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The Big Five Personality Traits as Predictors of Academic Maturity

BY

Ryan W. Althoff

THESIS

SUBMITTED IN PARTIAL FULFILLMENT OF THE REQUIREMENTS
FOR THE DEGREE OF

Master of Arts in Clinical Psychology

IN THE GRADUATE SCHOOL, EASTERN ILLINOIS UNIVERSITY
CHARLESTON, ILLINOIS

<u>**2010**</u>
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Running head: PREDICTING ACADEMIC MATURITY

The Big Five Personality Traits as Predictors of Academic Maturity

Ryan Althoff

Eastern Illinois University

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Dedication

To my parents, whose faith, dedication, and sincerity have inspired me to be the man I am today.

Abstract

Big Five measures of personality have long been used to assess the relationship between personality and academic performance. The Academic Maturity Scale (AMS), a 101-item instrument designed to identify the skills, strategies, and motivations that are shared among successful students, has been shown to be correlated with academic performance (Addison, Althoff, & Pezold, 2009). In the present study, I assessed the relationship between personality characteristics and academic maturity, specifically which personality characteristics are the best predictors of academic maturity. I administered the Big Five Inventory (BFI; John, Donahue, & Kentle, 1991) and AMS to 163 students from introductory and upper division psychology courses. I used multiple regression analyses to assess the relationships between scores on the domain and facet scales of the BFI and scores on the subscales of the AMS in order to identify the personality characteristics that best predict academic maturity. Consistent with predictions, the results of the multiple regression analyses showed that scores on the Conscientiousness domain and Conscientiousness/Self-Discipline facet were the best predictors of AMS total scores. Scores on the Conscientiousness domain and Conscientiousness/Self-Discipline facet were also found to be significant predictors of scores on all four AMS subscales. The study's implications and limitations are discussed.

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The Big Five Personality Traits as Predictors of Academic Maturity

Personality traits have long been a point of interest for researchers in psychology. In his 1929 and 1932 studies, William McDougall proposed that personality could be divided into five components: disposition, temperament, temper, intellect, and character. Several years later, Gordon Allport and H. S. Odbert (1936) used an English dictionary to conduct a lexical study of personality-relevant terms. They divided 17,953 terms into four categories: temporary moods, activities, and states (4,541 terms); capacities, talents, physical qualities, and other terms that were loosely related to personality (3,682 terms); strongly evaluative appraisals of character, reputation, and personal conduct (5,226 terms); and personality traits (4,504 terms). Using most of the 4,504 terms from Allport and Odbert's personality trait category and a few hundred more from the other categories, Raymond Cattell (1943, 1945a, 1945b, 1946, 1947) developed a map of the major personality traits. Cattell condensed the 4,000-plus terms into 35 personality variables, which were further reduced to 12 factors that eventually became the basis for the 16 Personality Factors (16PF) questionnaire (Cattell, Eber, & Tatsuoka, 1970).

Though subsequent studies were unsuccessful in replicating Cattell's work (Fiske, 1949; Tupes & Christal, 1961), researchers did find support for a five-factor model. In 1961, Tupes and Christal reevaluated some of Cattell and Fiske's data and found support for a five-factor model of personality. Their five factors were dependability, agreeableness, culture, surgency, and emotional stability. Further studies supported this five-factor model (Borgatta, 1964; Hakel, 1974; Norman, 1963; Smith 1967); however, Norman changed the labels of the five factors to extraversion or surgency, emotional stability, agreeableness, conscientiousness, and culture (Norman, 1963). Norman's labels

have been referred to as the "Big Five" or "Norman's Big Five" (Barrick & Mount, 1991, p. 2).

Numerous subsequent studies have provided support for the validity of the five-factor/Big Five model (e.g., Conley, 1985; Costa & McCrae, 1988; Digman & Inouye, 1986; and Norman & Goldberg, 1966). There is, however, some disagreement about the labels and definitions of the individual factors. From their questionnaire-based research, Paul Costa and Robert McCrae (1992) described the five domains as neuroticism, extraversion, openness, agreeableness, and conscientiousness. Though several of their domain labels differed from Norman's, their conceptions of the domains coincided with a variety of personality questionnaires (Costa & McCrae, 1992).

Measures of Personality

In 1985, Robert McCrae and Paul Costa created the NEO Personality Inventory (NEO PI). The NEO PI was initially developed from analyses of the 16PF (Cattell et al., 1970) and included the five dimensions of the Big Five model (John, Naumann, & Soto, 2008). Both the 240-item Revised NEO Personality Inventory (NEO PI-R; Costa & McCrae, 1992) and the 60-item NEO Five-Factor Inventory (NEO-FFI; Costa & McCrae) were developed from the NEO PI (John et al., 2008).

A number of other personality measures have been developed using the Big Five model (e.g., the International Personality Item Pool [IPIP; Goldberg et al., 2006], the Personal Style Inventory [PSI; Lounsbury & Gibson, 2002], the Trait Descriptive Adjectives [TDA; Goldberg, 1992], and the Big Five Inventory [BFI; John, Donahue, & Kentle, 1991; see also Benet-Martínez & John, 1998; John et al., 2008]). In 1989 and 1990, Oliver John attempted to ascertain the prototypical components of each of the Big

Five domains. He had 10 human judges individually place each of the 300 terms used in the Adjective Check List (ACL; Gough & Heilbrun, 1965, 1983) under either a specific Big Five domain or a residual category for terms that did not fit into any of the domains. In 1991, John et al. designed the BFI using the prototypical components identified in his 1989 and 1990 studies (John et al., 2008).

John et al. (2008) defined the Big Five personality traits as follows: Extraversion is "an *energetic approach* toward the social and material world and includes traits such as sociability, activity, assertiveness, and positive emotionality;" Agreeableness, "contrasts a *prosocial and communal orientation* toward others with antagonism and includes traits such as altruism, tender-mindedness, trust, and modesty;" Conscientiousness refers to "*socially prescribed impulse control* that facilitates task- and goal-directed behavior, such as thinking before acting, delaying gratification, following norms and rules, and planning, organizing, and prioritizing tasks;" Neuroticism, "contrasts emotional stability and even-temperedness with *negative emotionality*, such as feeling anxious, nervous, sad, and tense;" and Openness is "the breadth, depth, originality, and complexity of an individual's *mental and experiential life*" (p. 120).

