for future research to tie up loose ends. One apparent next step would be to test interventions designed to target the student characteristics outlined above (e.g., increasing freshman Co-Curricular Engagement and upperclass Social Support). Another avenue for future research would be to shore up some of the limitations of the present study. For one, students here were assessed midway through their experiences. It would be worthwhile to illuminate how well personality and engagement characteristics predict outcomes at the end of a student's college career. It also would be useful to know whether these effects replicate in samples at institutions of other sizes or locations. Other college student characteristics

would be interesting to test as predictors of academic performance and satisfaction as well, such as health behaviors, learning styles, and achievement motivation.

Further, following up these two cohorts through to their graduation would offer a more complete look at "the college experience." In addition, these cohorts could be tracked through their early adult years, through entry into the labor force and into their careers, to achieve a truly life-course picture of the consequences of college experiences. This would be an important addition to the literature on human development.

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Appendix A: The 21 "College Experience" Items

Use this scale to indicate how often you have experienced each emotion.

NOT AT ALL	VERY SLIGHTLY	SOME-WHAT	MODERATE AMOUNT	MUCH	VERY MUCH	EXTREMELY MUCH
0	**1**	**2**	**3**	**4**	**5**	**6**

_____ lonely _____ homesick _____ bored

Circle a number on the following scales to describe how you have felt, on average

Unproductive 0 1 2 3 4 5 6 7 8 9 Productive
Not Social 0 1 2 3 4 5 6 7 8 9 Social

Please rate the following relationships for how satisfied you have been with each.

Very Dissatisfied	Moderately Dissatisfied	Slightly Dissatisfied		Slightly Satisfied	Moderately Satisfied	Very Satisfied
0	**1**	**2**	**3**	**4**	**5**	**6**

____ Friends back home ____ Friends at WU ____ My RA

In general, how connected have you felt with others during your college experience?

Isolated			Neutral			Well-connected
0	1	2	3	4	5	6

In terms of your school work, how would you rate your functioning?

Poor			Average			Excellent
0	1	2	3	4	5	6

Use the following scale to indicate how you felt, on average, regarding each item below.

Strongly Disagree	Moderately Disagree	Slightly Disagree		Slightly Agree	Moderately Agree	Strongly Agree
0	**1**	**2**	**3**	**4**	**5**	**6**

___ I felt involved on campus.
___ I wanted to get away from WU.
___ I felt successful in the classroom.
___ I regretted the decision ever to come to Washington University.
___ I felt close with others on my floor.
___ I felt glad to live on my floor
___ I felt confident I will graduate from WU.
___ I felt motivated to do well in school
___ If I was in trouble, I had family or friends I could count on whenever I needed them.

On average, how many hours each week were you in meetings or other commitments relevant to extra-curricular activities? ____

How many TOTAL extra-curricular activities are you involved with? ____

Appendix B: Items from the PULSE Survey

How satisfied are you with the following aspects of your Washington University experience so far?	Very **dis**satisfied	Generally **dis**satisfied	Generally Satisfied	Very Satisfied
Overall quality of instruction				
Social life on campus				
Sense of community on campus				
Sense of community where you live during the academic year				

How would you evaluate your entire educational experience at WU?	Poor	Fair	Good	Excellent

<u>During a typical week</u> this academic year, approximately how many hours do you spend on your academic work?	**Hours per week:**					
	0-10	11-15	16-20	21-25	26-30	More than 30
Attending scheduled classes or labs						
Working on academic work outside of class or lab						

<u>Thinking across this school year</u>, how often would you say you have experienced each of the following?	Rarely or never	Occasionally	Often	Very often
Participated in class discussions				
Been excited by a class				
Worked with others on a group assignment, project, or presentation				

<u>During a typical week</u> this academic year, approximately how many hours do you spend doing the following activities?	**Hours per week:**					
	None	1-5	6-10	11-15	16-20	21+
Participating in other extracurricular activities						

