WHAT INDIVIDUAL DIFFERENCE AND SOCIAL CONTEXT VERIABLES PREDICT UNIVERSITY-LEVEL ACADEMIC PERFORMANCE?

by

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Presented to the Faculty of the Graduate School of

The University of Texas at Arlington in Partial Fulfillment

of the Requirements

for the Degree of

MASTER OF SCIENCE IN PSYCHOLOGY

THE UNIVERSITY OF TEXAS AT ARLINGTON

December 2008

ACKNOWLEDGEMENTS

I would first like to thank my mentor, Dr. William Ickes, who has taught me, inspired me, and encouraged me thought the whole process. Moreover, I want to thank my other committee members, Dr. Lauri Jensen-Campbell and Dr. Mark Frame, who gave me valuable feedback to make my thesis more complete and improved.

Thank Dr. Wallace Wasson, the Sr. Associate Vice President of the office of Student Enrollment Service, who gave the permission to me for using UTA students' records. Then, I would like to give a very special thanks to Dr. Pamela Haws, the Associate Vice President and Director, Mr. Sam Stigall, the Associate and Director, and Mr. Roger Chiu, the Business Intelligence Analyst of Institutional Research Planning and Effectiveness. Thank you for helping me collect the data. Without your help, the project would have never reached completion. I do really appreciate everything you did for this study.

A special thanks to a number of my fellow graduate students who were always there for support and encouragement: Jennifer Jones, Ronen Cuperman, Shaun Culwell, Katy Rollings, Jennifer Knack, Jiwei He, Patricia Lyons, Krista Howard, Smruthi Srinivasamurthy, etc.

Last but not least, I would love to thank my parents and my boy friend---Chien-chih Chang, who have always been there and for completely supporting my decisions, and, my life.

August 26, 2008

ABSTRACT

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The present study was an on-line correlational survey study of 377 UT-Arlington undergraduates. It examined what personality variables predicted university-level academic performance over and above conscientiousness, after also controlling for gender and previous academic ability (that is, high school rank and SAT scores). I found that conscientiousness predicted university GPA after controlling for gender and previous academic ability (high school rank and SAT score). However, some of predictive validity of conscientiousness proved to be attributable to more specific predictors such as academic locus of control and self-expectancy (H1). Moreover, conscientiousness and self-motivation compensated for each other in predicting university GPA (H2), and self-expectancy interacted with self-insight to predict GPA, whereas family-expectancy did not (H3). Finally, the results of factor-level regressions revealed extraversion was marginally negatively correlated with GPA, whereas socioeconomic status (SES) and self-assertion were both positively correlated with GPA. Overall, the data indicate that both personality characteristics and social-context variables can be used to predict university students' academic performance, with a multiple R2 in the present sample of .245.

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CHAPTER 1

INTRODUCTION

Peter is a senior student who majors in psychology at his university. Peter has good grades and is sure that he will graduate in August, at the end of his fourth year. Moreover, he has already found a job with the Generic Corporation. They will hire him to be a salesman in September, and he is excited about the upcoming job. Peter said, "My plan is to work for two or three years and then go back to school as a graduate student. Because I am interested in the area of human resources, I plan to apply to graduate programs in industrial and organizational psychology two or three years from now."

Gary is another senior student who is majoring in psychology. However, he is thinking about changing his major. There are two required courses he has taken more than twice but still cannot pass. He really doesn't know if psychology is his field of interest or not. He would like to change his major to Computer Science but his parents have discouraged him from doing it because he just transferred from biology to psychology two years ago, and this is his fifth year at the university. "I think computer science will be a better fit for me, but my family doesn't think so. Biology and psychology are not my areas of interest. My grades in these two subjects have been really bad. I'd like to change my major again, and see if I can earn better grades in computer science." Gary said.

What makes these two students, Peter and Gary, so different? Since 1903, when Alfred Binet started his psychometrics and intellectual ability research in France, many studies have revealed that "intelligence" is the most important factor accounting for individuals' academic performance. However, besides "intelligence," what other personal factors affect individuals' academic performance? If two individuals have the same IQ score, does that mean that they will perform as well as each other in school? Obviously not. There are many factors apart from academic intelligence that can potentially influence an individual's overall academic performance by influencing behaviors such as attending classes, doing homework, participating in class discussions, coping with stress during exams, and so on.

The primary purpose of the present study was to investigate other individual difference measures, apart from academic ability, that might predict students' university-level academic performance. A secondary purpose was to investigate certain "social context" variables, such as family socioeconomic status and family expectations, that might also contributed to the prediction of students' academic success. If previously-unidentified predictors of both types can be identified in the present study, they could help academic admissions officers to admit more qualified prospective students.

1.1 The Big Five Personality Dimensions and Academic Performance

Many studies have investigated personality variables in relation to academic performance. A number of these studies have examined correlations between the Big Five trait dimensions and academic performance. The Big Five personality dimensions are *extraversion* (ex: talkative, assertive, energetic); *agreeableness* (ex: good-natured, cooperative, trustful); *conscientiousness* (ex: orderly, responsible, dependable); *neuroticism* (ex: worried, anxious, easily upset), and *openness to experience* (ex: intellectual, polished, open-minded) (Goldberg, 1981). In general, the results of these studies have shown that conscientiousness consistently predicts academic performance, but that extraversion, agreeableness, neuroticism, and openness have inconsistent effects (Busato et al., 2000; Chamorro-Premuzic & Furnham, 2003a; Chamorro-Premuzic & Furnham, 2003b; and Gray & Watson, 2002).

When studying the incremental predictive validity of the Big Five personality traits after first controlling for high school GPA and SAT scores, the results have consistently shown that conscientiousness makes a unique contribution to the prediction of university GPA (Conard, 2006; Noftle & Robins, 2007; Oswald et al., 2004; Wolfe & Johnson, 1995; Wagerman & Funder, 2007). Wolfe and Johnson (1995), Conard (2006), Wagerman and Funder (2007), and Noftle and Robins (2007) found that conscientiousness positively predicted college GPA beyond the effects of high school GPA and SAT; and Oswald et al. (2004) found that conscientiousness positively predicted whereas extraversion negatively predicted the first-year college GPA

beyond the effect of the students' SAT/ACT scores. These findings clearly show that conscientiousness can predict college or university GPA over and above high school GPA and SAT/ACT score.

1.2 Conscientiousness and Academic Performance

In the research cited above, it was clearly established that conscientiousness is associated with academic performance. If a student has a high level of conscientiousness, he or she also tends to achieve a high level academic performance. The important question remains, however: *Why* does conscientiousness predict students' academic performance?

To answer this question, we first have to know what conscientiousness is. Costa, McCrae, and Dye (1991) proposed that conscientiousness has two aspects: proactive and inhibitive. The proactive aspect concerns behaviors that are related to success, whereas the inhibitive aspect concerns behaviors that are related to self-control and cautiousness. Roberts, Chernyshenko, Stark, and Goldberg (2005) conducted an empirical investigation to study the conceptual structure of conscientiousness. After collecting data from seven major personality inventories, they performed an exploratory factorial analysis of 36 subscales of conscientiousness, and found a hierarchical structure that included three higher-order facets and six lower-order facets of conscientiousness under Costa's two aspects (proactive and inhibitive).

The three higher-order facets were achievement, rule-orientation, and integrity; and the six lower-order facets were industriousness (hard working, ambitious, confident, and resourceful), order (planning and organized), self-control (cautious, levelheaded, able to delay gratification, and patient), traditionalism (willing to comply with current rules, customs, norms, and expectations), responsibility (cooperative and dependable), and virtue (follows rules of good or moral behaviors to act as a moral exemplar). Specifically, industriousness and order were found to underlie the achievement facet; self-control and traditionalism were found to underlie

the rule-orientation facet; and responsibility and virtue were found to underlie the integrity facet (Roberts et al., 2005)

As these findings indicate, there are several conceptually-distinct facets of conscientiousness. However, which facets enable conscientiousness to predict academic performance? Noftle and Robins (2007) used the HEXACO Conscientiousness Subscale and the NEO-PI-R Conscientiousness Subscale to predict students' academic performance. They concluded, based on the results obtained from both of the conscientiousness subscales, that "achievement-striving," "perseverance," and "self-control" were the aspects of conscientiousness that were significantly correlated with both high school and college GPAs. On the other hand, the aspects of order or organization were *not* significantly correlated with these outcome measures. These findings can be taken as evidence that not all facets of conscientiousness can predict academic performance, and that those reflecting self-assertiveness and self-discipline were particularly important in this regard.

However, according to Bandura's (1999) social cognitive theory, personality reflects the interaction among the environment, the person's behavior, and the person's psychological processes. Therefore, personality may derive from students' previous experience, how the students perceive these experiences and their behaviors in previous situations. Bandura (1999) cited a study by Caprara, Barbaranelli, and Pastorelli's (1998) in which the authors found that perceived self-efficacy (academic and self-regulatory) predicted students' academic achievement over and above the Big Five personality factors. Perceived self-efficacy is individuals' beliefs about their capabilities to produce effects, which should reflect their previous experiences and how they perceive them (Bandura, 1999). Caprara, Barbaranelli, and Pastorelli's study revealed that specific social learning factors such as academic self-efficacy and self-regulatory efficacy can predict students' academic performance after controlling for the effects of the more traditional Big Five predictors.

Because Noftle and Robins (2007) found that achievement-striving, perseverance, and self-control were the essential predictors of academic performance, and Caprara, Barbaranelli, and Pastorelli (1998) reported that the social learning variables of academic self-efficacy and self-regulatory efficacy predicted academic performance over and above the Big Five variables, it is important to determine if the broader construct of conscientiousness remains a significant predictor after controlling for the effects of these more specific and "essential" predictors. The present study sought to answer that question by examining the degree to which a set of predictors relevant to achievement striving, perseverance, and self-control (i.e., self-motivation, academic locus of control, expectancy, and self-insight) are sufficient to predict university GPA on their own, with little or no incremental predictive validity associated with the residual variance in the broader construct of conscientious.

S*elf-motivation* concerns the strength of one's tendency to set goals and to persist in working to attain them. This construct should effectively capture the achievement-striving, persistence, and self-control facets of conscientiousness. An individual with high self-motivation should set high goals for him- or herself and persist in trying to achieve these goals. In other words, the self-motivated individual strives persistently to achieve and is able to direct and control his/her behaviors to attain the desired goals.

A*cademic locus of control* concerns whether one's academic performance is seen as resulting from one's own behaviors or from others' actions. This construct is relevant to both the achievement-striving and self-control facets of conscientiousness because it makes sense to strive to achieve only those goals over which the individual believes that he or she has meaningful control and can use self-regulation in order to obtain the desired outcome. On the other hand, believing that certain outcomes are caused by "external" causes beyond one's personal control may undermine the achievement-striving and self-control that are the key aspects of one's self-motivation. Therefore, internal versus external academic locus of control

should significantly predict academic performance, and potentially account for some of the variance that has previously been attributed to the broader construct of conscientiousness.

Although they are not facets of conscientiousness, two other individual difference variables—the second related to the individual's perceived social context— should also help to account for the specific academic performance goals that the individual seeks to attain. *Expectancy* (self- and family- expectancy), captures the expectations by self and family about how well the student should perform at the university. It seems clear that individual with higher self-expectancies should set higher performance goals than those with lower self-expectancies. Expectancy should therefore be indirectly associated with achievement-striving of conscientiousness. More specifically, self-expectancy regarding one's academic performance defines one's academic goal aspiration, and is therefore important in defining the goal that one's self-motivation helps one to achieve. Similarly, family-expectancy regarding one's academic performance should also contribute to setting the academic goal that one aspires to achieve (with the overall expectancy often being the average, or compromise, of the self and the family expectancy).

Like expectancy, *self-insight*, which reflects how well the student understands him- or herself and can use that understanding to select appropriate goals for the self, is not a facet of conscientiousness. However, it is also potentially important as a predictor of academic performance because of the role that it plays in goal-setting. Good self-insight should help the individual to make his or her goals more realistic and therefore facilitate the attainment of goals that the individual is actually capable of achieving. It is therefore important to include measures of expectancy and self-insight in a study that seeks to determine whether the previous predictive success of conscientiousness can be accounted for better (and, perhaps, more completely) by a set of variables that define academic goal-setting and persistence more directly.

In summary, in the present study I obtained measures of the Big Five personality traits for all of the participants in my study. In addition, however, I also assessed a number of other individual-difference variables (self-motivation, academic locus of control, expectancy, and self-insight) that, collectively, were expected to account for much of the variance that has previously been attributed to the broader construct of conscientiousness as a predictor of university-level academic performance. These additional variables were measured in the manner described below.

1.2.1 Self-motivation

Self-motivation is a variable that should reflect the student's motivation to set challenging goals for him- or herself, and to persist in trying to attain those goals. As a personality construct, self-motivation helps to answer the question of why some people work so hard and persistently to achieve personal goals whereas other people do not. Dishman, Ickes, and Morgan (1980) developed a reliable self-report measure of self-motivation that has been validated in several applied contexts in which sustained effort, self-discipline, and perseverance are important. For example, the self-motivation measure has successfully predicted participation in adult exercise programs and endurance sport training (Dishman et al., 1980; Raglin, Morgan, & Luchsinger, 1990). It has also been associated with successful treatment outcomes in a smoking cessation program (Joseph, Grimshaw, Amjad, & Stanton, 2005), and with the degree of physical activity in youth (Biddle et al., 1996).

In the current study, I predicted that because students with higher self-motivation scores would work harder and more persistently to attain their educational goals, they would achieve higher university GPAs than students with lower self-motivation scores.

1.2.2 Academic locus of control

Academic locus of control is a variable that should reflect whether students view their academic performance as resulting from their own behaviors or from others' actions. Rotter (1966) proposed that individuals' perceptions of the degree to which they control their own lives

vary along a continuum of internal versus external control. People with an internal locus of control believe they have substantial ability to control their own lives, whereas people with an external locus of control believe that their lives are substantially controlled by situations or by other people.