Numerous studies have been conducted to test the validity of the BFI (e.g., Benet-Martínez & John, 1998; John et al., 2008; Rammstedt & John, 2007; Soto, John, Gosling, & Potter, 2008; Srivastava, John, Gosling, & Potter, 2003). Rammstedt and John (2007) found that over an 8-week interval, the temporal stability of the BFI averaged a correlation of .83 in a sample consisting of 726 students from a large public university. John et al. (2008) found the BFI to have an overall convergence correlation of .80 with

Goldberg's (1992) Trait Descriptive Adjectives and a correlation of .77 with Costa and McCrae's (1992) NEO-FFI.

In 2009, Soto and John developed 10 facet scales to further specify the personality characteristics within each domain of the BFI. They constructed these scales to converge with the facet scales of the NEO PI-R (Costa & McCrae, 1992). Soto and John based their subscales on the NEO PI-R because previous research demonstrated that the item content of the BFI is related to many of the facets of the NEO PI-R (John et al., 2008). Because the NEO PI-R is the most widely used and "best-validated" (John et al., 2008, p. 130) hierarchical measure of the Big Five traits, conceptually aligning the BFI facets to those of the NEO PI-R enhances the validity of the BFI (Soto & John, 2009). Although the NEO PI-R is well validated and provides specific facet-level information for each of the Big Five domains, it contains 240 items and usually takes 30-40 minutes to complete. The NEO-FFI is a shorter; 60-item alternative to the NEO PI-R for measuring the Big Five domains, but it does not offer specific facet-level information. With the development of its 10 facet scales, the BFI provides a Big Five measure that is both brief like the NEO-FFI, and facet-specific like the NEO PI-R.

There are two facet scales for each of the five domains of the BFI (Soto & John, 2009). The facets for Extraversion are Assertiveness and Activity; for Agreeableness, Altruism and Compliance; for Conscientiousness, Order and Self-Discipline; for Neuroticism, Anxiety and Depression; and for Openness, Aesthetics and Ideas. The facets converge with those of the NEO PI-R in both name and concept, as Soto and John have demonstrated.

According to Costa and McCrae (1992), people who score high on the Extraversion/Assertiveness facet are forceful and are likely to become group leaders. Those who score high on the Extraversion/Activity facet need to keep themselves occupied, are energetic, and live life at a fast pace. People who score high on the Agreeableness/Altruism facet care about the well-being of others and express this tendency by being generous and helping others. Individuals with high scores on the Agreeableness/Compliance facet are meek and try to avoid expressing anger and aggression. Those who score high on the Conscientiousness/Order facet are well-organized and tidy. People who score high on the Conscientiousness/Self-Discipline facet are able to start and finish projects regardless of distractions and are self-motivated. Those who score high on the Neuroticism/Anxiety facet are apprehensive and inclined to worry. Individuals with high scores on the Neuroticism/Depression facet are likely to feel unhappy and despondent. People who score high on the Openness/Aesthetics facet have a heightened interest in art and beauty. Those who score high on the Openness/Ideas facet are intellectually curious and open to new ideas.

Personality and Academic Performance

Since the development of the Big Five model, researchers have conducted a number of studies on the relationship between Big Five traits and academic performance in college students (e.g., Chamorro-Premuzic,, 2006; Diseth, 2003; Gray & Watson, 2002; Harris, 1940; Phillips, Abraham, & Bond, 2003; Ridgell & Lounsbury, 2004; Wagerman & Funder, 2007). In their independent reviews of the literature on the relationship between personality characteristics and academic performance, Noftle and Robins (2007), Poropat (2009), and Trapmann, Hell, Hirn, and Schuler (2007) all found that

Conscientiousness was the strongest predictor of academic performance in college students. Noftle and Robins suggested that the self-regulating element of Conscientiousness (as measured by the Self-Discipline facet of the NEO-PI-R) is more integral to academic achievement in college than the organized element of Conscientiousness (as measured by the Order facet of the NEO-PI-R). Similarly, Gray and Watson found college GPA to be more strongly correlated with the Conscientiousness/Self-Discipline facet of the NEO-PI-R than with the Conscientiousness/Order facet.

A concept related to academic performance is academic maturity. Academic maturity is defined as "the tendency to motivate oneself to develop and apply effective strategies in time management, self-discipline, and organization, and the ability to use these strategies in accordance with an understanding of one's academic strengths and limitations so as to maximize learning opportunities" (Addison, Althoff, & Pezold, 2009). Students with high levels of academic maturity will generally have more academic success than those with lower levels of academic maturity, although academic maturity emphasizes behavioral tendencies rather than academic ability/aptitude per se. For example, a student may be academically mature, but be relatively weak in the kinds of cognitive or intellectual skills necessary to excel in the classroom (Addison, Godwin, & Maceyak, 2010).

Addison et al. (2009) developed the Academic Maturity Scale (AMS) to assess the four dimensions of academic maturity: motivation, organization, responsibility, and self-awareness. The motivation subscale includes items that address perseverance, self-initiative, and sources of academic drive; the organization subscale assesses one's ability

to balance his/her responsibilities, take notes, logically sort notes, and keep up with assignments; the responsibility subscale includes items that address self-discipline, punctuality, and dedication to schoolwork; and the self-awareness subscale assesses one's tendency to be open-minded and to use appropriate learning strategies, as well as the ability to recognize one's academic strengths and limitations.

Several studies have been conducted to assess the validity of the AMS. In 2009, Addison and colleagues found that AMS total scores were significantly related to college GPA, and that the AMS motivation subscale was a significant predictor of college GPA. These results are consistent with the expectation that students with higher levels of academic maturity will usually have more academic success than students with lower levels of academic maturity. They also found that there was virtually no correlation between scores on Watson and Glaser's (1980) Critical Thinking Appraisal (WGCTA) and scores on the AMS. Considered in their entirety, these results suggest that students who possess good critical thinking skills and other cognitive abilities may still require some degree of academic maturity in order to obtain high GPAs.

Though there appear to be some conceptual similarities between academic maturity and personality traits, academic maturity is thought to be distinctive in both its scope and application. Unlike the broad conceptions of personality traits, the elements of academic maturity were conceived of only in their relationship to academic matters, specifically how they contribute to an individual's success at maximizing his or her learning opportunities.

Other studies have shown that AMS scores are correlated with measures of similar constructs. In 2010, Addison et al. found that AMS total scores and all four subscale

scores were correlated with scores on Baker and Siryk's (1984) Academic Motivation

Scale. Because the AMS was constructed to assess elements of motivation in academic

settings, the finding that AMS scores are correlated with scores on an established

measure of academic motivation provides support for the construct validity of the AMS.