During the current school year, how often, if ever, have you:	Rarely or Never	Occasionally	Often	Very Often
Felt out of place or that you just did not fit in on your campus				
Felt overwhelmed by all you had to do				

To what extent do you agree or disagree with the following statement?	Strongly **dis**agree	**Dis**agree	Agree	Strongly Agree
I have found a community at WU where I feel like I belong				

If you could start over again, would you go to WU?	Definitely	Probably	Probably not	Definitely not

Appendix C: Table of Means for all variables measured

All Participants	Freshman Levels				Upperclass Levels		
	Mean	N	SD		Mean	N	SD
Neuroticism	2.77	139	0.80		2.74	139	0.77
Extraversion	3.56	134	0.47		3.58	134	0.50
Openness	3.59	135	0.47		3.65	135	0.47
Agreeableness	3.71	138	0.50		3.78	138	0.52
Conscientiousness	3.62	137	0.59		3.64	137	0.65
Satisfaction with WU experience	5.04	136	1.33		5.07	136	1.24
FEQ Happy	57.68	145	21.34		56.85	145	22.25
SWLS Score	27.27	145	5.44		27.17	145	6.21
Social Support	0.03	143	0.67		-0.034	143	0.72
Regret	-0.03	143	0.68		0.031	143	0.85
CoCurricular Engagement	-0.27	143	0.59		0.260	143	0.78
Academic Engagement	-0.27	143	0.70		0.253	143	0.89

Cohort entering Fall 2008	Freshman Levels				Upperclass Levels		
	Mean	N	SD		Mean	N	SD
Neuroticism	2.70	63	0.80		2.70	63	0.78
Extraversion	3.63	59	0.51		3.61	59	0.53
Openness	3.61	59	0.47		3.69	59	0.51
Agreeableness	3.78	62	0.48		3.83	62	0.52
Conscientiousness	3.65	62	0.52		3.62	62	0.64
Satisfaction with WU experience	4.80	60	1.41		4.88	60	1.42
FEQ Happy	59.50	62	22.64		58.82	62	22.63
SWLS Score	27.82	62	5.99		27.02	62	6.55
Social Support	-0.24	62	0.72		-0.07	62	0.70
Regret	0.06	62	0.68		0.04	62	0.85
CoCurricular Engagement	-0.04	62	0.63		0.34	62	0.80
Academic Engagement	-0.33	62	0.64		0.23	62	0.88

Cohort entering Fall 2009	Freshman Levels				Upperclass Levels		
	Mean	N	SD		Mean	N	SD
Neuroticism	2.83	76	0.81		2.77	76	0.78
Extraversion	3.51	75	0.45		3.56	75	0.47
Openness	3.57	76	0.47		3.61	76	0.43
Agreeableness	3.66	76	0.50		3.73	76	0.52
Conscientiousness	3.59	75	0.65		3.66	75	0.67
Satisfaction with WU experience	5.22	76	1.24		5.21	76	1.07
FEQ Happy	56.31	83	20.35		55.37	83	21.99
SWLS Score	26.86	83	4.99		27.28	83	5.98
Social Support	-0.28	81	0.68		0.00	81	0.74
Regret	0.00	81	0.66		0.03	81	0.85
CoCurricular Engagement	-0.02	81	0.71		0.20	81	0.77
Academic Engagement	-0.23	81	0.55		0.27	81	0.91