Findley and Cooper (1983) found that students with an internal locus of control had greater success in school than did students with an external locus of control. They argued that students with an internal locus of control believe that they have the ability to control their lives; they therefore exert more effort to achieve their aims and feel greater pride for their success and greater guilt and shame for their failure. In contrast, students with an external locus of control tend to attribute their life outcomes to situations or to other people; they therefore experience less pride and guilt or shame in response to their positive and negative outcomes than individuals with an internal locus of control (Findley & Cooper, 1983; Phares & Lamiell, 1975). Other studies have similarly found that the degree of internal locus of control is associated with students' GPA scores (Reininger, 2005; Shepherd, Fitch, Owen, & Marshall, 2006) and with people's work performance more generally (Hattrup, O'Connell, & Labrador, 2005).

Because Rotter's Locus of Control Scale is a domain-general measure of locus of control, Trice suggested that there should be a specific measure for locus of control in academic performance (Trice, 1985). Trice (1985) therefore modified Rotter's 40-item Locus of Control Scale to develop a 28-item scale to measure college students' academic locus of control, calling this measure the Academic Locus of Control Scale for College Students. Trice (1987) reported that academic locus of control (scored in an "internal" direction) is significantly associated with class participation, study time, and homework completion in general lecture classes. In related research, students with a more internal academic locus of control displayed greater persistence in long distance courses (correspondence and audiocassette courses) than students with more external academic locus of control (Levy, 2007).

In the present study, I predicted that students with more internal academic locus of control would achieve higher university GPAs than would students with more external academic locus of control. Because students with internal academic locus of control believe that their own behaviors determine their academic outcomes, students with internal academic locus of control should regulate their study behaviors more often and more effectively, and should thereby achieve better academic performance, which would take the form of higher GPA scores in this case.

1.2.3 Expectancy

Expectancy measures can be used to assess the expectations that the student (self-expectancy) and his or her family members' (family-expectancy) are likely to have formed about how well the student should perform at the university. In general, people who expect more of themselves with regard to their academic performance at the university should work harder to attain this expected higher level of performance. Thus, it was assumed that students with higher expectancy (both self- and family-expectancy) would achieve higher academic performance because they would make greater efforts to attain those expectations; specifically, higher expectancy would be related to higher GPAs.

In the present study, self-expectancy was indirectly measured using *academic self-esteem* as a proxy measure (for the rationale for using a proxy measure, see below). This was a self-report measure of the degree to which the student's self-esteem is affected or defined by their level of academic performance (see below). Family-expectancy was measured using a set of items specifically written for this study that ask the participants to report the extent to which their family members expect them to perform well in their university studies.

1.2.3.1 Academic Self-esteem (ASE) as a proxy measure of self-expectancy

Academic self-esteem was used as a proxy measure of the expectations that the student him- or herself is likely to have formed about how well he or she should perform at the university. People with high self-esteem express generally favorable evaluations of themselves

and expect to do well in performance situations; in contrast, people with low self-esteem express more unfavorable evaluations of themselves and expect to do more poorly in performance situations. That these expectancies can affect actual performance is illustrated by the results of a study by Brockner and Hess (1986); they found that group members' self-esteem can positively predict the group's task performance.

In previous research on academic self-esteem, Rosenberg, Schooler, Schoenbach, and Rosenberg (1995) used 3 items from Bachman's School Ability Self-Concept to measure academic self-esteem, and reported that academic self-esteem and global self-esteem both positively predicted students' GPA. Consistent with Trice's (1985) argument for the better predictive validity of domain-specific measures, the correlation was .488 between academic self-esteem and GPA, but was only .253 between global self-esteem and GPA. Similarly, Re´gner and Loose (2006) reported a high correlation (.60) between academic self-esteem and GPA in North African French students in 7th and 8th grade by using the 7-item Performance State Self-esteem Subscale (which was a subscale of State Self-esteem Scale developed by Heatherton and Polivy in 1991) to measure students' academic self-esteem. Furthermore, Woo and Frank (2000) found that academic self-esteem was positively correlated with GPA in a college sample. It therefore appears that academic self-esteem significantly predicts academic performance, and does so better than a more global measure of self-esteem.

Why measure self-expectancies indirectly, using the proxy measures of academic self-esteem, rather than measuring them directly using items that ask the students to predict their GPAs? One reason for this decision was to avoid creating a "self-fulfilling prophecy" situation in which students attempt to either live up or live down to their own stated performance expectancy. A second reason for this decision was that this investigation was intended to study personality traits and relevant background variables that can be used to predict university-level performance. If this were instead a study of performance expectancy in the tradition of social learning researchers such as Rotter, Bandura, and Mischel, it would obviously make sense to

measure the construct of expectancy using self-rated expectancies rather than more indirect trait and background measures.

1.2.3.2 Family Expectancy (FE)

To measure the expectations that students' family members are likely to have about their academic performance at the university, I used a set of items specifically written for the present study. Rosenthal and Jacobson (1968, 1996) reported that if a teacher has higher expectations for certain students, these students tend to exhibit better performance in school. This is a famous effect in educational research (though one that is often small in magnitude, see Jussim & Harber, 2005), which Rosenthal labeled the "Pygmalion Effect." If teachers' expectations can influence on students' school performance, can the expectations of students' family members' expectations have a similar effect?

To see if they could, Feagans, Merriwether and Haldance (1991) studied the relation between elementary children's school performance and their "goodness of fit in home." They found that, for children with or without learning disabilities, if the mothers reported that the children did not fit into the family expectations, the children had more negative behaviors and performed poorly in school. On the other hand, children who were seen as fitting into the family expectations had more positive behaviors and performed better in school (Feagans et al., 1991). Similarly, Okagaki and Frensch (1998) reported that parents' expectations for their children's level of academic attainment was associated with their fifth or sixth grade children's grades in European-American and Asian-American groups.

It is important to note, however, that those studies focused on elementary students, not on university or college-level students. In a relevant study conducted with college students, Chen (2001) reported that, although there were different expectancies between American, Chinese-American, and Chinese parents, there was a positive correlation between parents' expectations and children's attitudes toward science education in college within each ethnicity

group. However, Chen did not investigate the relation between family expectancy and the students' actual academic performance.

In the present study, family members' expectancy was used to predict university students' GPA. Family expectancy was measured by asking the students to report how well their family members expect them to perform in their university studies, the degree to which their family members would be disappointed if they didn't do well in school, and so on. My survey questionnaire asked participants about their perceptions of their family members' expectancy rather than asking their family members directly because the family expectancy that the students *perceive* was assumed to be more important than the actual family expectancy in affecting the student's academic motivation.

1.2.4 Self-insight

Self-insight is a variable that should reflect how well the student understands him- or herself and can use that understanding to select appropriate goals for the self. People with good self-insight are assumed to understand themselves well. From this assumption, it follows that the students in the present study who have good self-insight should have a good sense of what major area of study is right for them, whether they have the motivation and ability to succeed in it, and how much time and effort they will need to commit in order to graduate on time. Thus, compared with students with poor self-insight, those with good self-insight should be more likely to set a more realistic and achievable goal for their academic performance. In the present study, self-insight as a composite variable was measured with the Sense of Self Scale (SOSS; Flury & Ickes, 2007), which assesses the strength versus tenuousness of one's "sense of self," and with the Self-concept Clarity Scale (Campbell et al., 1996), which assesses the strength versus tenuousness of one's self-beliefs and self-constructs. I expected that both measures would load highly on a single common factor that would capture the construct of self-insight—a clear and certain sense of one's own characteristics and attributes.

1.2.4.1 Sense of Self (SOS)

The American Psychiatric Association (APA) proposed ten discrete personality disorders, one of which is "Borderline Personality Disorder" (BPD; American Psychiatric Association, 1994; Lieb et al., 2004; Tryon et al., 1988). BPD is characterized by intense and general instability in mood and interpersonal relationships, and by a marked degree of identity disturbance, which is often defined as a fragile "sense of self" (American Psychiatric Association). People with a weak sense of self have only a vague and tenuous sense of who they are; they often report feeling uncertain about themselves; and they often rely on others to help them clarify their feelings and to make decisions. In contrast, people with a strong sense of self have a strong, definite sense of who they are; they understand themselves well; and they can make decisions by themselves without relying on others' help (Kernis, 2005). Flury and Ickes (2007) developed a 16-item scale, called the "Sense of Self Scale (SOSS)," to measure individuals' strength of sense of self.

Because people with strong sense of self know who they are and what they want, I predicted that university students with stronger sense of self should set more realistic and achievable goals for their academic performance than should students with a weaker sense of self.

1.2.4.2 Self-concept Clarity (SCC)

Self-concept clarity refers a structural characteristic of the self-concept—the extent to which its content—perceived personal attributes (expressed in the form of self-beliefs and self-attributions)—are "clearly and confidently defined, internally consistent, and temporally stable" (Campbell, 1990; Campbell et al., 1996). The Self-Concept Clarity Scale (SCCS) was developed by Campbell et al. (1996) to assess individual differences in self-concept clarity. Previous research has shown that self-concept clarity is positively correlated with self-esteem and extraversion, and negatively correlated with neuroticism, anxiety, and depression (Campbell et al.; Smith, Wethington, & Zhan, 1996). Moreover, there is evidence that people

with greater self-concept clarity tend to use more active coping strategies, whereas people with lower self-concept clarity tend to use more passive coping strategies (Smith, et al).

Again, I expected that the measures of self-concept clarity and sense of self would both load highly on a single common factor that would capture the construct of self-insight—a clear and certain sense of one's own characteristics and attributes.

1.3 Overview of the Present Study

This study took the form of an on-line longitudinal survey conducted by means of the Sona System software. The participants were freshman- and sophomore-level students who were registered in UT-Arlington in the Fall, 2007 or the Spring, 2008 semester. Outcome data, in the form of the students' cumulative university GPA, were obtained from the UT-Arlington Office of Records immediately following the Spring, 2008 semester.

In the on-line data collection that the respondents completed at times of their own choosing, they were asked to provide self-report data for measures designed to assess (a) the Big Five personality dimensions, (a) self-motivation, (b) academic locus of control, (c) expectancy (family expectancy and academic self-esteem), and (d) self-insight (sense of self and self-concept clarity). In addition, with the student's consent, information about the respondents' high school rank, SAT/ACT score, and university GPA, was released by the Office of Insitutional Research Planning and Effectiveness and by the Office of Records. Moreover, all ACT scores were transformed to the SAT metric before used in this study.

In summary, there were 13 predictor variables: gender, high school rank (HSRANK), SAT/ACT scores (SAT/ACT), the Big Five personality dimensions (EXTRA, AGREE, CONSC, NEUR, OPEN), self-motivation, academic locus of control, family expectancy, academic self-esteem, and self-insight. These 13 variables were used to predict the outcome (criterion) variable, which was the students' university GPA (UNGPA). The data were analyzed using multiple regression.

1.4 Hypotheses

My research hypotheses were loosely, rather than rigorously, derived from the theoretical perspectives and previous empirical precedents that I have reviewed above. Because my study included several new predictor variables that have not been previously studied in relation to previously-established predictor variables, it was necessary to use informed speculation in making the following predictions.

Hypothesis 1: After controlling for the effects of gender, high school rank, SAT/ACT score, and all the other predictors included in the multiple regression equation, the variables of self-motivation, academic locus of control, self-expectancy, family-expectancy, and self-insight should all make unique contributions to the prediction of university GPA. However, when the effects of these new predictors are added in the model, the broad-band measure of conscientiousness should no longer be a significant predictor of university GPA, because the new set of predictors should account for the critical aspects of goal-striving and persistence that, according to Roberts et al. (2005), appear to make such prediction possible.

Hypothesis 2: Self-motivation should interact with conscientiousness to predict university GPA and dropout status. I predict that a high level of self-motivation should compensate for a low level of conscientiousness, and vice versa. This means that for people who are high in conscientiousness, self-motivation should be, at best, only slightly correlated with actual academic performance, resulting in either a non-significant or a weak positive correlation between self-motivation and university GPA. Similarly, for people who are high in self-motivation, conscientiousness should be, at best, only slightly correlated with actual academic performance, resulting in either a non-significant or a weak positive correlation between conscientiousness and university GPA.

Another way to state this prediction is that, for students who are low in both conscientiousness and self-motivation, academic performance should suffer greatly. However, for students who

have high conscientiousness, high self-motivation, or both, performance should be relatively optimal in all three of these cases.

Hypothesis 3: Expectancy (defined as a composite of self-expectancy and family-expectancy) should interact with self-insight to predict university GPA. For people with good self-insight, expectancy should correspond fairly closely with actual academic performance, resulting in a significant positive correlation between expectancy and university GPA. However, for people with poor self-insight, self-/family-expectancy should be, at best, only slightly correlated with actual academic performance, resulting in either a non-significant or a weak positive correlation between self-/family-expectancy and university GPA. The rationale for this hypothesis is that the expectancies of people with good self-insight should be realistic and predictive, whereas the expectancies of people with poor self-insight should be more unrealistic and therefore only slightly predictive.

1.5 Broader Research Questions

Apart from testing the specific hypotheses proposed above, a broader goal of this investigation was to determine whether, and to what degree, the variables of gender, pervious academic performance (high school rank, SAT/ACT score), the Big Five personality dimensions, expectancy, self-motivation, self-insight, and academic locus of control could uniquely predict various aspects of academic performance (GPA) at the university level. Also of interest was the total percentage of the variance in university GPA that could be accounted for in a multiple regression model that included the optimal combination of these 13 predictor variables.

CHAPTER 2

METHODS

2.1 Participants

The initial sample size was 391 respondents; however, after applying the criteria of influential data points to identify outliers (Stevens, 1984), 14 influential outliers were detected and their data points were excluded.[1] The remaining respondents were 377 undergraduate students who were enrolled during the Fall, 2007 and Spring, 2008 semesters at the University of Texas at Arlington. They included 107 males (71 freshmen and 36 sophomores) and 270 females (187 freshmen and 83 sophomores). Proportions based on ethnic backgrounds were 50.7% White/Anglo-American, 13.8% Black/African-American, 15.6% Asian, 0.3% Native American or Alaskan Native, 0.3% Pacific Islander, and 19.4% other/multiracial. Proportions based on ages were 47.2% 16~18 years old, 49.8% 19~21 years old, 1.6% 22~24 years old, 0.8% 25~27 years old, and 0.6 % 28~30 years old.