Pezold (2009) found that AMS subscale scores were significantly correlated with

scores on similar subscales from Pintrich, Smith, Garcia, and McKeachie's (1993)

Motivated Strategies for Learning Questionnaire (MSLQ). Because the MSLQ was

constructed to measure a student's overall potential performance in a course, it would

appear to be related to the AMS's assessment of a student's tendency to maximize his or

her learning opportunities. Again, these findings support the validity of the AMS as a

measure of academic motivation.

There are some similarities between the four subscales of the AMS and the five

personality domains measured by the BFI. The self-awareness subscale of the AMS and

the Openness domain from the BFI are similar because the self-awareness subscale

assesses, among other things, open-mindedness, and an alternate label for the Openness

domain is "Open-Mindedness" (John et al., 2008, p.120). Because the Conscientiousness

domain includes impulse control, the promotion of goal-oriented behaviors, and

approaching tasks in a calculated and organized manner, this trait overlaps with all four

subscales of the AMS. Additionally, because previous research has linked academic

performance in college students with the Conscientiousness domain (Noftle & Robins,

2007; Poropat, 2009; Trapmann et al., 2007), the motivation subscale of the AMS and the

AMS total score (Addison et al., 2009), BFI scores, AMS scores, and measures of

academic performance are likely to be interrelated.

There are also similarities between the 10 personality facets measured by the BFI and the 4 subscales of the AMS. Additionally, because previous research has linked academic performance in college students with the Conscientiousness/Self-Discipline facet of the NEO-PI-R (Gray & Watson, 2002; Noftle & Robins, 2007), the motivation subscale of the AMS, and the AMS total score (Addison et al., 2009), BFI Conscientiousness/Self-Discipline facet scores, AMS total and motivation scores, and measures of academic performance are likely to be interrelated. The BFI Neuroticism/Depression facet is likely to be related to the motivation subscale of the AMS as an individual's propensity for feelings of despondency or other depressive affects may impact his or her sense of initiative or ability to persevere. The BFI Conscientiousness/Order facet may be related to the AMS organization subscale because the AMS organization subscale assesses how well-organized an individual is regarding academic matters. The BFI Conscientiousness/Self-Discipline facet and AMS organization subscale are also related, as an individual's ability to take notes and keep up with assignments is likely to be linked to his or her level of self-motivation. The BFI Conscientiousness/Self-Discipline facet and AMS responsibility subscale are related because the AMS responsibility subscale explicitly assesses, among other things, self-discipline. The self-awareness subscale of the AMS and the Openness/Ideas facet of the BFI are similar because both scales assess openness to new ideas.

In the current study, the relationship between personality characteristics and academic maturity was assessed in order to identify the personality characteristics that best predict academic maturity. The hypotheses are as follows:

1. BFI Conscientiousness scores will be the best domain-level predictor of AMS total scores, and Conscientiousness/Self-Discipline scores will be the best facet-level predictor of AMS total scores.

2. BFI Conscientiousness scores will be the best domain-level predictor of AMS motivation scores, and Conscientiousness/Self-Discipline and Neuroticism/Depression scores will be the best facet-level predictors of AMS motivation scores.

3. BFI Conscientiousness scores will be the best domain-level predictor of AMS organization scores, and Conscientiousness/Order and Conscientiousness/Self-Discipline scores will be the best facet-level predictors of AMS organization scores.

4. BFI Conscientiousness scores will be the best domain-level predictor of AMS responsibility scores, and Conscientiousness/Self-Discipline scores will be the best facet-level predictor of AMS responsibility scores.

5. BFI Openness and Conscientiousness scores will be the best domain-level predictors of AMS self-awareness scores, and Openness/Ideas scores will be the best facet-level predictor of AMS self-awareness scores.

Method

Participants

A total of 163 undergraduate students (37 men and 126 women; mean age = 23.9, SD = 7.1) from both introductory and upper division psychology courses at Eastern Illinois University participated in the study for extra credit. Using Samuel Green's (1991) equation for determining the minimum sample size necessary for obtaining a medium

effect size in a regression analysis, it was discovered that at least 130 participants were needed for the current study.

Materials

The Academic Maturity Scale (AMS) is a self-report, 101-item inventory divided into four subscales: motivation, organization, responsibility, and self-awareness (Addison et al., 2009; Addison et al., 2010). Respondents indicate their level of agreement with each of the 101 items using a 6-point Likert-type scale (1 = strongly disagree, 6 = strongly agree); 19 items on the scale are reverse-scored. The AMS was designed to identify the skills, strategies, and motivations that are shared among successful students; it was not designed to assess academic aptitude per se. Examples of items on the AMS are: "If I am struggling with a class, I take advantage of tutoring opportunities." (Responsibility); "I have a good understanding of my own academic tendencies (e.g., procrastination, organization)." (Self-Awareness); "In general, I am able to stay focused on academic tasks." (Motivation); and "I use a planner/organizer to record assignment deadlines, test dates, etc." (Organization).

The Big Five Inventory (BFI) (John et al., 1991; John et al., 2008) is a 44-item inventory that was developed to assess the Big Five personality domains of Extraversion, Agreeableness, Conscientiousness, Neuroticism, and Openness. The BFI also contains 10 facet scales, two for each domain, that are used to examine personality characteristics within each domain (Soto & John, 2009). Respondents indicate their level of agreement with each of the 44 items using a 5-point Likert scale (1 = disagree strongly, 5 = agree strongly); 16 items are reverse-scored. The items are described in behavioral, cognitive, and affective terms. Examples of items on the BFI (all of which are preceded by the

phrase "I am someone who…") are: "Is a reliable worker" (Self-Discipline facet of

Conscientiousness), "Is generally trusting" (Altruism facet of Agreeableness), "Is

inventive" (Ideas facet of Openness), "Is depressed, blue" (Depression facet of

Neuroticism), and "Is full of energy" (Activity facet of Extraversion) (John et al., 1991;

Soto & John, 2009). The BFI is available in the traditional 44-item version or a shorter

10-item version. The original English version has been translated into Spanish (Benet-

Martínez & John, 1998) and Dutch (Denissen, Greenen, van Aken, Gosling, & Potter,

2008); the 10-item version has been translated into German (Rammstedt, 2007;

Rammstedt & John, 2007), Chinese, Swedish, Portuguese, Hebrew, Lithuanian, and

Italian (Berkeley Personality Lab, 2009). For this study, the 44-item, self-report form of

the BFI was used.

Procedure

Participants completed both the AMS and BFI using an online testing site. Half of

the participants completed the BFI first, and the other half completed the AMS first. The

participants also provided demographic information (e.g., sex, age, college major, grade

level) and were asked for permission to access their cumulative grade point averages

(GPA).