Appendix D: Correlation Matrix Among All Variables

	SAT Score	GPA	Freshman Neur	Freshman Extrav	Freshman Open	Freshman Agree	Freshman Consc	FL10 Neur	FL10 Extrav	FL10 Open	FL10 Agree	FL10 Consc
SAT Score	1.00	**.30****	-.07	-.08	.13	.00	-.05	-.06	-.03	.04	-.04	-.04
GPA		1.00	-.11	.03	.06	.15	**.34****	-.04	.03	.07	**.21***	**.38****
FRSH Neur			1.00	**-.35****	.00	-.14	**-.27****	**.68****	**-.28****	-.12	-.10	**-.23****
FRSH Extrav				1.00	.05	**.25****	**.21***	**-.26****	**.68****	.14	.16	**.21***
FRSH Open					1.00	.08	.03	.04	-.11	**.63****	.00	-.09
FRSH Agree						1.00	**.18***	-.08	**.21***	.04	**.74****	**.18***
FRSH Consc							1.00	-.06	.01	-.01	.12	**.70****
FL10 Neur								1.00	**-.38****	-.02	**-.18***	**-.23****
FL10 Extrav									1.00	.06	**.29****	**.19***
FL10 Open										1.00	.05	-.13
FL10 Agree											1.00	**.22***
FL10 Consc												1.000

$*p < .05$,$**p < .01$

Appendix D: Correlation Matrix Among All Variables, continued

	Freshman FEQ Happy	Freshman FEQ Unhappy	Freshman FEQ Neutral	FL10 FEQ Happy	FL10 FEQ Unhappy	FL10 FEQ Neutral	Freshman SWLS Score	FL10 SWLS Score	Freshman Satisfaction	FL10 Satisfaction
SAT Score	-.11	-.08	**.21***	-.07	-.16	**.22****	.04	.00	.16	.03
GPA	.03	-.10	.03	.04	-.15	.07	.11	.08	**.34****	**.26****
FRSH Neur	**-.39****	**.46****	.16	**-.40****	**.52****	.07	**-.49****	**-.278****	**-.25****	**-.28****
FRSH Extrav	**.39****	**-.27****	**-.32****	**.34****	**-.25****	**-.22****	**.43****	**.29****	.15	**.17***
FRSH Open	.08	.02	-.11	-.07	.05	.05	.02	-.10	.00	-.11
FRSH Agree	.15	-.09	-.14	**.21***	-.12	**-.17***	**.29****	.14	.13	.09
FRSH Consc	**.17***	-.04	**-.20***	.13	-.03	-.14	**.26****	.11	**.25****	.13
FL10 Neur	**-.31****	**.33****	.15	**-.53****	**.60****	**.17***	**-.34****	**-.43****	**-.19***	**-.33****
FL10 Extrav	**.24****	**-.26****	-.11	**.42****	**-.35****	**-.24****	**.36****	**.49****	**.22***	**.35****
FL10 Open	.12	-.14	-.06	.01	-.12	.09	.11	.01	.15	.02
FL10 Agree	.08	-.04	-.08	**.30****	**-.17***	**-.24****	**.20***	**.19***	**.21***	**.24****
FL10 Consc	.10	-.04	-.11	**.28****	-.15	**-.24****	**.27****	**.35****	**.36****	**.28****
FRSH FEQ Happy	1.00	**-.68****	**-.80****	**.44****	**-.27****	**-.33****	**.46****	**.22****	.02	.10
FRSH FEQ Unhappy		1.00	.11	**-.36****	**.47****	.07	**-.48****	**-.26****	-.01	-.15
FRSH FEQ Neutral			1.00	**-.31****	-.01	**.39****	**-.23****	-.08	-.02	-.02
FL10 FEQ Happy				1.00	**-.61****	**-.76****	**.43****	**.56****	**.29****	**.52****
FL10 FEQ Unhappy					1.00	-.06	**-.42****	**-.44****	**-.36****	**-.44****
FL10 FEQ Neutral						1.00	**-.19***	**-.33****	-.08	**-.29****
FRSH SWLS Score							1.00	**.55****	**.24****	**.30****
FL10 SWLS Score								1.00	**.33****	**.51****
FRSH Satisfaction									1.00	**.36****
FL10 Satisfaction										1.00