The participants were recruited by the SONA experiment tracking software system via the Internet (students can choose from a list of available studies the ones they would like to participate in). Each participant received one-half of an experimental participation credit (corresponding to a half hour of on-line survey participation), which counted towards the experimental participation credits that students were required to obtain for their psychology classes. All students were given the option of fulfilling this requirement in the alternative way of reading a short, research-focused article and writing a summary reaction to it.

2.2 Materials

Because the current phase of the study took the form of an interactive internet-based survey, the participants responded on-line to the 238-item survey. The survey items were grouped into nine sections. The respondents were asked to provide answers to items that

assessed (1) personal background information, (2) the Big Five personality dimensions (extraversion, agreeableness, conscientiousness, neuroticism, and openness), (3) the facets of conscientiousness, (4) self-motivation, (5) academic self-esteem, (6) sense of self, (7) self-concept clarity, (8) academic locus of control, and (9) their consent to release from their official university records various outcome measures that are relevant to different aspects of their university experience. The various measures that were included on the survey are described below.

2.2.1 Sections of Measures

2.2.1.1 Personal Background Information

In section 1 of the on-line survey, the participants were asked to report their gender and to complete items relevant to their ethnicity, their reasons for attending UT-Arlington and the goals they seek to attain here, their perceived family expectancy, and their perceived family social/economic supports (see the Appendix, Part 1).

2.2.1.2 The Big Five Inventory (BFI)

In section 2 of the survey, the participants were asked to complete the Big Five Inventory (BFI) that was developed by John, Donahue, and Kentle (1991) (see the Appendix, Part 2). This measure included 40 items, each rated on a 5-point Likert scale that ranged from 1 (*strong disagreement*) to 5 (*strong agreement*). The ratings for the items on each of the Big Five personality dimensions were summed after any negatively-worded statements were reverse-coded. Higher scores on each dimension indicated higher levels of the trait in question (extraversion, agreeableness, conscientiousness, neuroticism, and openness). The reliabilities (measured as Cronbach's alpha) of these five dimensions in the present sample were: extraversion, .88; agreeableness, .78; conscientiousness, .80; neuroticism, .83; and openness, .77. These values correspond closely to those reported by John and Srivastava (1999): extraversion, .88; agreeableness, .79; conscientiousness, .82; neuroticism, .84; and openness, .81 (John & Srivastava, 1999).

2.2.1.3 The Facets of Conscientiousness (Conscientiousness)

In section 5 of the survey, the participants were asked to complete the Conscientiousness Subscale of IPIP-NEO Scale (International Personality Item Pool, NEO version; Goldberg, 1999) (see the Appendix, Part 3). This measure included 60 items, 10 items for each facet of conscientiousness (self-efficacy, orderliness, dutifulness, achievement-striving, self-discipline, and cautiousness). Each item was rated on a 5-point Likert scale that ranged from 1 (*strong disagreement*) to 5 (*strong agreement*). The ratings for the items on each of the facets of conscientiousness were summed after any negatively-worded statements have been reverse-coded. Higher scores on each facet of conscientiousness indicated higher levels of the trait in question. The reported reliabilities for the six facets of conscientiousness in the present sample were: self-efficacy, .82; orderliness, .83; dutifulness .82; achievement-striving, .83; self-discipline, .84, and cautiousness, .78. These values correspond closely to those reported previously by Goldberg (1999): self-efficacy, .78; orderliness, .82; dutifulness .71; achievement-striving, .78; self-discipline, .85, and cautiousness, .76.

2.2.1.4 Academic Self-esteem Scale (ASES)

In section 4 of the survey, the students' academic self-esteem was measured using the Academic Self-esteem Scale, which was adapted from Heatherton and Polivy's State Performance Self-esteem Subscale (Heatherton & Polivy, 1991) (see the Appendix, Part 4). The scale included 6 statements concerning how positively an individual evaluates his or her academic performance. As before, responses to all items were made using a 5-point Likert scale that ranged from 1 (*strong disagreement*) to 5 (*strong agreement*). The ratings for the 6 statements were summed after any negatively-worded statements were reverse-coded. Higher scores were indicative of higher levels of academic self-esteem. The reliability of the newly-created academic self-esteem scale was .84.

2.2.1.5 Self-Motivation Inventory (SMI)

In section 5, self-motivation was measured by means of the Self-Motivation Inventory (Dishman, Ickes, & Morgan, 1980; Dishman & Ickes, 1981) (see the Appendix, Part 5). The scale included 40 items concerning an individual's motivation to set goals and work persistently to attain them. Responses to all items were made using a 5-point Likert scale that ranged from 1 (*extremely uncharacteristic of me*) to 5 (*extremely characteristic of me*). The ratings for the 40 statements were summed after the negatively-worded statements were reverse-coded. Higher scores indicated higher levels of self-motivation. In the present sample, the scale's reliability coefficient was .93, a value similar to the .91 coefficient previously reported by Dishman and Ickes (1981).

2.2.1.6 Sense of Self Scale (SOSS)

The respondents' strength sense of self was measured with the revised Sense of Self Scale (SOSS) (Flury & Ickes, 2007) (see the Appendix, Part 6). The revised scale included 16 items that measure one's perception of a strongly versus weakly experienced sense of self. Responses to all items were made using a 5-point Likert scale that ranged from 1 (*extremely uncharacteristic of me*) to 5 (*extremely characteristic of me*). The ratings for the 16 statements were summed after the negatively-worded statements were reverse-coded. Higher scores indicated a *weaker* sense of self. In the present sample, the reliability coefficient of the 16-item SOSS was .92

2.2.1.7 Self-concept Clarity Scale (SCCS)

Self-concept clarity was measured by the Self-concept Clarity Scale (SCCS; Campbell et al., 1996) (see the Appendix, Part 7). The scale included 12 items concerning the perceived internal consistency and temporal stability of self-beliefs. Each item was rated by using a 5-point Likert scale that ranged from 1, (*strong disagreement*) to 5 (*strong agreement*). The ratings for the 12 items were summed after the negatively-worded statements were reverse-coded. Higher scores indicated higher self-concept clarity. A reliability coefficient of .90 was

obtained the present sample, a value similar to the .79 coefficient that was reported by Campbell et al. (1996).

2.2.1.8 Academic Locus of Control Scale

The respondents' academic locus of control was measured by the Academic Locus of Control Scale, which was used with a bipolar-scale format from Trice's Academic Locus of Control Scale for College Students (Trice, 1985) (see the Appendix, Part 8). The Academic Locus of Control Scale (ALOCS) consisted of 28 items, which were originally bipolar (true or false) items asking participants' internal/external beliefs about academically relevant behaviors. The ratings of the 28 items were summed after the negatively-worded statements were reverse-coded. Higher scores indicated greater perceived external locus of control of one's academic performance, whereas lower scores indicated greater perceived internal locus of control. The ALCS had a reliability coefficient of .72 in the present sample, similar to the reliability coefficient of .92 that was previously reported by Trice (1985).

2.2.1.9 The Release Consent

The final section of the on-line survey asked the participants to consent to allow the Office of Records to release their official grade data (their semester GPAs and their overall GPA) and related information (see the Appendix, Part 9). For those participants who formally consented to release their record information by clicking on a "radio button" on the interactive website page, the Office of Institutional Research Planning and Effectiveness and the Office of Records provided the requested information about the students' high school rank, SAT/ACT score, and university GPA.

2.2.2 Measuring the Constructs of Expectancy, Self-motivation, and Self-insight

2.2.2.1 Self-motivation

The self-motivation construct was assessed as the students' total scores on the Self-motivation Inventory (SMI).

2.2.2.2 Academic Locus of Control

The academic locus of control construct was assessed as the students' total scores on the Academic Locus of Control Scale (ALOC).

2.2.2.3 Expectancy

As noted above, the expectancy construct was measured indirectly, using measures of family members' perceived expectancy and academic self-esteem as proxy measures. However, because self-expectancy and family-expectancy were uncorrelated (r = .025) in this sample, it made more sense to treat them as two different variables than to try to create a composite measure of expectancy.

2.2.2.4 Self-insight

The construct of self-insight was measured as a composite variable by adding together the student's standardized total scores on the *reversed* Sense of Self Scale (SOSS) and the Self-concept Clarity Scale (SCCS). Creating the planned composite variable was justified by the fact that, as expected, the respondents' scores on the two scales were highly correlated (r = -.826, p < .0001).

2.3 Design

The present study reports results from the first stage of what will eventually be a 3- or 4-year longitudinal correlational survey study. In this stage, the respondents were tracked for one year to obtain both their semester GPAs and their cumulative GPAs. Again, there were 13 predictor variables: gender, high school rank (HSRANK), SAT/ACT scores (SAT/ACT), the Big Five personality dimensions (EXTRA, AGREE, CONSC, NEUR, OPEN), self-motivation, academic locus of control, self-expectancy, family-expectancy and self-insight. These variables were used to predict the students' cumulative university GPA (UNGPA) as the outcome variable. Outcome data were collected for all respondents through the end of Spring, 2008 semester. Furthermore, with the students' consent, information about their high school rank, SAT/ACT score, and university GPA, was released by the Office of Insitutional Research Planning and

Effectiveness and by the Office of Records. The data were analyzed using multiple regression models.

2.4 Procedure

To avoid informing participants of our specific research goals and hypotheses, something that could undermine the scientific validity of the proposed study, the on-line survey was posted with the intentionally vague title, "A Survey of Factors Relevant to the University Experience." After each of the participants had been recruited and had logged on to participate in the study using the SONA system, they completed the nine sections of the survey on-line (the personal background information, the BFI-44, IPIP Conscientiousness Subscales, Academic Self-esteem Scale, Self-motivation Inventory, Sense of Self Scale, Self-concept Clarity Scale, Academic Locus of Control Scale, and the consent to release their record of university experience).

Once the participants had formally consented for UT-Arlington to release their record information, information about their high school rank, SAT/ACT score, and university GPA, was provided by the office of Institutional Research Planning and Effectiveness, and the office of Records. No outcome data were provided for students who completed the on-line survey items but declined to release information in their university records.

2.5 Proposed Data Analyses: Tests of the Formal Research Hypotheses

I tested *Hypothesis 1* by using multiple regression models to determine whether conscientiousness would predict university GPA after controlling for such covariates as the student's gender, high school rank, and SAT/ACT score. Moreover, I expected to find that self-motivation, academic locus of control, family-expectancy, self-expectancy, and self-insight would all make unique contributions to the prediction of university GPA after controlling for such covariates as the student's gender, high school rank, SAT/ACT score, and Big Five dimensions. I further expected to find that the broad-band measure of conscientiousness would no longer be

a significant predictor of university GPA when the effects of the four new predictors are statistically controlled.

To test Hypothesis 1, the students' high school rank and standardized SAT or ACT score would be entered first into the regression model, and treated as covariates. The student's gender (male or female) would be treated as a third covariate and would also be paired with each of the personality factors to create a set of corresponding gender X personality factor interaction terms. If any of the gender X personality factor interactions were found to be significant in an omnibus model in which the gender and personality factor "main effects" have been entered first, there would be evidence that the prediction equations differ reliably for the male and female students in the study. In the event that that happened, the interpretation of the findings would need to be qualified by the participants' gender.

I tested Hypothesis 1 with the following sequential multiple regressions.

Step 1: (GPA) = b0 + b1(gender) + b2(rank) + b3(SAT/ACT)

Step 2: (GPA) = b0' + b1'(gender) + b2'(rank) + b3'(SAT/ACT)) + b_4(E) + b_5(A) + b_6(C) + b_7(N) + b_8(O)

Step 3: (GPA) = b0'' + b1''(gender) + b2''(rank) + b3''(SAT/ACT)) + $b_{4'}$(E) + $b_{5'}$(A) + $b_{6'}$(C) + $b_{7'}$(N) + $b_{8'}$(O) + b_9(SM) + b_{10}(ALOC) + b_{11}(Self-Expectancy) + b_{12}(Family-Expectancy) + b_{13}(SI)

Step 4: (GPA) = b0''' + b1'''(gender) + b2'''(rank) + b3'''(SAT/ACT)) + $b_{4''}$(E) + $b_{5''}$(A) + $b_{6''}$(C) + $b_{7''}$(N) + $b_{8''}$(O) + $b_{9'}$(SM) + $b_{10'}$(ALOC) + $b_{11'}$(Self-Exp.) + $b_{12'}$(Family-Exp.) + $b_{13'}$(SI) + b_{15}(GxE) + b_{16}(GxA) + b_{17}(GxC) + b_{18}(GxN) + b_{19}(GxO) + b_{20}(GxSM) + b_{21}(GxALOC) + b_{21}(GxSelf-Exp.) + b_{22}(GxFamily-Exp.) + b_{23}(GxSI)

I expected the change R square and conscientiousness would be significant in Model 2. Moreover, in Model 3 in which the five additional predictors (Self-Motivation, Academic Locus of Control, Family-Expectancy, Self-Expectancy, and Self-Insight) were added, I expected that the change R square would be significant; that each of the five additional predictors would also be a

significant unique predictor of university GPA; but that conscientiousness would be no longer significant. In addition, I conducted tests to determine whether any of the gender X personality variables were significant, and would therefore required a qualification of the results based on the respondents' gender.

I tested *Hypothesis 2* by using multiple regression models to determine whether self-motivation interacts with conscientiousness to predict university GPA. I expected that a high level of self-motivation would compensate for a low level of conscientiousness, and vice versa. This means that for people who are high in conscientiousness, self-motivation should be, at best, only slightly correlated with actual academic performance, resulting in either a non-significant or a weak positive correlation between self-motivation and university GPA. Similarly, for people who are high in self-motivation, conscientiousness would be, at best, only slightly correlated with actual academic performance, resulting in either a non-significant or a weak positive correlation between conscientiousness and university GPA.