Results

From an original sample of 192 responses, 25 were removed because 11 were

incomplete and 14 took 10 minutes or less to complete. Based on several practice runs of

the surveys and prior research conducted with the AMS, responses taking 10 minutes or

less to complete were deemed to have questionable validity. For both the BFI and AMS,

omitted items were replaced with the mean response for that item, rounded to the nearest

integer. The remaining 167 responses were inspected for outliers using tests for standardized residuals, Mahalanobis Distances, and Cook's Distances. As a result of these tests, four more responses were removed from the analyses. The remaining 163 responses were used for the multiple regression analyses.

Based on the results from the final sample, the AMS scales demonstrated good internal consistency with alpha reliabilities of .75 for motivation, .71 for organization, .89 for responsibility, .85 for self-awareness, and .94 for the AMS composite scale. The mean AMS and BFI scores and standard deviations for the sample are found in Table 1.

Table 1

Means and Standard Deviations for AMS and BFI (N = 163)

Scale	*Mean*	*Standard Deviation*
Academic Maturity Scale		
Total	427.99	48.06
Motivation	100.22	11.34
Organization	57.75	9.02
Responsibility	146.05	21.72
Self-Awareness	68.85	8.28
Big Five Inventory		
Extraversion	3.45	0.76
Agreeableness	4.01	0.55
Conscientiousness	3.81	0.56
Neuroticism	2.90	0.69
Openness	3.63	0.56

I conducted a stepwise multiple regression analysis to examine how age, sex, and BFI domain scores (Extraversion, Agreeableness, Conscientiousness, Neuroticism, and Openness) predicted AMS total scores. Results show that age, sex, and the domain scores accounted for 39% of the variance in the sample (38% of the variance in the population) of AMS total scores, $F(3, 159) = 33.63$, $p < .001$. Conscientiousness accounted for most of the variance (27%), $p < .001$. Openness (4%), $p = .01$ and age (3%), $p = .04$ explained the remaining variance in AMS total scores. A summary of the results of the multiple regression analysis for age, sex, and BFI domain-level predictors of AMS total scores is found in Table 2.

Table 2

Summary of Multiple Regression Analysis for Age, Sex, and BFI Domain Scores Predicting AMS Total Scores (N = 163)

Variable	*B*	*SE B*	*B*
Conscientiousness	44.40	5.80	0.51**
Openness	14.69	5.49	0.17**
Age	0.91	0.44	0.13*

Note. $R^2 = 0.39$; adjusted $R^2 = 0.38$.

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

Another stepwise multiple regression analysis was conducted to examine how the BFI facet scores (Extraversion/Assertiveness, Extraversion/Activity, Agreeableness/Altruism, Agreeableness/Compliance, Conscientiousness/Order, Conscientiousness/Self-Discipline, Neuroticism/Anxiety, Neuroticism/Depression, Openness/Aesthetics, and Openness/Ideas) predicted AMS total scores. The results showed that the facet scores

accounted for 40% of the variance in the sample (38% of the variance in the population) of AMS total scores, $F(4, 158) = 26.27, p < .001$. Conscientiousness/Self-Discipline accounted for most of the variance (31%), $p < .001$. Extraversion/Activity (5%), $p = .01$; Agreeableness/Altruism (2%), $p = .05$; and Openness/Ideas (2%), $p = .05$ explained the remaining variance in AMS total scores. A summary of the results of the multiple regression analysis for BFI facet-level predictors of AMS total scores is found in Table 3.

Table 3

Summary of Multiple Regression Analysis for BFI Facet Scores Predicting AMS Total Scores (N = 163)

Variable	B	SE B	β
Conscientiousness/Self-Discipline	45.27	5.41	0.57 **
Extraversion/Activity	11.81	4.14	0.20 **
Agreeableness/Altruism	-11.75	5.83	-0.14 *
Openness/Ideas	10.65	5.34	0.13 *

Note. $R^2 = 0.40$; adjusted $R^2 = 0.38$.

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

A second pair of stepwise multiple regression analyses examined how the BFI domain scores and facet scores predicted AMS motivation scores. Results show that the domain scores accounted for 31% of the variance in the sample (30% of the variance in the population) of AMS motivation scores, $F(2, 160) = 36.39, p < .001$. Conscientiousness accounted for most of the variance (27%), $p < .001$. Openness (3%), $p = .04$ explained the remaining variance in AMS motivation scores. A summary of the

results of the multiple regression analysis for BFI domain-level predictors of AMS

motivation scores is found in Table 4.

Table 4

Summary of Multiple Regression Analysis for BFI Domain Scores Predicting AMS Motivation Scores (N = 163)

Variable	B	$SE\,B$	β
Conscientiousness	10.44	1.37	0.51 **
Openness	2.82	1.36	0.14 *

Note. $R^2 = 0.31$; adjusted $R^2 = 0.30$.

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

The results also showed that the facet scores accounted for 32% of the variance in the

sample (31% of the variance in the population) of AMS motivation scores, $F\,(2, 160) =$

37.13, $p < .001$. Conscientiousness/Self-Discipline accounted for most of the variance

(23%), $p < .001$. Openness/Ideas (6%) $p = .002$ explained the remaining variance in

AMS motivation scores. A summary of the results of the multiple regression analysis for

BFI facet-level predictors of AMS motivation scores is found in Table 5.

Table 5

Summary of Multiple Regression Analysis for BFI Facet Scores Predicting AMS Motivation Scores (N = 163)

Variable	B	$SE\,B$	β
Conscientiousness/Self-Discipline	8.90	1.27	0.47 **
Openness/Ideas	3.99	1.27	0.21 **

Note. $R^2 = 0.32$; adjusted $R^2 = 0.31$.

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

The third pair of stepwise multiple regression analyses, conducted to examine how the BFI domain scores and facet scores predicted AMS organization scores, showed that the domain scores accounted for 22% of the variance in the sample (21% of the variance in the population) of AMS organization scores, $F\,(1,\,161) = 44.86, p < .001$. Conscientiousness accounted for most of the variance (22%), $p < .001$ in AMS organization scores. A summary of the results of the multiple regression analysis for BFI domain-level predictors of AMS organization scores is found in Table 6.

Table 6

Summary of Multiple Regression Analysis for BFI Domain Scores Predicting AMS Organization Scores (N = 163)

Variable	B	$SE\,B$	β
Conscientiousness	7.57	1.13	0.47 **

Note. $R^2 = 0.22$; adjusted $R^2 = 0.21$.