p < .05,p < .01*

Appendix D: Correlation Matrix Among All Variables, continued

	Freshman Social Support	Freshman Regret	Freshman CoCurricular Engagement	Freshman Academic Engagement	FL10 Social Support	FL10 Regret	FL10 CoCurricular Engagement	FL10 Academic Engagement
SAT Score	.03	-.08	.12	.13	.00	-.10	.00	.14
Cumulative GPA	.15	**-.28****	**.27****	**.35****	**.17***	**-.32****	**.20***	**.55****
FRSH Neuroticism	**-.51****	**.51****	**-.21***	**-.48****	**-.41****	**.37****	-.12	**-.27****
FRSH Extraversion	**.38****	**-.26****	**.28****	.15	**.26****	**-.17***	**.30****	.09
FRSH Openness	.14	.03	.03	.00	-.05	.11	-.03	-.05
FRSH Agreeableness	.11	-.13	.06	**.19***	.03	**-.17***	.16	**.21***
FRSH Conscientiousness	.15	**-.30****	**.27****	**.38****	.03	**-.24****	**.23****	**.33****
FL10 Neuroticism	**-.39****	**.49****	-.09	**-.36****	**-.45****	**.45****	-.16	**-.35****
FL10 Extraversion	**.38****	**-.34****	**.30****	**.25****	**.48****	**-.36****	**.39****	**.24****
FL10 Openness	.16	-.11	.09	.09	.04	-.01	.07	.02
FL10 Agreeableness	**.18***	**-.22****	.09	**.23****	.16	**-.31****	**.23****	**.29****
FL10 Conscientiousness	**.28****	**-.32****	**.20***	**.47****	**.27****	**-.36****	**.27****	**.62****
FRSH FEQ Happy	**.33****	-.01	.10	.15	**.22****	-.07	**.17***	.06
FRSH FEQ Unhappy	**-.44****	.08	**-.20***	**-.24****	**-.35****	.12	**-.19***	**-.18***
FRSH FEQ Neutral	-.09	-.04	.03	-.02	-.02	.01	-.08	.06
FL10 FEQ Happy	**.44****	**-.38****	**.21***	**.45****	**.48****	**-.46****	**.30****	**.38****
FL10 FEQ Unhappy	**-.43****	**.46****	**-.20***	**-.44****	**-.47****	**.54****	**-.18***	**-.35****
FL10 FEQ Neutral	**-.30***	.09	-.10	**-.21***	**-.21***	.14	**-.23****	**-.19***
FRSH SWLS Score	**.50****	**-.31****	.16	**.40****	**.37****	**-.36****	.11	**.27****
FL10 SWLS Score	**.48****	**-.35****	.16	**.40****	**.58****	**-.40****	**.22****	**.45****
FRSH Satisfaction with WU	**.41****	**-.56****	**.32****	**.68****	**.24****	**-.49****	**.24****	**.47****
FL10 Satisfaction with WU	**.41****	**-.46****	**.33****	**.42****	**.62****	**-.60****	**.34****	**.49****

p < .05,p < .01*

Appendix D: Correlation Matrix Among All Variables, continued

	Freshman Social Support	Freshman Regret	Freshman CoCurricular Engagement	Freshman Academic Engagement	FL10 Social Support	FL10 Regret	FL10 CoCurricular Engagement	FL10 Academic Engagement
FRSH_Social Support	1.00	**-.54****	**.26****	**.63****	**.69****	**-.42****	**.26****	**.39****
FRSH_Regret		1.00	**-.26****	**-.59****	**-.41****	**.66****	**-.25****	**-.41****
FRSH_CoCurricular Engagement			1.00	**.30****	**.23****	**-.32****	**.65****	**.21***
FRSH_Academic Engagement				1.00	**.50****	**-.51****	**.23****	**.66****
FL10 Social Support					1.00	**-.49****	**.29****	**.50****
FL10 Regret						1.00	**-.32***	**-.52****
FL10 CoCurricular Engagement							1.00	**.25****
FL10 Academic Engagement								1.00

p < .05,p < .01*