To test Hypothesis 2, I used a moderated multiple regression model in which I would regress GPA on self-motivation (SM), conscientiousness (C), and self-motivation x conscientiousness (SM x C). The resulting equations are:

Step 1: (GPA) = b0 + b1(SM) + b2(C)

Step 2: (GPA) = b0' + b1'(SM) + b2'(C) + b3(SM x C)

If Model 2 and b3 is significant, the conclusion can be drawn that there is an interaction between conscientiousness and self-motivation. If so, the post hoc tests of the simple slops of conscientiousness at the high, medium, and low levels of self-motivation would then be conducted, along with post hoc tests of the simple slops of self-motivation at the high, medium, and low level of conscientiousness. *Hypothesis 2* predicts that conscientiousness will be a significant predictor of GPA when the level of self-motivation is low, and that self-motivation will be a significant predictor of GPA when the level of conscientiousness is low.

I also used moderated multiple regression to test the *Hypothesis 3* prediction that self-expectancy would interact with self-insight to predict university GPA (because self-expectancy and family expectancy proved to be uncorrelated, only the self-expectancy measure will be used). For people with good self-insight, self-expectancy should correspond fairly closely with actual academic performance, resulting in significant positive correlations between self-expectancy and university GPA. However, for people with poor self-insight, self-expectancy should be, at best, only slightly correlated with actual academic performance, resulting in either non-significant or weak positive correlations between self-expectancy and university GPA.

To test Hypothesis 3, I regressed GPA on self-expectancy (SE), self-insight (SI), and self-expectancy x self-insight (SE x SI). The resulting equations are:

Step 1: (GPA) = b0 + b1(SE) + b2(SI)

Step 2: (GPA) = b0' + b1'(SE) + b2'(SI) + b3(SE x SI)

If Model 2 and b3 is significant, I can conclude that there is a significant interaction between self-expectancy and self-insight. If so, the post hoc tests of the simple slope of self-expectancy at the high, medium, and low levels of self-insight would be conducted. It is expected that the slope for self-expectancy will be significant for respondents with a high level of self-insight, but not for respondents with a low level of self-insight.

CHAPTER 3

RESULTS

3.1 Tests of the Assumptions of Regressions

Because the data were collected over the course of two semesters (Fall 2007 and Spring 2008), I first conducted a set of dependent *t* tests to determine whether there were any mean differences between the datasets collected in the two different semesters. The results indicated no such differences. Therefore, I merged the two datasets together and began conducting the required prescreening. The distribution of the continuous variables (GPA, SAT/ACT, the Big Five dimensions, Self-Motivation, Academic Locus of Control, Self-Expectancy, Family-Expectancy, and Self-Insight) were examined for normality based on the Kolmogorov-Smirnov tests.

The results showed that although Self-Motivation was normally distributed, the remaining variables were not. However, because the sample size was considered moderate to large (N = 377), the effect of non-normality of error on significance testing was small. Furthermore, even if the normality tests were rejected, the boxplots, histograms, and normal probability plots (P-P and Q-Q plots) did not indicate serious non-normality. The homogeneity of variance was retained, and there was a nonlinear relationship between the predicted value and the residuals.

The relationships between the outcome variable (GPA) and each predictor variable were then examined. Plots of these relationships showed that some of the predictors (i.e. Agreeableness, Neuroticism, and Family-Expectancy) were not linearly related to GPA. However, because this was a theory-based study, those variables were required and should not be deleted. Finally, to test for possible outliers in the data, Leverage, Cook's Distance, standardized DFFIT, and standardized DFBETAs were used to identify any outliers that may

have been present. A total of 14 outliers were identified and excluded [1], resulting in a revised sample size of 377. It should be noted, however, that 23 out of the 377 participants did not report their high school rank to UT-Arlington when applying for admission; eight did not report their SAT/ACT score; and four did not report both high school rank and SAT/ACT score.

The descriptive statistics for the continuous variables and percentage breakdowns for the discrete variables (gender and high school rank) are reported in Table 3.1. The correlations among the variables were also computed (see Table 3.2). All of the predictors were centered before being entered into the regression models.

Table 3.1 Means and Standard Deviation or Percentage of Variables: GPA, SAT/ACT, Big Five dimensions, Self-Motivation, Academic Locus of Control, expectancy, Self-Insight, Gender, and High School Rank

Variable	*Mean*	*SD*	*range*	*N*	Percent
GPA	2.81	.74	0.00~4.00	377	
SAT/ACT	1071.01	135.95	610~1390	365	
Big Five Dimensions:					
Extraversion	26.95	6.35	11~40	377	
Agreeableness	35.33	5.17	19~45	377	
Conscientiousness	32.54	5.29	16~45	377	
Neuroticism	22.43	5.83	8~39	377	
Openness to Experience	37.37	5.33	22~50	377	
Self-Motivation	142.27	21.04	78~194	377	
Academic Locus of Control	11.27	4.33	0~23	377	
Family-Expectancy	14.14	1.90	7~16	377	
Self-Expectancy	21.80	4.67	9~30	377	
Self-Insight	0.03	1.90	-5.18~3.45	377	
Gender					
Male				107	28.4%
Female				270	71.6%
High School Rank					
First Quarter				231	61.3%
Second Quarter				72	19.1%
Third Quarter				14	3.7%
Fourth Quarter				33	8.8%

Table 3.2 Correlations between Variables

	HSRank	ACTSAT	Gender	Extraversion	Agreeable	Conscientious	Neuroticism
GPA	-0.05	0.34**	0.07	-0.05	-0.08	0.14**	-0.01
HSRank [a]	1	0.12*	-0.10	0.03	0.02	-0.06	0.00
ACTSAT [b]	---	1	-0.12*	-0.09	-0.01	-0.03	-0.06
Gender	---	---	1	0.02	0.04	-0.02	0.21**
Extraversion	---	---	---	1	0.25**	0.20**	-0.31**
Agreeableness	---	---	---	---	1	0.43**	-0.37**
Conscientiousness	---	---	---	---	---	1	-0.30**
Neuroticism	---	---	---	---	---	---	1
Openness	---	---	---	---	---	---	---
Self-Motivation	---	---	---	---	---	---	---
ALOC	---	---	---	---	---	---	---
Family-Exp.	---	---	---	---	---	---	---
Self-Exp.	---	---	---	---	---	---	---
Self-Insight	---	---	---	---	---	---	---

	Openness	Self-Motivation	ALOC	Family-Expectancy	Self-Expectancy	Self-Insight
GPA	-0.04	0.14**	-0.20**	-0.02	0.25**	0.08
HSRank [a]	0.19*	0.04	0.08	0.04	0.00	0.03
ACTSAT [b]	0.25**	0.05	0.03	0.04	0.33**	0.07
Gender	-0.15**	0.01	-0.04	0.04	-0.12*	0.04
Extraversion	0.27**	0.36**	-0.14**	0.07	0.20**	0.35**
Agreeableness	0.28**	0.44**	-0.33**	0.05	0.21**	0.31**
Conscientiousness	0.23**	0.73**	-0.52**	-0.01	0.39**	0.46**
Neuroticism	-0.25**	-0.34**	0.36**	0.02	-0.43**	-0.47**
Openness	1	0.34**	-0.12*	0.12*	0.32**	0.17**
Self-Motivation	---	1	-0.57**	0.01	0.50**	0.60**
ALOC	---	---	1	0.09	-0.43**	-0.50**
Family-Exp.	---	---	---	1	0.03	0.02
Self-Exp.	---	---	---	---	1	0.48**
Self-Insight	---	---	---	---		1

$N = 377$ ([a] $N = 350$, [b] $N = 365$) $^{*}p < .01$ $^{**}p < .001$

3.2 Tests for Multicollinearity in the Set of 13 Predictor Variables

There were 13 predictors in the overall model. In the sequential regression analyses, the three predictors, gender, high school rank, and SAT/ACT, were entered in the first step to predict students' GPA. The Big Five trait scores were entered in the second step. The five additional predictors (self-motivation, academic locus of control, self-expectancy, family-expectancy, and self-insight) were entered in the third step, and the gender X personality interactions were added last. The Durbin-Watson test showed that the residuals from the regressions were independent. Moreover, no problems involving multicollinearity were found. The regression coefficients (b), standard errors of the coefficients (S.E. b), and the semi-partial correlations (sr2) are reported in Table 3.3.

Table 3.3 Sequential Multiple Regression (Hypothesis 1)

Variables	***B***	***SE B***	***sr²***	
Step 1				
Gender	-0.184 *	0.084	0.012	
High School Rank	-0.044	0.040	0.003	R = .380***
SAT/ACT	0.002 ***	0.000	0.139	R^2 = .144
Intercept	2.935	0.074		*Adj.* R^2 = .137
Step 2				
Gender	-0.144	0.085	0.007	
High School Rank	-0.010	0.040	0.000	
SAT/ACT	0.002 ***	0.000	0.162	
Extraversion	-0.004	0.006	0.001	
Agreeableness	-0.002	0.008	0.000	
Conscientiousness	0.029 ***	0.008	0.033	R = .445***
Neuroticism	0.005	0.007	0.001	R^2 = .198
Openness	-0.023 **	0.008	0.022	ΔR^2 = .054***
Intercept	2.865	0.074		*Adj.* R^2 = .179

Table 3.3 - continued

Step 3				
Gender	-0.135	0.085	0.006	
High School Rank	0.002	0.040	0.000	
SAT/ACT	0.002***	0.000	0.124	
Extraversion	-0.001	0.006	0.000	
Agreeableness	-0.002	0.008	0.000	
Conscientiousness	0.014	0.010	0.004	
Neuroticism	0.013	0.008	0.006	
Openness	-0.026**	0.008	0.025	
Self-Motivation	0.001	0.003	0.000	
Academic Locus of Control	-0.033**	0.011	0.020	
Family-Expectancy	-0.002	0.019	0.000	R = .495***
Self-Expectancy	0.024*	0.010	0.012	R^2= .245
Self-Insight	-0.043	0.025	0.004	ΔR^2= .047**
Intercept	2.843	0.073		*Adj.* R^2= .215
Step 4				
Gender	-0.147	0.092	0.006	
High School Rank	-0.003	0.040	0.000	
SAT/ACT	0.002***	0.000	0.100	
Extraversion	0.002	0.008	0.000	
Agreeableness	-0.002	0.009	0.000	
Conscientiousness	0.022	0.013	0.007	
Neuroticism	0.013	0.009	0.004	
Openness	-0.024**	0.009	0.017	
Self-Motivation	-0.001	0.004	0.000	
Academic Locus of Control	-0.035**	0.013	0.017	
Family-Expectancy	-0.019	0.023	0.002	

Table 3.3 - continued

Self-Expectancy	0.016	0.012	0.004	
Self-Insight	-0.033	0.030	0.003	
GxSAT/ACT	0.000	0.001	0.000	
GxExtraversion	-0.010	0.015	0.001	
GxAgreeableness	-0.004	0.020	0.000	
GxConscientiousness	-0.024	0.022	0.003	
GxNeuroticism	0.003	0.019	0.000	
GxOpenness	-0.004	0.020	0.000	
GxSelf-Motivation	0.005	0.007	0.000	
GxAcademic Locus of Control	0.007	0.026	0.002	
GxFamily-Expectancy	0.055	0.044	0.004	R =.509***
GxSelf-Expectancy	0.033	0.024	0.004	R^2= .259
GxSelf-Insight	-0.063	0.064	0.002	ΔR^2= .014
Intercept	2.852	0.074		*Adj.* R^2= .203

N = 342 *p < .05 **p < .01 ***p < .001

3.3 Tests of the Research Hypotheses

3.3.1 Hypothesis 1

I first examined the correlations between the five "new" variables (self-motivation, academic locus of control, self-expectancy, family-expectancy, and self-insight) and the six facets of IPIP conscientiousness (self-efficacy, orderliness, dutifulness, achievement-striving, self-discipline, cautiousness) (see Table 3.4). I found that self-motivation, academic locus of control, and self-insight significantly were correlated with each facet of conscientiousness. I also found that self-expectancy significantly correlated with all facets of conscientiousness except orderliness, whereas family-expectancy correlated only with self-efficacy.

Table 3.4 Correlations between the Five Additional Variables and the Six Facets of IPIP Conscientiousness

		1	2	3	4	5	6	7
1.	GPA	1	-.052	.337**	.135**	-.200**	-.016	.246**
2.	High School Rank [a]		1	.120**	.036	.075	.037	000
3.	SAT/ACT [b]			1	.052	.029	.035	.326**
4.	Self-Motivation				1	-.573**	.012	.502**
5.	Academic Locus of Control					1	.085	-.430**
6.	Family-Expectancy						1	.025
7.	Self-Expectancy							1
8.	Self-Insight							
9.	C1: Self-Efficacy							
10.	C2: Orderliness							
11.	C3: Dutifulness							
12.	C4: Achievement Striving							
13.	C5: Self-Discipline							
14.	C6: Cautiousness							

		8	9	10	11	12	13	14
1.	GPA	.079	.094	.049	.074	.193**	.057	.148**
2.	High School Rank [a]	.026	.064	-.003	.019	.053	-.022	-.073
3.	SAT/ACT [b]	.072	.120*	-.164**	.052	.081	-.134*	.017
4.	Self-Motivation	.600**	.712**	.441**	.648**	.800**	.658**	.471**
5.	Academic Locus of Control	-.500**	-.407**	-.302**	-.424**	-.480**	-.486**	-.470**
6.	Family-Expectancy	.024	.106**	.040	.056	.080	-.005	-.045
7.	Self-Expectancy	.475**	.583**	.063	.341**	.436**	.335**	.310**
8.	Self-Insight	1	.605**	.244**	.504**	.483**	.405**	.395**
9.	C1: Self-Efficacy		1	.313**	.693**	.750**	.499**	.433**
10.	C2: Orderliness			1	.429**	.444**	.571**	.423**
11.	C3: Dutifulness				1	.681**	.479**	.604**
12.	C4: Achievement Striving					1	.621**	.434**
13.	C5: Self-Discipline						1	.492**
14.	C6: Cautiousness							1

$N = 377$ ([a] $N = 350$, [b] $N = 365$)

*$p < .05$

**$p < .01$

In general, these correlations supported my assumptions that (a) self-motivation is correlated with achievement-striving, perseverance (the dutifulness facet of IPIP conscientiousness), and self-control (the self-discipline facet of IPIP conscientiousness); (b) academic locus of control is correlated with achievement-striving and self-control; and (c) self-expectancy is correlated with achievement-striving. However, I also found that family-expectancy is not related to the academic-striving facet of conscientiousness.