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

The results also showed that the facet scores accounted for 25% of the variance in the sample (24% of the variance in the population) of AMS organization scores, F (3, 159) = 17.57, $p < .001$. Conscientiousness/Self-Discipline accounted for most of the variance (7%), $p = .001$. Conscientiousness/Order (7%), $p = .001$ and Extraversion/Activity (3%) $p = .02$ explained the remaining variance in AMS organization scores. A summary of the results of the multiple regression analysis for BFI facet-level predictors of AMS organization scores is found in Table 7.

Table 7

Summary of Multiple Regression Analysis for BFI Facet Scores Predicting AMS Organization Scores (N = 163)

Variable	B	$SE\ B$	β
Conscientiousness/Self-Discipline	4.08	1.19	0.27 **
Conscientiousness/Order	2.44	0.73	0.26 **
Extraversion/Activity	1.83	0.78	0.16 *

Note. $R^2 = 0.25$; adjusted $R^2 = 0.24$.

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

The fourth pair of stepwise multiple regression analyses, conducted to examine how the BFI domain scores and facet scores predicted AMS responsibility scores, showed that the domain scores accounted for 31% of the variance in the sample (30% of the variance in the population) of AMS responsibility scores, F (1, 161) = 71.86, $p < .001$. Conscientiousness accounted for most of the variance (31%), $p < .001$ in AMS responsibility scores. A summary of the results of the multiple regression analysis for BFI domain-level predictors of AMS responsibility scores is found in Table 8.

Table 8

Summary of Multiple Regression Analysis for BFI Domain Scores Predicting AMS Responsibility Scores (N = 163)

Variable	B	$SE\ B$	β
Conscientiousness	21.71	2.56	0.56 **

Note. $R^2 = 0.31$; adjusted $R^2 = 0.30$.

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

The results also showed that the facet scores accounted for 32% of the variance in the sample (31% of the variance in the population) of AMS responsibility scores, $F\ (1,\ 161) = 74.60, p < .001$. Conscientiousness/Self-Discipline accounted for most of the variance (32%), $p < .001$ in AMS responsibility scores. A summary of the results of the multiple regression analysis for BFI facet-level predictors of AMS responsibility scores is found in Table 9.

Table 9

Summary of Multiple Regression Analysis for BFI Facet Scores Predicting AMS Responsibility Scores (N = 163)

Variable	B	$SE\ B$	β
Conscientiousness/Self-Discipline	20.34	2.35	0.56 **

Note. $R^2 = 0.32$; adjusted $R^2 = 0.31$.

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

The fifth pair of stepwise multiple regression analyses, conducted to examine how the BFI domain scores and facet scores predicted AMS self-awareness scores, showed that

the domain scores accounted for 22% of the variance in the sample (21% of the variance

in the population) of AMS self-awareness scores, F (2, 160) = 23.11, p < .001.

Conscientiousness accounted for most of the variance (11%), p < .001. Openness (9%), p

< .001 explained the remaining variance in AMS self-awareness scores. A summary of

the results of the multiple regression analysis for BFI domain-level predictors of AMS

self-awareness scores is found in Table 10.

Table 10

Summary of Multiple Regression Analysis for BFI Domain Scores Predicting AMS Self-Awareness Scores (N = 163)

Variable	B	$SE\ B$	β
Conscientiousness	4.71	1.06	0.32 **
Openness	4.27	1.05	0.29 **

Note. R^2 = 0.22; adjusted R^2 = 0.21.

* p < .05
** p < .01

The results also showed that the facet scores accounted for 26% of the variance in the

sample (24% of the variance in the population) of AMS self-awareness scores, F (3, 159)

= 18.43, p < .001. Conscientiousness/Self-Discipline accounted for most of the variance

(9%), p < .001. Openness/Ideas (6%), p = .001; and Extraversion/Activity (4%) p = .01

explained the remaining variance in AMS self-awareness scores. A summary of the

results of the multiple regression analysis for BFI facet-level predictors of AMS self-

awareness scores is found in Table 11.

Table 11

Summary of Multiple Regression Analysis for BFI Facet Scores Predicting AMS Self-Awareness Scores (N = 163)

Variable	B	$SE\,B$	β
Openness/Ideas	3.35	1.01	0.24 **
Conscientiousness/Self-Discipline	3.97	0.97	0.29 **
Extraversion/Activity	1.99	0.74	0.19 **

Note. $R^2 = 0.26$; adjusted $R^2 = 0.24$.

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

Discussion

Predicting Overall Academic Maturity

The results showed varying levels of support for my hypotheses. At the domain level, I found good support for the hypothesis that Conscientiousness scores would be the best domain-level predictor of AMS total scores, as Conscientiousness accounted for more variance in AMS total scores than the rest of the domain scores combined. This finding is consistent with results from previous studies indicating that both Conscientiousness (Noftle & Robins, 2007; Poropat, 2009; Trapmann et al., 2007) and academic maturity (Addison et al., 2009) are related to GPA in college students. Additionally, the impulse control and goal-directed behaviors associated with Conscientiousness (John et al., 2008) coincide with the self-discipline and focus on maximizing learning opportunities associated with academic maturity (Addison et al., 2009).

At the facet level, I also found support for the prediction that Conscientiousness/Self-Discipline scores would be the best facet-level predictor of AMS total scores, as

Conscientiousness/Self-Discipline scores accounted for more variance in AMS total scores than the rest of the facet scores combined. This finding is consistent with the notion that the tendencies to be self-driven and to start and complete projects typically seen in high scorers on the Conscientiousness/Self-Discipline facet (Costa & McCrae, 1992) are related to effective time management strategies, self-discipline, and self-motivation associated with academic maturity (Addison et al., 2009).

Although I did not predict that scores on the Openness domain and Openness/Ideas facet would be predictive of AMS total scores, the significant findings were not surprising. The Openness domain and Openness/Ideas facet may be predictive of academic maturity because the curiosity that is typical of individuals who score high on the Openness/Ideas facet (Costa & McCrae, 1992) likely serves as a source of motivation to maximize one's learning opportunities.

I also found that scores on the Extraversion/Activity and Agreeableness/Altruism facets predicted AMS total scores. The sense of energy that is seen in persons who score high on the Extraversion/Activity facet (Costa & McCrae, 1992) may help to maintain the Conscientiousness/Self-Discipline element of self-control necessary to start and complete projects. In their 1996 study, De Raad and Schouwenburg (as cited in Poropat, 2009) suggested that individuals who score high on the Extraversion scale will have more academic success due in part to their higher levels of energy. It is interesting to note that the relationship between the Agreeableness/Altruism facet and the AMS total scale was a negative one. Though the willingness to help others in need that is typical of high-scorers on the Agreeableness/Altruism facet (Costa & McCrae) is generally considered to be a desirable trait, it may work in opposition to one's pursuit of maximizing his or her

learning opportunities. For example, helping others may prevent a student from studying for an important test, completing a homework assignment, or attending class.