Somewhat surprisingly, at the level of the zero-order correlations, the outcome variable of university GPA was associated only with the achievement striving and cautiousness facets of conscientiousness. These findings differ from those obtained in Noftle and Robins' (2007) study, in which the self-efficacy, achievement striving, and self-discipline facets of conscientiousness were all significantly correlated with college GPA.

Hypothesis 1 suggested that after controlling for the effects of gender, high school rank, SAT/ACT score, and all the other predictors included in the multiple regression equation, the variables of self-motivation, academic locus of control, self-expectancy, family-expectancy, and self-insight would all make unique contributions to the prediction of university GPA. Moreover, the broad-band measure of conscientiousness should no longer be a significant predictor of university GPA with these additional predictors in the model. Sequential regression analyses were performed to determine whether the five additional predictors were the more specific and essential facets that can predict university students' academic performance, with little or no incremental predictive validity associated with the residual variance in the broader construct of conscientiousness.

3.3.1.1 Model 1: Gender, High School Rank, and SAT/ACT Score Predicting University GPA

The first regression model, which included the traditional predictors of gender, high school rank, and SAT/ACT score, was significant, $F(3, 338) = 18.98$, R^2=14.4%, $p < .001$. More specifically, gender ($b = -.184$, $t\ (338) = -2.20$, $p < .05$, $sr^2 = 1.1\%$) and SAT/ACT ($b = .002$, t

(338) = 7.42, $p < .001$, sr^2 = 13.9%) significantly predicted GPA, indicating that females had higher GPAs than males, and students with higher SAT/ACT scores had higher GPAs than students with lower SAT/ACT scores.

3.3.1.2 Model 2: Model 1 Plus Big Five Dimensions Predicting University GPA

The second regression model, which added the Big Five dimensions, was also significant, $F(8, 333) = 10.27$, R^2 = 19.8%, $p < .001$. The results indicated that the Big Five dimensions accounted for a significant portion of the variance in university GPA, $\Delta F(5, 333) = 4.46$, ΔR^2 = 5.4%, $p < .001$. Furthermore, SAT/ACT (b = .002, t (333) = 8.21, $p < .001$, sr^2 = 16.2%), conscientiousness (b = .029, t (333) = 3.68, $p < .001$, sr^2 = 6.2%), and openness (b = -.023, t (333) = -3.00, $p < .01$, sr^2 = 2.2%) were all found to significantly predict GPA in the omnibus model. Finally, after controlling for the effects of gender, high school rank, and SAT/ACT scores, conscientiousness was found to positively influence GPA, whereas openness and GPA were negatively related.

3.3.1.3 Model 3: Model 2 plus Five Additional Predictors (Self-Motivation, Academic Locus of Control, Self-Expectancy, Family-Expectancy, and Self-Insight) Predicting University GPA

The third model, which added the five additional predictors of self-motivation, academic locus of control, family-expectancy, self-expectancy, and self-insight, was also significant, $F(13, 328) = 8.19$, R^2 = 24.5%, $p < .001$. It revealed that the additional predictors accounted for a significant portion of the variance in university GPA,$\Delta F(5, 328) = 4.10$, ΔR^2= 4.7%, $p < .001$. As individual predictors, SAT/ACT (b = .002, t (328) = 7.33, $p < .001$, sr^2 = 12.4%), openness (b = -.026, t (328) = -3.32, $p < .001$, sr^2 = 2.5%), academic locus of control (b = -.033, t (328) = -2.98, $p < .01$, sr^2 = 2.0%), and self-expectancy (b = .024, t (328) = 2.31, $p < .05$, sr^2 = 1.2%) all significantly predicted GPA. Finally, after controlling for the effects of gender, previous academic achievement, and the Big Five traits, self-expectancy was positively correlated with GPA, indicating that students who had higher self-expectancy would perform better academically than those who were lower on the trait; moreover, academic locus of control was

also found to correlate negatively with GPA over and above the effect of gender, previous academic achievement, and the Big Five traits. However, because low values of academic locus of control indicate internal control whereas high values indicate external control, this correlation should be interpreted to mean that students with an internal academic locus of control achieve higher university GPAs than students with an external academic locus of control.

On the other hand, in the omnibus model, openness was again negatively correlated with GPA, which suggests that students who are high on openness perform worse than those who are not as open.

3.3.1.4 Model 4: Model 3 plus the Gender X Personality Interactions Predicting University GPA

Model 4 added the interactions of gender with each personality predictor to the model. The overall regression model was still significant, $F(24, 317) = 4.62$, $R^2 = 25.9\%$, $p < .001$; however, the incremental validity in the prediction of GPA accounted for by the gender X personality predictors was non-significant, $\Delta F(11, 317) = .55$, *ns*. Moreover, none of the individual gender X personality interactions were significant in the omnibus model, which indicates that gender did not significant qualify the effects of these personality traits on university GPA.

3.3.1.5 Summing-up

Consistent with Hypothesis 1, adding the five additional predictors (self-motivation, academic locus of control, family-expectancy, self-expectancy, and self-insight) significantly increased the ability of the resulting model to predict university GPA ($\Delta F(5, 328) = 4.10$, $\Delta R^2 = 4.7\%$, $p < .001$) and at the same time made conscientiousness non-significant as a "main effect" predictor ($b = .014$, t (328) = 1.32, *ns*). The semi-partial R square of conscientiousness was 6.2% ($sr^2 = .062$, $p < .001$) when gender, high school rank, SAT/ACT scores, and the other Big Five Dimensions were also entered in the regression, but it dropped dramatically when the five additional predictors were added (0.4%, $sr^2 = .004$, *ns*). In addition, it was academic locus of control and self-expectancy of the five additional predictors that significantly correlated as

univariate predictors with GPA, whereas self-motivation, family-expectancy, and self-insight did not.

In summary, Hypothesis 1 was supported in terms of my most general predictions. At the level of individual predictors, however, the only unique predictors of university GPA within the set of the last five predictors added to the model were the ones most closely allied with the social learning tradition of Rotter (1966) and Bandura (1999) (i.e., academic locus of control and self-expectancy).

3.3.2 Hypothesis 2

Hypothesis 2 proposed that self-motivation would interact with conscientiousness to predict university GPA and dropout status. More specifically, a high level of self-motivation would compensate for a low level of conscientiousness, and vice versa. This means that for students who were low in self-motivation, their level of conscientiousness would predict GPA. On the other hand, for students who were low in conscientiousness, their level of self-motivation would predict GPA.

Moderated multiple regression analyses were performed to determine whether conscientiousness moderated the link between self-motivation and GPA, and whether self-motivation moderated the link between conscientiousness and GPA. In other words, these analyses tested whether there was any unique predictiveness of the interaction between conscientiousness and self-motivation on GPA. In the regression analyses, the first order predictor variables, conscientiousness and self-motivation, were entered in the first step to predict students' GPA, and the conscientiousness X self-motivation interaction term was entered in the second step. The Durbin-Watson test showed that the residuals from the regressions were independent, and no problem of multicollinearity was found in each of the two models.

Although the first regression model was significant, F (2, 374) = 4.03, R^2 = 2.1%, p < .05, neither conscientiousness nor self-motivation were found to significantly predict GPA as "main effect" predictors. The second regression model, which included the interaction between conscientiousness and self-motivation, was also significant, F (3, 373) = 4.23, R^2 = 3.4%, p < .05, and the conscientiousness X self-motivation interaction accounted for a significant portion of the variance in university GPA, ΔF(1, 373) = 5.13, ΔR^2 = 1.3%, p < .05, and was the only significant predictor in the model, b = -.001, t (373) = -2.26, p < .05, sr^2 = 1.3% (see Table 3.5). Again, neither of the two "main effect" predictors, conscientiousness and self-motivation, significantly predicted GPA in the omnibus model.

Table 3.5 Moderate Multiple Regression on GPA by Conscientiousness, Self-Motivation, and Interaction

Variables	***B***	***SE B***	***sr²***	
Step 1				
Conscientiousness	0.011	0.010	0.003	R = .145*
Self-Motivation	0.003	0.003	0.002	R^2 = .021
Intercept	2.809	0.038		*Adj.* R^2 = .016
Step 2				
Conscientiousness	0.010	0.010	0.003	R = .185**
Self-Motivation	0.003	0.003	0.003	R^2 = .034
Cons*Self-Motivation	-0.001 *	0.000	0.013	ΔR^2 = .013*
Intercept	2.861	0.044		*Adj.* R^2 = .027

N = 377 *p < .05 **p < .01

3.3.2.1 Test for Self-Motivation Moderating the Relation between Conscientiousness and GPA

To examine the relation between conscientiousness and GPA across different levels of self-motivation, post hoc regression analyses were performed. Specifically, I examined the relation between conscientiousness and GPA at low (-1 *SD*), medium (0 *SD*), and high (1 *SD*) levels of self-motivation. As expected, conscientiousness significantly predicted GPA at low levels of self-motivation, $b = .024$, $t\,(373) = 2.01$, $p < .05$, $sr^2 = 1.0\%$, but not at medium or high levels (see Table 3.6 and Figure 3.1).

Table 3.6 Moderate Multiple Regression for Simple Slop Tests: Self-Motivation as a Moderator of the Relation between Conscientiousness and GPA

Variables	***B***	***SE B***	***sr²***	
<u>High Self-Motivation (+1 *S.D.*)</u>				
Conscientiousness	-0.003	0.012	0.000	$R = .185^{**}$
Self-Motivation	0.003	0.003	0.003	$R^2 = .034$
Cons*Self-Motivation	-0.001 *	0.000	0.013	*Adj.* $R^2 = .027$
Intercept	2.921	0.070		
<u>Medium Self- Motivation (0 *S.D.*)</u>				
Conscientiousness	0.010	0.010	0.003	$R = .185^{**}$
Self-Motivation	0.003	0.003	0.003	$R^2 = .034$
Cons*Self-Motivation	-0.001 *	0.000	0.013	*Adj.* $R^2 = .027$
Intercept	2.861	0.044		
<u>Low Self- Motivation (-1 *S.D.*)</u>				
Conscientiousness	0.024 *	0.012	0.010	$R = .185^{**}$
Self-Motivation	0.003	0.003	0.003	$R^2 = .034$
Cons*Self-Motivation	-0.001 *	0.000	0.013	*Adj.* $R^2 = .027$
Intercept	2.801	0.070		

$N = 377$ * $p < .05$ **$p < .01$

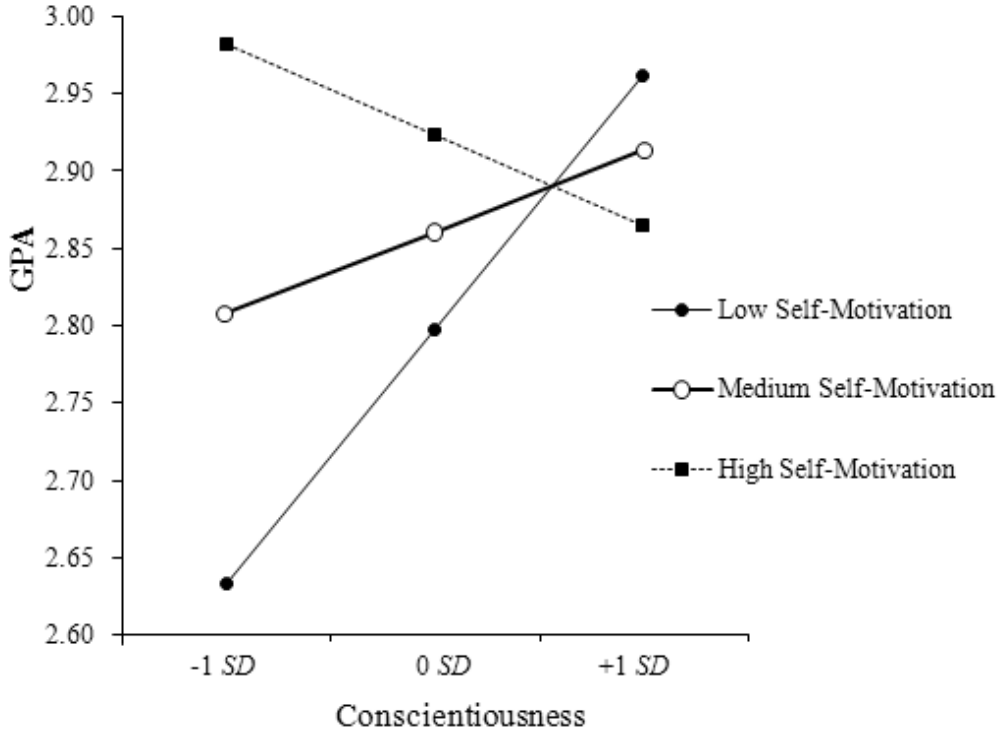

Figure 3.1 Self-motivation moderating the influence of conscientiousness on GPA.

3.3.2.2 Test for Conscientiousness Moderating the Relation between Self-Motivation and GPA

Conversely, to examine the relation between self-motivation and GPA across different levels of conscientiousness, I specifically examined this relation at low (-1 *SD*), medium (0 *SD*), and high (1 *SD*) levels of conscientiousness. Self-motivation was found to significantly predict GPA when participants were low on conscientiousness, $b = .006$, $t\ (373) = 2.07$, $p < .05$, $sr^2 =$ 1.1%, but not at medium or high levels (see Table 3.7 and Figure 3.2).

Table 3.7 Moderate Multiple Regression for Simple Slop Tests: Conscientiousness as a Moderator of the Relation between Self-Motivation and GPA

Variables	***B***	***SE B***	***sr²***	
<u>High Conscientiousness (+1 *S.D.*)</u>				
Conscientiousness	0.010	0.010	0.003	R = .185**
Self-Motivation	-0.001	0.003	0.000	R^2= .034
Cons*Self-Motivation	-0.001 *	0.000	0.013	*Adj.* R^2= .027
Intercept	2.916	0.070		
<u>Medium Conscientiousness (0 *S.D.*)</u>				
Conscientiousness	0.010	0.010	0.003	R = .185**
Self-Motivation	0.003	0.003	0.003	R^2= .034
Cons*Self-Motivation	-0.001 *	0.000	0.013	*Adj.* R^2= .027
Intercept	2.861	0.044		
<u>Low Conscientiousness (-1 *S.D.*)</u>				
Conscientiousness	0.010	0.010	0.003	R = .185**
Self-Motivation	0.006 *	0.003	0.011	R^2= .034
Cons*Self-Motivation	-0.001 *	0.000	0.013	*Adj.* R^2= .027
Intercept	2.806	0.071		

N = 377 * p < .05 **p < .01

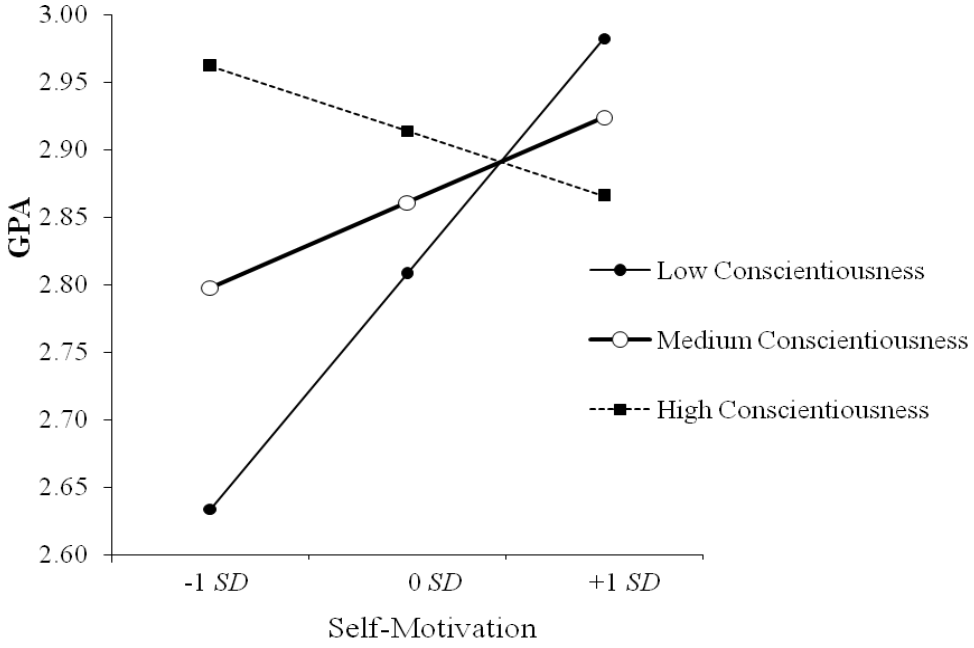

Figure 3.2 Conscientiousness moderating the influence of self-motivation on GPA.

3.3.2.3 Summing-up

Hypothesis 2 was supported. As predicted, conscientiousness interacted with self-motivation to predict university GPA, with a relatively high score on one predictor compensating for a relatively low score on the other predictor. These results indicate that a relatively high level of conscientiousness can compensate for a relatively low level of self-motivation, and vice versa, in affecting students' overall academic performance.

3.3.3 *Hypothesis 3*

Hypothesis 3 suggested that self-expectancy would interact with self-insight to predict university GPA, such that self-expectancy would be a particularly good predictor for people with good self-insight. Moderated multiple regression analyses were performed to determine whether self-insight moderated the link between self-expectancy and GPA. In other words, this analysis tested whether there was unique predictiveness of the interaction between self-expectancy and self-insight on GPA.

3.3.3.1 Test for Self-Insight Moderating the Relation between Self-Expectancy and GPA

To determine whether self-insight moderated the relationship between self-expectancy and university GPA, a moderated multiple regression was conducted. In this moderated regression, the first order predictor variables, self-expectancy and self-insight, were entered in the first step to predict students' GPA, and their interaction was entered in the second step. The Durbin-Watson test documented the independence of the residuals, and no problem of multicollinearity was found. The regression coefficients (*b*), standard errors of regression coefficients (*S.E. b*), and semi-partial correlation (sr^2) are showed in Table 3.8.

Table 3.8 Moderate Multiple Regression on GPA by Self-Expectancy, Self-Insight, and Interaction

Variables	***B***	***SE B***	***sr²***	
Step 1				
Self-Expectancy	0.043**	0.009	0.056	R = .250**
Self-Insight	-0.019	0.022	0.002	R^2= .062
Intercept	2.809	0.037		*Adj.* R^2= .047
Step 2				
Self-Expectancy	0.044**	0.009	0.059	R = .268**
Self-Insight	-0.024	0.022	0.003	R^2= .072
S-Expectancy*Self-Insight	-0.008*	0.004	0.010	ΔR^2= .010*
Intercept	2.842	0.040		*Adj.* R^2= .065

N = 377 * $p < .05$ ** $p < .01$

The first regression model was found to be significant, F (2, 374) = 12.45, R^2 = 6.2%, p < .001. Although self-expectancy significantly predicted GPAs in this model, b = .043, t (374) = 4.73, p < .001, self-insight was not found to be significant. The second regression model, which added the interaction of self-expectancy and self-insight, was found to be significant, F(3, 373) = 9.66, R^2 = 7.2%, p < .001. The interaction term accounted for a significant portion of the variance in GPA, ΔF = 3.88, ΔR^2 = 1.0%, p < .05, and was found to significantly predict GPA, b = -.008, t (373) = -1.97, p < .05, sr^2 = 1.0%. Again, self-expectancy was a significant predictor in this full model, b = .044, t (373) =4.86, p < .001, sr^2 = 5.9%, but self-insight was not found to be significant.

To examine the extent to which self-insight moderated the relationship between expectancy and GPA, I specifically examined the influence of expectancy on GPA at poor (-1 *SD*), medium (0 *SD*), and good (1 *SD*) levels of self-insight. Self-expectancy was found to positively predict GPA across all three levels of self-insight; poor, b = .058, t (373) = 4.73, p < .001, sr^2 = 5.9%, normal, b = .044, t (373) = 4.86, p < .001, sr^2 = 5.9%, and good, b = .029, t (373) = 2.59, p < .05, sr^2 = 1.7% (see Table 3.9). In other words, students who were high in self-expectancy were found to have a higher university GPA than those who were low in self-expectancy, regardless of their self-insight. However, Figure 3.3 shows that for students whose self-insight was good, their self-expectancy significantly increased GPA, but the incremental range (from –1 *S.D.* self-expectancy to +1 *S.D.* self-expectancy) was less than for students whose self-insight was poor.

Table 3.9 Moderate Multiple Regression for Simple Slop Tests: Self-Insight as a Moderator of the Relation between Self-expectancy and GPA

Variables	***B***	***SE B***	***sr²***	
<u>High Self-Insight (+1 *S.D.*)</u>				
Self-Expectancy	0.029*	0.011	0.017	R = .268**
Self-Insight	-0.024	0.022	0.003	R^2= .072
S-Expectancy*Self-Insight	-0.008*	0.004	0.010	*Adj.* R^2= .065
Intercept	2.795	0.057		
<u>Medium Self-Insight (0 *S.D.*)</u>				
Self-Expectancy	0.044**	0.009	0.059	R = .268**
Self-Insight	-0.024	0.022	0.003	R^2= .072
S-Expectancy*Self-Insight	-0.008*	0.004	0.010	*Adj.* R^2= .065
Intercept	2.842	0.004		
<u>Low Self-Insight (-1 *S.D.*)</u>				
Self-Expectancy	0.058**	0.012	0.059	R = .268**
Self-Insight	-0.024	0.022	0.003	R^2= .072
S-Expectancy*Self-Insight	-0.008*	0.004	0.010	*Adj.* R^2= .065
Intercept	2.888	0.060		

N = 377 * p < .05 **p < .01

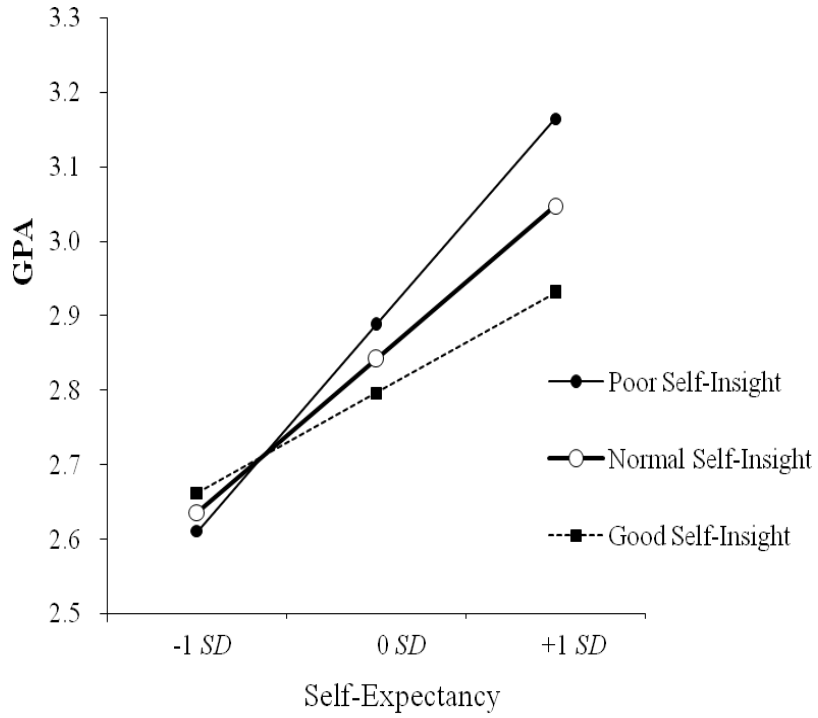

Figure 3.3 Self-insight moderating the influence of self-expectancy on GPA.

3.3.3.2 Test for Self-Expectancy Moderating the Relation between Self-Insight and GPA

To clarify the interpretation of the interaction effect, I performed another moderated multiple regression to determine whether self-expectancy moderated the relationship between self-expectancy and GPA. The results are represented in Table 3.10. They reveal that, for students with low or medium self-expectancy, their self-insight was not associated with their GPA, but for students with high self-expectancy, their self-insight negatively predicted their GPA (b = -.060, t (373) = -1.98, $p < .05$, sr^2 = 1.0%). That is, students with high self-expectancy and high self-insight had lower university GPAs (an unexpected and counterintuitive finding), whereas self-insight did not significantly predict GPA for students whose self-expectancy was low or medium (see Figure 3.4).

Table 3.10 Moderate Multiple Regression for Simple Slop Tests: Self-Expectancy as a Moderator of the Relation between Self-Insight and GPA

Variables	**B**	**SE B**	**sr^2**	
<u>High Self-Expectancy (+1 *S.D.*)</u>				
Self-Expectancy	0.044 **	0.009	0.059	R = .268**
Self-Insight	-0.060 *	0.030	0.010	R^2= .072
S-Expectancy*Self-Insight	-0.001 *	0.004	0.010	*Adj.* R^2= .065
Intercept	3.046	0.059		
<u>Medium Self-Expectancy (0 *S.D.*)</u>				
Self-Expectancy	0.044 **	0.009	0.059	R = .268**
Self-Insight	-0.024	0.022	0.003	R^2= .072
S-Expectancy*Self-Insight	-0.008 *	0.004	0.010	*Adj.* R^2= .065
Intercept	2.842	0.004		
<u>Low Self- Expectancy (-1 *S.D.*)</u>				
Self-Expectancy	0.044 **	0.009	0.059	R = .268**
Self-Insight	0.011	0.027	0.000	R^2= .072
S-Expectancy*Self-Insight	-0.008 *	0.004	0.010	*Adj.* R^2= .065
Intercept	2.637	0.058		

N = 377 * p < .05 **p < .01

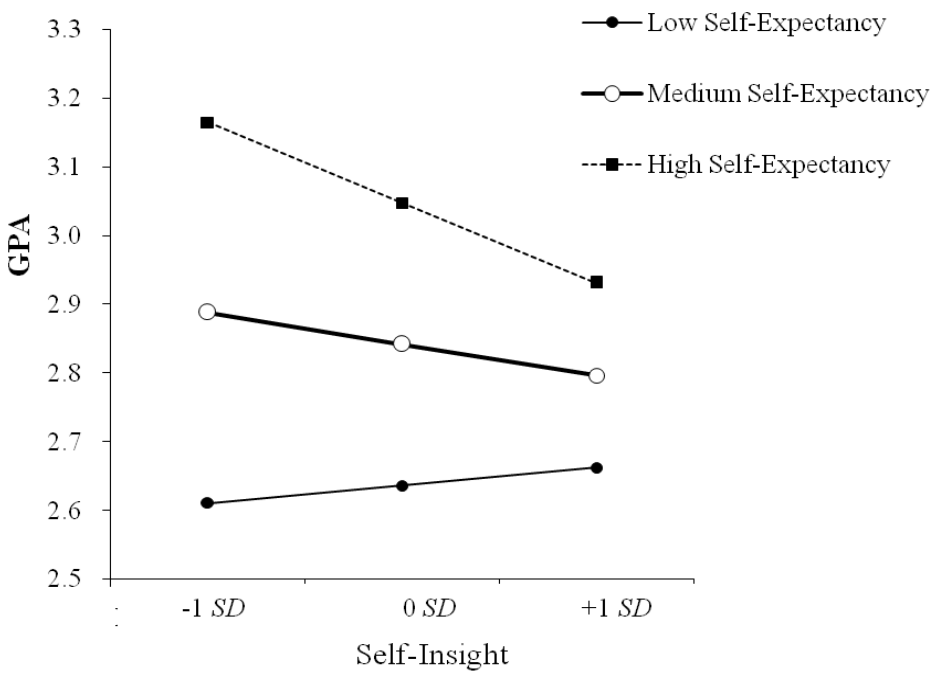

Figure 3.4 Self-expectancy moderating the influence of self-insight on GPA.