Age was also a significant predictor of AMS total scores. The positive nature of the relationship between age and AMS total scores suggests that older individuals exhibit a higher level of academic maturity than younger individuals. Considering that academic maturity has been linked with college GPA (Addison et al., 2009), this finding is consistent with previous research that has found academic performance in college to be positively linked to age (e.g., Hoskins & Newstead, 1997; Owen, 2003; and Richardson, 1994).

Predicting Academic Maturity/Motivation

At the domain level, I found support for the prediction that Conscientiousness scores would be the best domain-level predictor of AMS motivation scores, as Conscientiousness scores accounted for more variance in AMS motivation scores than the rest of the domain scores combined. At the facet level, I found partial support for the prediction that Conscientiousness/Self-Discipline and Neuroticism/Depression scores would be the best facet-level predictors of AMS motivation scores, as Conscientiousness/Self-Discipline facet scores accounted for more variance in AMS motivation scores than any other facet. I expected Conscientiousness and Conscientiousness/Self-Discipline to predict AMS motivation because of the conceptual similarities between the scales. Because people who score high on the Conscientiousness/Self-Discipline facet are typically self-motivated and able to initiate and complete tasks regardless of distractions (Costa & McCrae, 1992), they are likely to

possess the perseverance and self-initiative that the AMS motivation subscale (Addison et al., 2009) assesses.

Additionally, I found that Openness domain scores and Openness/Ideas facet scores were significant predictors of AMS motivation scores. These unanticipated findings are probably best understood together. It is likely that the broad and complex inner workings of high scorers on the Openness domain (John et al., 2008), coupled with the curiosity that is common among high scorers on the Openness/Ideas facet (Costa & McCrae, 1992), serve as a source of academic drive as measured by the AMS motivation subscale (Addison et al., 2009).

I failed to find support for the prediction that Neuroticism/Depression facet scores would significantly predict AMS motivation scores. I hypothesized this relationship because I expected high scorers on the Neuroticism/Depression facet, who are prone to feelings of hopelessness, discouragement, and other depressive affects (Costa & McCrae, 1992), to have a compromised sense of academic drive and a diminished ability to persevere. Although this hypothesis was not supported, it is possible that the sample did not include enough participants with the level of depression necessary to compromise their academic drive. People experiencing this level of depression would probably not participate in a study of this kind in the first place, given that a loss of motivation, academic problems, and a diminished ability to concentrate are all associated with a diagnosis of Major Depressive Disorder (American Psychiatric Association, 2000).

Predicting Academic Maturity/Organization

At the domain level, I found support for the hypothesis that Conscientiousness scores would be the best domain-level predictor of AMS organization scores, as

Conscientiousness scores were the only domain scores found to be a significant predictor of AMS organization scores. This finding is consistent with the notion that the planning, prioritizing, and organizing associated with the Conscientiousness domain (John et al., 2008) are relevant to an individual's ability to complete assignments on time, maintain well-organized class notes, and balance his or her responsibilities, all of which are assessed by the AMS organization subscale (Addison et al., 2009).

I also found support for the hypothesis that Conscientiousness/Order and Conscientiousness/Self-Discipline scores would be the best facet-level predictors of AMS organization scores, as scores on these facets accounted for more variance in AMS organization scores than did scores on any other facet. These findings are supportive of the conceptual similarities between the facets and the AMS organization subscale. Individuals who score high on the Conscientiousness/Order facet are well-organized (Costa & McCrae, 1992), which would enhance their ability to sort notes and balance responsibilities, behaviors assessed by the AMS organization subscale (Addison et al., 2009). Similarly, people who score high on the Conscientiousness/Self-Discipline facet are likely to have the self-control and motivation (Costa & McCrae) necessary to take notes and keep up with assignments, activities included on the AMS organization subscale (Addison et al.).

Additionally, scores on the Extraversion/Activity facet were a significant predictor of AMS organization scores. Although the relationship between these two scales is not an obvious one, it may be that the high energy common in individuals who score high on the Extraversion/Activity facet (Costa & McCrae, 1992) is necessary to sustain the kinds of activities included on the AMS organization subscale.

Predicting Academic Maturity/Responsibility

At the domain level, I found support for my fourth hypothesis, that Conscientiousness scores would be the best domain-level predictor of AMS responsibility scores. In fact, Conscientiousness scores were the only domain scores found to be a significant predictor of AMS responsibility scores.

At the facet level, I also found support for the hypothesis that Conscientiousness/Self-Discipline scores would be the best facet-level predictor of AMS responsibility scores. Again, these facet scores were the only ones found to be a significant predictor of AMS responsibility scores. This finding is likely due to the similarities between the scales. People who plan and prioritize their tasks and engage in other goal-oriented activities associated with the Conscientiousness domain (John et al., 2008) are also likely to be punctual, self-disciplined, and dedicated to schoolwork, tendencies assessed by the AMS responsibility subscale (Addison et al., 2009). People who score high on the Conscientiousness/Self-Discipline facet are self-motivated and able to start and complete tasks without being derailed by distractions (Costa & McCrae, 1992), attributes that correspond with the self-discipline, punctuality, and dedication-to-schoolwork elements of the AMS responsibility dimension (Addison et al.). It is notable that in the facet-level regression analysis, Conscientiousness/Self-Discipline facet scores alone accounted for nearly a third of all the variance in AMS responsibility scores.

Predicting Academic Maturity/Self-Awareness

At the domain level, I found support for the hypothesis that Openness scores would be a significant predictor of AMS self-awareness scores. This finding is consistent with the fact that both scales assess an individual's cognitive flexibility and self-understanding

(John et al., 2008; Addison et al., 2009). At the facet level, I failed to support the hypothesis that Openness/Ideas scores would be the best facet-level predictor of AMS self-awareness scores—Conscientiousness/Self-Discipline scores were the best predictor. However, I did find that scores on the Openness/Ideas facet were the second-best facet-level predictor of AMS self-awareness scores. This finding is consistent with the notion that both scales are linked to a sense of open-mindedness (Costa & McCrae, 1992; Addison et al.). The significant predictive relationship between the Openness/Ideas facet and the AMS self-awareness scale suggests that such attributes as open-mindedness and intellectual curiosity are common to both the Openness/Ideas personality trait and academic self-awareness.

Additionally, the results supported my hypothesis that Conscientiousness scores would predict AMS self-awareness scores. This finding was expected in part because the use of appropriate learning strategies and knowledge of one's academic limitations and strengths that are assessed by the AMS self-awareness scale (Addison et al., 2009) are also elements of the goal-directed behavior assessed by the Conscientiousness domain (John et al., 2008). This finding is consistent with the notion that the goal-directed behaviors associated with the Conscientiousness domain can be expressed through the use of learning appropriate strategies and an awareness of one's academic strengths and weaknesses. Although I did not hypothesize that Conscientiousness/Self-Discipline scores would be the best facet-level predictor of AMS self-awareness scores, the significant relationship between the two scales is not surprising given that Conscientiousness/Self-Discipline was a significant predictor of all the other AMS scales. The attributes of self-motivation and efficiency that are associated with the

Conscientiousness/Self-Discipline facet (Costa & McCrae, 1992) probably facilitate the use of appropriate learning strategies as well as the ability to understand one's academic strengths and limitations.

Conclusions

Overall, my results are consistent with those from previous studies indicating that Conscientiousness (Noftle & Robins, 2007; Poropat, 2009; Trapmann et al., 2007), Conscientiousness/Self-Discipline (Gray & Watson, 2002; Noftle & Robins), and academic maturity (Addison et al., 2009) are significantly related to academic performance. The current finding that Conscientiousness was the best domain-level predictor and Conscientiousness/Self-Discipline was the best facet-level predictor of every AMS scale supports the contention that the scales are related.

These results have implications for future research on personality traits, academic maturity, and academic performance. Although there are significant correlations between the BFI domains and facets and the AMS scales, the data suggest that academic maturity and personality traits are distinct constructs. Additionally, the finding that scores on the Conscientiousness/Order facet are predictive of AMS organization scores supports the construct validity of this AMS subscale.

Poropat (2009) described the relationship between academic performance and personality to be "a complex phenomenon in its own right" (p. 334). Perhaps the results of this study, as well as future research on personality traits, academic maturity, and academic performance, will clarify the role that personality plays in academic performance. Additionally, future studies could be conducted to explore the relationship that was found between participant age and academic maturity. Also, the significant

relationships between the BFI domains and facets and the AMS scales suggest that the abilities and tendencies associated with academic maturity may also be applicable to nonacademic endeavors.

Although these findings were generally consistent with those from previous studies, some caution should be used when discussing their implications for future research. Due in all likelihood to the use of an online testing format, many participants took less time than expected to complete the surveys. Although it is possible that the relatively short completion times are due to a more efficient testing medium, it may be that the participants simply tried to complete the surveys as quickly as possible. The participants were instructed to respond honestly to the survey items, but they were not supervised and only had to complete the surveys to receive extra credit. The shorter response times, absence of supervision, and lack of a tangible incentive for responding honestly may have compromised the accuracy of the participants' responses. This possible focus on speed over accuracy may have impacted some of the study's weaker results; however, it is unlikely that more accurate responses would affect the study's already strong and consistent results.

Another potential caveat for this study is the fact that the AMS has not yet been subjected to reliability testing or a comprehensive factor analysis. Although the validity of the AMS has been supported by studies that have linked the scores to college GPA (Addison et al., 2009) and academic motivation (Addison et al., 2010; Pezold, 2009), the validity of the AMS subscales needs further examination.

With the exception of the Conscientiousness domain, scores on the Conscientiousness/Self-Discipline facet explained more variance in AMS total scores and

all four AMS subscale scores than did scores on any other BFI facet or domain. Even when compared to the Conscientiousness domain, scores on the Conscientiousness/Self-Discipline facet explained similar amounts of variance in scores on all but one of the AMS subscales (Conscientiousness/Self-Discipline scores explained 7% and Conscientiousness scores explained 22% of the variance in scores on the AMS organization subscale). In light of these findings, it appears that people who are academically mature are, above all, self-motivated and able to finish what they begin.

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Appendix A: The Academic Maturity Scale

ACADEMIC INTEREST SCALE

For the items below, please use the following scale for your responses:

1	**2**	**3**	**4**	**5**	**6**
Strongly					**Strongly**
Disagree					**Agree**

1. I set specific academic goals for myself.

2. I believe that it is useful for me to learn the course material of my classes.

3. I use my academic strengths to my advantage.

4. It is important to me to understand the subject matter of the course.

5. I complete all the assigned reading material for my classes.

6. I do not understand the point of taking general education classes.

7. I generally write multiple drafts of an assigned paper.

8. I rarely miss class.

9. In general, I prefer taking multiple choice exams rather than open-ended (essay)

   exams.

10. If the class material is particularly challenging, I ask the instructor for help.

11. It is important to me to do my part in group projects.

12. I generally begin preparing for an important exam several days in advance.

13. I believe it is important to understand course content as thoroughly as possible.

14. I have a good sense of my academic strengths and weaknesses.

15. I often follow a study schedule when doing school work.

16. I like participating in group work because I am held less responsible for my work.

For the items below, please use the following scale for your responses:

1	2	3	4	5	6
Strongly **Disagree**					**Strongly** **Agree**

17. I am confident that I can distinguish between reliable and unreliable sources of information.

18. I have a general plan for what I want to do after college.

19. If I fall behind on a project, I still have confidence that I can get it done by the deadline.

20. I believe that knowledge gained from one course can be useful in other courses.

21. I often get so bored with studying for a class that I stop before I complete my studying.

22. I believe I can successfully complete the requirements for any assigned project.

23. I study for exams even when I would rather be doing other things.

24. I try to meet with the instructor if I am not doing well in class.

25. I am able to balance all of my responsibilities (academic and otherwise) without feeling overwhelmed.

26. I study course material mainly to do well on the exam(s).

27. When I know in advance that I have to miss a class, I contact the instructor to find out what material will be covered that day.