3.3.3.3 Summing-up

In summary, the results did not support Hypothesis 3 in the form that I predicted. Although self-expectancy did interact with self-insight to predict university GPA, self-expectancy significantly predicted GPA across all levels of self-insight (-1 *S.D.*, 0 *S.D.*, and +1 *S.D.*). In other words, regardless of how much self-insight the students had, their self-expectancy corresponded fairly closely with their actual academic performance, resulting in a significant positive overall correlation between self-expectancy and university GPA (the zero-order correlation of these two variables was .25, $p < .0001$). Nevertheless, testing whether self-expectancy moderated self-insight to predict university GPA, I found that for students with high self-expectancy, their GPAs were negatively predicted by their self-insight, whereas for students with low or medium self-expectancy, their self-insight did not correspond with their GPA.

3.4 Other Findings

To see if the 13 predictor variables used in this study could be reduced to a smaller set of latent variables, I conducted a factor analysis using an oblique rotation to determine the factors underlying these predictor variables. The measured variables included socioeconomic status (the sum of standardized parents' educational levels and standardized family annul income), high school rank, SAT/ACT score, Big Five dimensions, family-expectancy, family social support, family economic support, academic self esteem (self-expectancy), self-motivation, academic locus of control, sense of self, and self concept clarity. To make the results clear and easy to interpret, I conducted a scale-level (total scale scores) rather than an item-level (individual item scores) factor analysis.

The resulting factors loadings are reported in Table 3.11. Using a cutoff of .60 to interpret the higher-loading scales on each factor, I found that six factors emerged from the analysis. The factors were labeled conscientiousness, socioeconomic status, self-confidence, extraversion, openness, and family expectancy/social supports. I then standardized the measured variables belonging to each factor in order to create the factor scores and their 2-way and 3-way interactions.

Table 3.11 Factor Loadings for the Six Factors: Conscientiousness, Socioeconomic Status (SES), Extraversion, Openness, and Family Expectancy/ Social Supports

	Component					
Variables	**Factor 1**: Conscientious-ness	**Factor 2**: SES	**Factor 3**: Self-confidence	**Factor 4**: Extraversion	**Factor 5**: Openness	**Factor 6**: Family Exp. /Social Support
Conscientiousness	**0.87** [a]	-0.10	-0.47	-0.08	0.27	-0.13
C5: Self-Discipline	**0.84** [a]	-0.08	-0.42	0.11	0.13	0.01
C4: Achievement-Striving	**0.79** [a]	0.00	-0.48	-0.02	0.50	-0.25
Self-Motivation	**0.79** [a]	-0.06	-0.63	0.00	0.45	-0.15
C2: Orderliness	**0.79** [a]	-0.13	-0.10	-0.03	-0.09	-0.18
C3: Dutifulness	**0.71** [a]	-0.20	-0.44	-0.29	0.43	-0.31
C6: Cautiousness	**0.65** [a]	-0.24	-0.37	-0.51	0.02	-0.08
SES	-0.08	**0.83** [a]	0.01	-0.06	0.02	-0.10
High School RANK	-0.04	0.56	0.05	0.09	0.17	-0.10
Self Concept Clarity	0.44	-0.15	**-0.85** [b]	0.00	0.11	-0.17
Sense of Self	-0.43	0.05	**0.85** [b]	0.06	-0.24	0.28
Neuroticism	-0.17	0.02	**0.72** [b]	-0.14	-0.34	-0.08
Academic Self Esteem	0.30	0.10	**-0.70** [b]	-0.32	0.47	0.03
C1: Self-Efficacy	0.62	-0.01	**-0.66** [b]	-0.08	0.61	-0.30
Academic Locus of Control	-0.58	0.13	**0.62** [b]	0.20	-0.05	0.02
Extraversion	0.19	0.14	-0.43	**0.68** [a]	0.34	-0.09
SAT/ACT	-0.17	0.46	-0.16	-0.51	0.43	-0.01
Openness	0.11	0.23	-0.23	0.05	**0.81** [a]	-0.20
Agreeableness	0.42	-0.15	-0.40	0.06	0.43	-0.21
Family Expectancy	0.02	0.09	0.03	0.14	0.13	**-0.73** [b]
Family Social Support	0.34	0.10	-0.32	-0.29	0.19	**-0.65** [b]
Family Economic Support	-0.13	0.52	0.01	-0.03	-0.26	-0.54

Extraction Method: Principal Component Analysis.

Rotation Method: Oblimin with Kaiser Normalization.

[a] the variable underlies to the factor

[b] the variable underlies to the factor after reversed

Factor regressions were then conducted to predict students' university GPAs. All of the factor scores, as well as their 2-way and 3-way interactions, were entered into the multiple regression models. The results of these factor regressions are presented in Table 3.12. The overall omnibus model was significant, F (41, 335) = 1.79, R^2 = 18.0%, $p < .01$. In the omnibus model, Family Socioeconomic Status (SES: Factor 2; b = .158, t (335) = 3.40, $p < .001$, sr^2 = 2.8%), Self-confidence (Factor 3; b = .030, t (335) = 2.20, $p < .05$, sr^2 = 1.2%), Conscientiousness X Self-confidence (F1XF3; b = -.004, t (335) = -2.32, $p < .05$, sr^2 = 1.3%), SES X Openness (F2XF5; b = .125, t (335) = 2.50, $p < .05$, sr^2 = 1.5%), Openness X Family Expectancy/Social Supports (F5XF6; b = -.068, t (335) = -2.06, $p < .05$, sr^2 = 1.0%), and SES X Openness X Family Expectancy/Social Supports (F2XF5XF6; b = -.079, t (335) = -2.27, $p < .05$, sr^2 = 1.3%) were significantly predictors of university GPA, whereas Extraversion (Factor 4; b = -.093, t (335) = -1.92, p = .056, sr^2 = 0.9%) and SES X Self-confidence X Extraversion (F2XF3XF4; b = -.023, t (335) = -1.91, p = .057, sr^2 = 0.9%) were only marginally significant.

Table 3.12 Multiple Factor Regressions

Variables	***B***	***SE B***	***sr²***	
Factor 1	0.018	0.010	0.008	
Factor 2	0.158***	0.047	0.028	
Factor 3	0.030*	0.013	0.012	
Factor 4	-0.093[a]	0.048	0.009	R = .424**
Factor 5	-0.059	0.055	0.003	R^2= .180
Factor 6	0.021	0.032	0.001	*Adj.* R^2= .079
F1XF2	0.008	0.010	0.002	
F1XF3	-0.004*	0.002	0.013	
F1XF4	0.000	0.011	0.000	
F1XF5	0.001	0.010	0.000	
F1XF6	-0.003	0.007	0.000	
F2XF3	-0.012	0.013	0.002	
F2XF4	0.004	0.046	0.000	

Table 3.12 - continued

F2XF5	0.125 *	0.050	0.015
F2XF6	-0.016	0.029	0.001
F3XF4	0.002	0.013	0.000
F3XF5	0.013	0.014	0.002
F3XF6	-0.003	0.009	0.000
F4XF5	-0.052	0.048	0.003
F4XF6	0.006	0.033	0.000
F5XF6	-0.068 *	0.033	0.010
F1XF2XF3	0.003	0.002	0.007
F1XF2XF4	0.008	0.010	0.002
F1XF2XF5	-0.011	0.012	0.002
F1XF2XF6	0.005	0.007	0.001
F1XF3XF4	0.000	0.002	0.000
F1XF3XF5	0.001	0.002	0.000
F1XF3XF6	-0.001	0.001	0.002
F1XF4XF5	-0.012	0.010	0.003
F1XF4XF6	-0.002	0.007	0.000
F1XF5XF6	0.001	0.007	0.000
F2XF3XF4	-0.023 [b]	0.012	0.009
F2XF3XF5	0.001	0.015	0.000
F2XF3XF6	-0.001	0.010	0.000
F2XF4XF5	0.027	0.051	0.001
F2XF4XF6	0.041	0.035	0.003
F2XF5XF6	-0.079 *	0.035	0.013
F3XF4XF5	0.007	0.011	0.001
F3XF4XF6	0.004	0.007	0.001
F3XF5XF6	-0.001	0.009	0.000
F4XF5XF6	0.014	0.035	0.000
Intercept	2.873	0.046	

N = 377 *$p < .05$ **$p < .01$ ***$p < .001$ [a]$p = .056$ [b]$p = .057$

Factor 1: Conscientiousness
Factor 2: Socioeconomic Status (SES)
Factor 3: Self-confidence
Factor 4: Extraversion
Factor 5: Openness
Factor 6: Family Expectancy/Social Supports

3.4.1 "Main Effect" Predictors

The results indicated that Family Socioeconomic Status significantly predicted GPA in the positive direction, which means that high SES students had higher university GPAs than low SES students did. Self-confidence also positively predicted GPA, such that students who were more self-confident (i.e., those who know themselves well) believe that they have the ability to control their academic performance, and are emotionally stable rather than neurotic) had higher GPAs than students who were less self-confident. On the other hand, extraversion was marginally negatively related to GPA, suggesting that students who are sociable and reward-seeking may be drawn away from their studies into more immediately rewarding social activities.

3.4.2 Two-way Interaction Predictors

The analysis also revealed three significant two-way interactions. First, the interaction between conscientiousness and self-confidence (see Figure 3.5) showed that although conscientiousness positively predicted GPA for students with low self-confidence, it was not a significant predictor for students whose level of self-confidence was high. The form of this interaction suggests that a relatively high level of conscientiousness may compensate for a relatively low level of self-confidence in achieving higher GPA scores, but that conscientiousness has no influence on GPA for students with relatively high levels of self-confidence. To the extent that high self-confidence is based on previous academic success, a "ceiling effect" for academic performance might help to explain why conscientiousness has little or no effect on the GPAs of self-confident students.

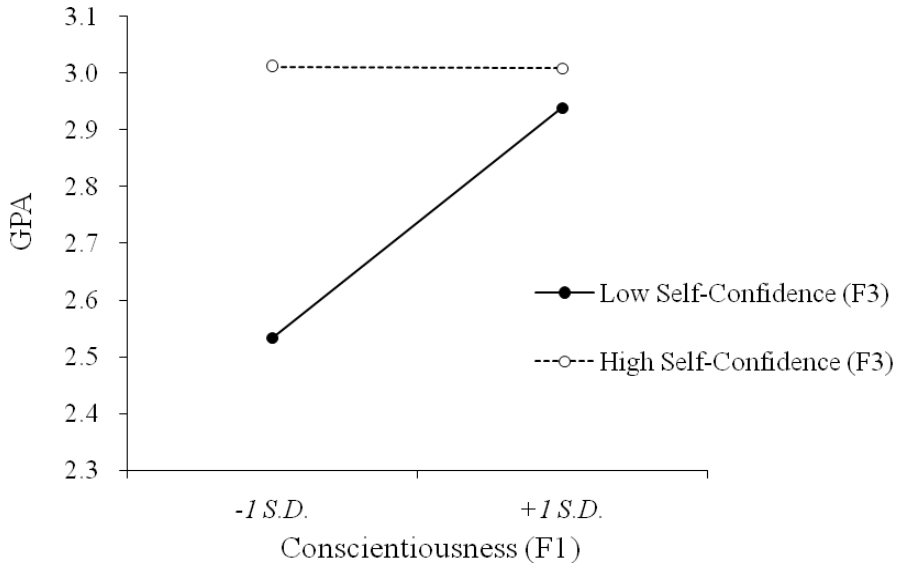

Figure 3.5 Interaction between Conscientiousness (F1) and Self-confidence (F3) on GPA.

Second, there was a significant interaction between SES and Openness (see Figure 3.6), which showed that openness to experience negatively predicted GPA for students who were low in SES, but was positively related to GPA for students who were high in SES. The form of this interaction suggests that SES is a moderator of the relation between openness to experience and GPA. Perhaps high SES families are able to provide most or all of the financial support needed for the students in these families to pursue their academic interests, therefore facilitating the students' good academic performance. In contrast, low SES families may not be able to provide this level of support, requiring the students in these families to work in outside jobs that take time away from their studies, thereby resulting in poorer academic performance.

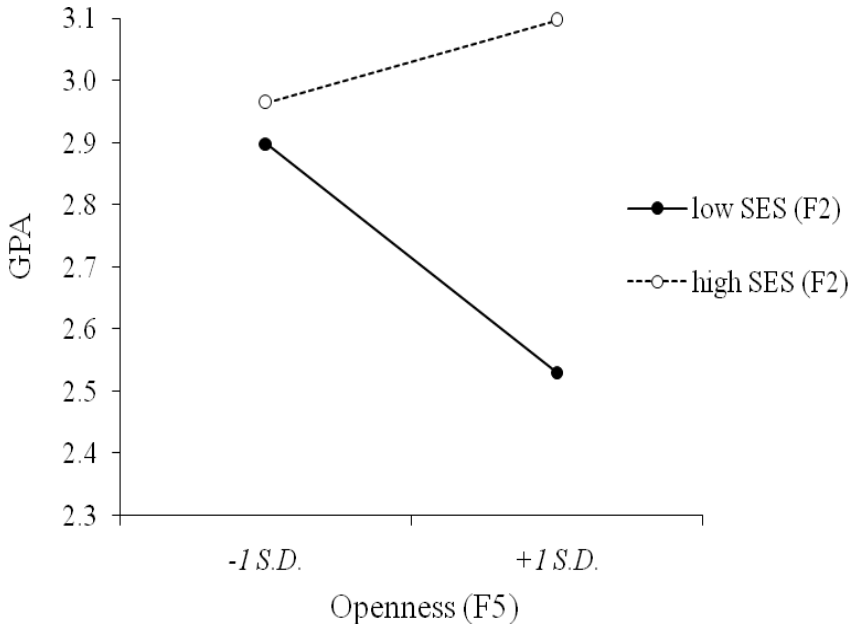

Figure 3.6 Interaction between Socioeconomic Status (SES; F2) and Openness (F5) on GPA.