28. I focus on what the instructor is saying while I take notes.

29. I use strategies (e.g., acronyms, tunes, stories, etc.) for memorizing important facts in a class.

30. I plan to go to graduate school after I complete my undergraduate degree.

For the items below, please use the following scale for your responses:

1	2	3	4	5	6
Strongly Disagree					Strongly Agree

31. I generally outline assigned reading material.

32. My class notes are well-organized.

33. I tend to participate in class discussions.

34. I tend to put more effort into classes that I view as directly related to my career goals.

35. When I take notes in class, I put them in my own words rather than in the instructor's words.

36. I like class assignments that require me to think.

37. I believe that I can express myself clearly in writing.

38. I frequently send and read text messages during class.

39. I work hard in school because I receive rewards (e.g., money) from my family for good grades.

40. I am careful to use accepted guidelines for citing references in my papers.

41. I usually take advantage of any extra credit opportunities, regardless of my grade in the class.

42. I usually complete a paper several days in advance so that I have time to proofread it and make changes.

43. I try to identify individuals in my classes who I could ask for help if I need it.

44. I do not make excuses when I fail to complete class assignments in a timely manner.

For the items below, please use the following scale for your responses:

1	2	3	4	5	6
Strongly Disagree					Strongly Agree

45. I usually take notes while reading assigned materials.

46. I devote a greater amount of time and effort to the classes I see as especially challenging.

47. I tend to do most of my studying the night before the exam.

48. I work on my homework even when I would rather be doing other things.

49. I am confident in my ability to identify the most important points in a class lecture.

50. I am confident in my ability to take good notes, even when the instructor does not provide any notes.

51. I usually make an outline before writing a paper.

52. I use different study strategies depending on the format of the exam (e.g., essay, multiple choice).

53. I know where and how to find information on topics that I do not completely understand.

54. When I try to study, I quickly become bored and distracted.

55. I know which type of exam (e.g., essay, multiple choice) I tend to do better on.

56. Knowing the format of an exam (e.g., essay, multiple choice) helps me decide how much time I need to spend studying.

57. I am confident in my ability to write formal papers for class assignments.

58. Pride in my academic achievements motivates me to continue working hard.

For the items below, please use the following scale for your responses:

1	2	3	4	5	6
Strongly					**Strongly**
Disagree					**Agree**

59. If I am struggling in a particular class, then I tend to work harder.

60. When taking notes in class, I highlight material that the instructor says is important.

61. I read assigned materials before class.

62. When I do poorly on an exam, I talk to the instructor to find out what I can do to improve.

63. When I miss, I make an effort to contact the instructor to find out what material I missed.

64. I tend to blame the instructor when I do poorly on an exam.

65. If I am struggling with a class, I take advantage of tutoring opportunities.

66. I see challenging courses as opportunities to prove my abilities.

67. If I do poorly on an exam, I tend to study harder for the next exam.

68. When taking notes during class, I tend to write down only what the instructor writes on the board or presents on a transparency or PowerPoint slide.

69. I often procrastinate.

70. I will seek academic help (from the instructor, a tutor, etc.) if necessary.

71. My social life is more important to me than my school work.

72. I generally do my school work in a quiet place where there are few distractions.

73. I find it difficult to follow a study schedule.

For the items below, please use the following scale for your responses:

1	2	3	4	5	6
Strongly Disagree					Strongly Agree

74. During class, I often find it difficult to keep my attention focused on the instructor.

75. I tend to do all the assigned reading for my classes in a timely manner.

76. I treat school as if it were a full-time job.

77. I have a good understanding of my own academic tendencies (e.g., procrastination, organization).

78. I usually keep up with weekly assignments.

79. After class, I look over my notes to make sure I understand the material that was covered.

80. When I read assigned material, I occasionally have a hard time staying focused.

81. My class notes are neat and legible.

82. My primary academic goal is to get a high overall grade point average.

83. I prefer essay questions on exams because they are better at evaluating my ability as a learner.

84. I don't read the textbook until my professor announces an exam.

85. I ask questions in class when I do not fully understand particular points.

86. To satisfy my own interest, I occasionally seek out additional information on a topic discussed in class.

87. I generally proofread or have my papers proofread by someone else before I submit them to the instructor.

For the items below, please use the following scale for your responses:

1	2	3	4	5	6
Strongly Disagree					Strongly Agree

88. In general, I am able to stay focused on academic tasks.

89. I am more likely to skip classes that are not related to my major.

90. I read supplemental materials that are recommended but not specifically assigned or required.

91. When I do not understand a point made in class, I consult the textbook for an explanation.

92. I am proud of myself when I succeed in school.

93. I often find it difficult to begin working on large projects.

94. I use a planner/organizer to record assignment deadlines, test dates, etc.

95. I usually spend more time on classes that I enjoy than on those that I do not enjoy.

96. When I receive negative feedback on my performance, I use this as motivation to work harder.

97. I usually begin working on large projects as soon as they are assigned.

98. Before each class, I try to find time to review the notes from previous classes.

99. I am motivated by trying to get better grades than other students.

100. I attend all of my classes regularly.

101. Knowing my potential, I have succeeded academically as a college student.

Appendix B: The Big Five Inventory

How I am in general

Here are a number of characteristics that may or may not apply to you. For example, do you agree that you are someone who *likes to spend time with others*? Please write a number next to each statement to indicate the extent to which **you agree or disagree with that statement.**

1	2	3	4	5
Disagree Strongly	Disagree a little	Neither agree nor disagree	Agree a little	Agree strongly

I am someone who...

1. ___ Is talkative

2. ___ Tends to find fault with others

3. ___ Does a thorough job

4. ___ Is depressed, blue

5. ___ Is original, comes up with new ideas

6. ___ Is reserved

7. ___ Is helpful and unselfish with others

8. ___ Can be somewhat careless

9. ___ Is relaxed, handles stress well

10. ___ Is curious about many different things

11. ___ Is full of energy

12. ___ Starts quarrels with others

13. ___ Is a reliable worker

14. ___ Can be tense

15. ___ Is ingenious, a deep thinker

16. ___ Generates a lot of enthusiasm

17. ___ Has a forgiving nature

18. ___ Tends to be disorganized

19. ___ Worries a lot

20. ___ Has an active imagination

21. ___ Tends to be quiet

22. ___ Is generally trusting

23. ___ Tends to be lazy

24. ___ Is emotionally stable, not easily upset

25. ___ Is inventive

26. ___ Has an assertive personality

27. ___ Can be cold and aloof

28. ___ Perseveres until the task is finished

29. ___ Can be moody

30. ___ Values artistic, aesthetic experiences

31. ___ Is sometimes shy, inhibited

32. ___ Is considerate and kind to almost everyone

33. ___ Does things efficiently

34. ___ Remains calm in tense situations

35. ___ Prefers work that is routine

36. ___ Is outgoing, sociable

37. ___ Is sometimes rude to others

38. ___ Makes plans and follows through with them

39. ___ Gets nervous easily

40. ___ Likes to reflect, play with ideas

41. ___ Has few artistic interests

42. ___ Likes to cooperate with others

43. ___ Is easily distracted

44. ___ Is sophisticated in art, music, or literature