The last two-way interaction occurred between Openness and Family Expectancy/Social Supports (see Figure 3.7). It revealed that openness positively influenced GPA for students who had low family expectancy and family social supports, but that openness negatively predicted GPA for students who had high family expectancy/social supports. The form of this interaction suggests that high family academic expectancy and family social supports might serve as a stressor that is experienced as "too much pressure." In response to this perception of "too much pressure," students with high openness may pursue interesting and fun things to do in non-academic areas (playing video games, text-messaging, watching movies, etc.) instead of exploring more academic interests, in order to escape from the stress. On the other hand, low family academic expectancy and low social supports eliminates this stressor, freeing students with high openness to experience to pursue their academic interest without feeling the need to escape from the pressure of high family expectancy and social support.

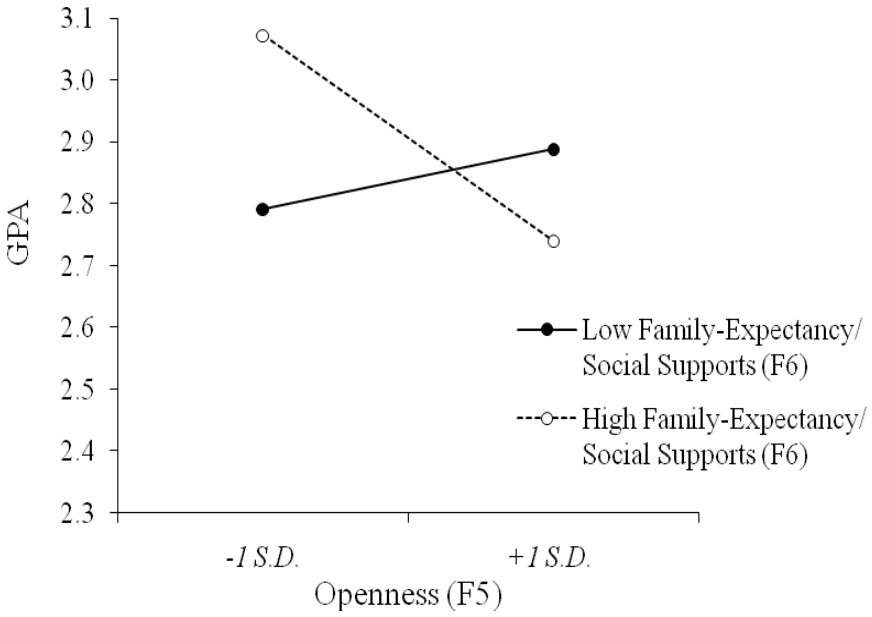

Figure 3.7 Interaction between Openness (F5) and Family-Expectancy/Social Supports (F6) on GPA.

3.4.3 Three-way Interaction Predictors

Finally, there were two three-interactions in the full model that was used to evaluate Hypothesis 1. The marginally significant three-way interaction among SES, self-confidence, and extraversion (see Figure 3.8) suggests that either high SES or high self-confidence (or both of these) can compensate for the generally negative influence of high extraversion on GPA. However, when the student's SES and self-confidence are both low, the negative link between extraversion and GPA is quite pronounced.

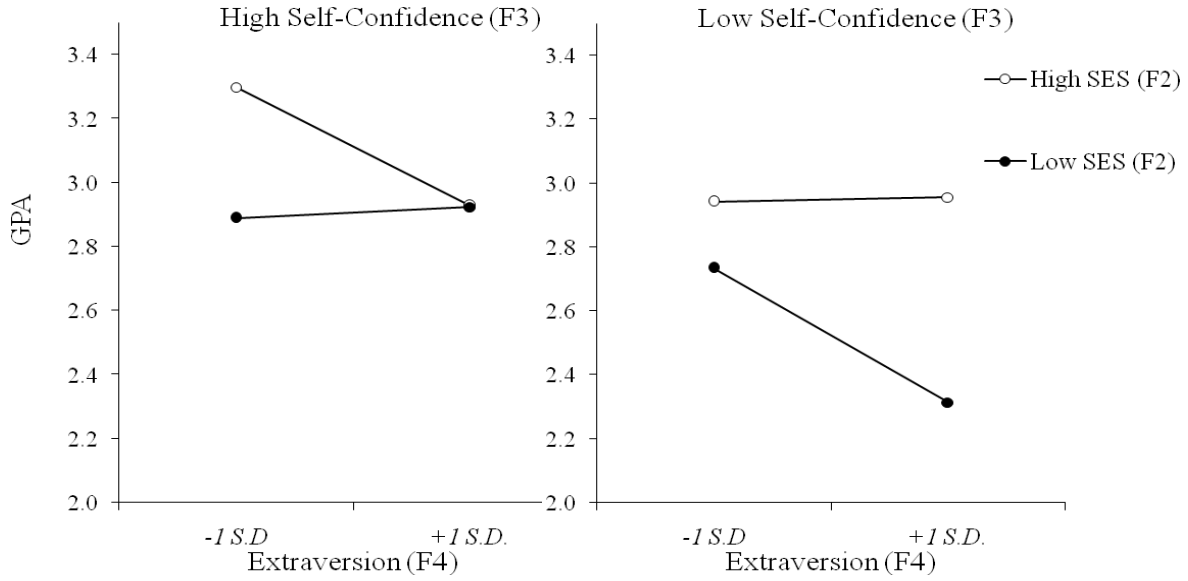

Figure 3.8 Interactions among Socioeconomic Status (SES; F2), Self-confidence (F3), and Extraversion (F4) on GPA.

A second significant 3-way interaction among SES, Openness, and Family Expectancy/Social Supports (see Figure 3.9) indicates that openness to experience positively predicted GPA only for those students whose SES was high but whose family expectancy were low. Otherwise, openness was negatively associated with GPA. The form of this interaction suggests that openness to experience facilitates academic performance for the students with high SES but low family expectancy/social supports, which means that if high SES families have low expectations for their students' performance in school, the students may experience little grade pressure from their family and can channel their openness to experience into more academic interests without much fear of failure. The result may be increased involvement in their majors and higher GPAs.

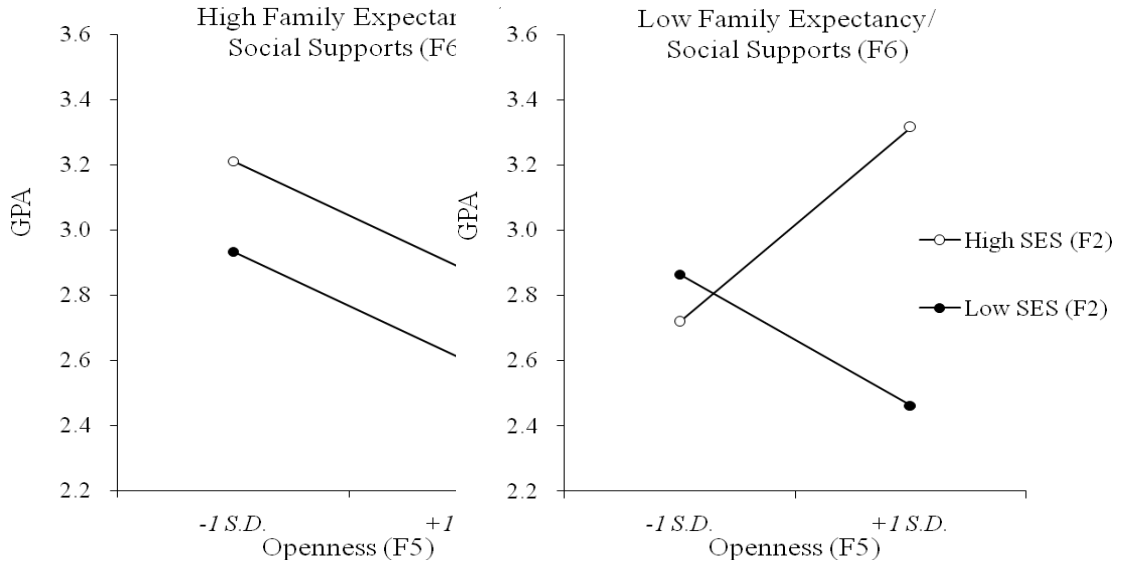

Figure 3.9 Interactions among Socioeconomic Status (SES; F2), Openness (F5), and Family-Expectancy/Social Supports (F6) on GPA.

3.4.4 Summary of the Findings for the Model Using the Latent Factors as the Predictors

In sum, SES and self-confidence were positively associated with university GPA, but extraversion was negatively correlated with GPA. A significant conscientiousness X self-confidence interaction indicated that conscientiousness positively predicted GPA when self-confidence was low, but not when self-confidence was high. An interaction of SES X Openness indicated that, for students with low SES, their level of openness negatively correlated with GPA, whereas for students with high SES, their level of openness slightly positively correlated with GPA. A third two-way interaction, of Openness X Family Expectancy/Social Support, was also significant. It indicated that if the students had high family expectancy/social support, their level of openness to experience negatively predicted their GPA. However, for students with low family expectancy/social supports, their level of openness to experience positively predicted their overall GPA slightly.

A three-way interaction of SES X Self-confidence X Extraversion revealed that either high SES or high self-confidence (or both) compensated for the generally negative influence of

high extraversion on GPA. However, when students' SES and self-confidence were both low, extraversion had a pronounced negative influence on GPA. Another three-way interaction of SES X Openness X family-expectancy/social supports revealed that although openness negatively predicted GPA in most situations, openness positively predicted GPA only when the students were from high SES families but had low family-expectancy/social supports.

CHAPTER 4

DISCUSSION

4.1 Tests of the Research Hypothesis

4.1.1 Findings relevant to Hypothesis 1

The major purpose of the present study was to determine whether the broader construct of conscientiousness remains a significant predictor of university GPA after controlling for the effects of more specific and "essential" aspects of conscientiousness (achievement-striving, perseverance, and self-control). In other words, the study examined the degree to which a set of predictors relevant to achievement-striving, perseverance, and self-control were sufficient to predict university GPA on their own, with little or no incremental predictive validity associated with the residual variance in the broader construct of conscientious. Hypothesis 1 was proposed to address this question.

In Hypothesis 1, I predicted that, after controlling for the effects of gender, high school rank, SAT/ACT score, and the other predictors included in the multiple regression equation, the variables of self-motivation, academic locus of control, family-expectancy, self-expectancy, and self-insight would all make unique contributions to the prediction of university GPA. Moreover, the broad-band measure of conscientiousness should no longer be a significant predictor of university GPA.

In its broadest outlines, Hypothesis 1 was confirmed. Conscientiousness was a significant predictor of GPA after controlling for SAT/ACT, high school rank, and gender—a result the replicates the findings of previous research: Conard (2006); Noftle & Robins (2007); Oswald et al. (2004); Wolfe & Johnson (1995); Wagerman & Funder, (2007). However, when the variables of self-motivation, academic locus of control, family-expectancy, self-expectancy, and self-insight were added to the regression equation in which SAT/ACT, high school rank,

gender, and the Big Five dimensions were controlled, the incremental predictive validity of the set of five additional predictors was significant, whereas conscientiousness was no longer significant as an individual predictor.

Still, of the five additional predictors, only academic locus of control and self-expectancy proved to be significant individual predictors in the overall model. It is interesting that these particular predictors are the ones that are the most closely allied with the social learning view espoused by Rotter (1966) and Bandura (1999). In fact, as noted previously, Bandura (1999) cited a study by Caprara, Barbaranelli, and Pastorelli (1998) which provides an empirical precedent for the current findings in showing that the social learning variables of academic locus of control and self-expectancy captured more of the unique variance in university GPA than did more traditional predictors such as self-motivation and conscientiousness. The previously cited studies relating academic locus of control to university GPA provide further evidence for the predictive utility of such measures (Findley & Cooper, 1983; Levy, 2007; Phares & Lamiell, 1975; Reininger, 2005; Shepherd et al., 2006; Trice, 1985; Trice et al., 1987).

It should be noted, however, that a more skeptical view of these findings can be taken. This view presumes that university students who have an internal academic locus of control and a high self-expectancy for academic success are, for the most part, people who have developed these beliefs because of their history of academic success during the grade school, middle school, and high school years. If these two predictor variables do nothing more than identify the smarter and more internally-controlled students, it is not too surprising that these students would go on to achieve higher university GPAs than their less intelligent and more externally-controlled counterparts.

From the practical standpoint of predicting GPA as an outcome variable, this alternative view might not present a serious concern. However, from a theoretical standpoint, this alternative view raises a valid question about whether the social learning variables of self-expectancy and academic locus of control have much theoretical value or whether they are

simply measures that summarize the students' previous academic performance. This same criticism should also apply to previous studies that have used similar variables as predictors of university GPA (e.g., Findley & Cooper, 1983; Levy, 2007; Phares & Lamiell, 1975; Rosenberg et al.,1995; Reininger, 2005; Re´gner and Loose, 2006; Shepherd et al., 2006; Trice, 1985; Trice et al., 1987; and Woo and Frank, 2000).

In contrast to the self-expectancy variable, it is important to note that family-expectancy was *not* a significant predictor of GPA. Although previous studies found that parents' expectations predicted primary school children's performances in school (Feagans, Merriwether, & Haldance, 1991; Okagaki & Frensch, 1998), I found no evidence in the present study that college students' family-expectancy influenced their GPA. A possible explanation for this difference is that, because the participants were college students, many of them no longer live at home and family expectations may have begun to play a lesser role in their lives. Therefore, family expectations may not be important enough to influence their behaviors or performances in college.

Another possible explanation is that there was a restriction of range for family expectancy, because the family expectancy for the student's success in college is typically high. Because the expenditure is enormous for sending a child to college, if the families do so, they expect them to do their best and do not squander their investment. Examining the data, the total family-expectancy scores could range from 4 to 16; however, the mean score was 14.14 and the standard deviation was 1.90. These data suggest that there may indeed have been a restriction of the range of the family-expectancy variable. This restriction of range might be partly explained in terms of the selection criteria that are typically applied to students who seek admission to college.

Surprisingly, self-motivation was also not significant as a "main effect" predictor in the full regression model. The reason is that self-motivation and conscientiousness were highly correlated (r = .73), though not highly enough to be regarded as redundant predictors for which

multicollinearity is a problem. Because self-motivation was not as strong a predictor as conscientiousness in the prediction of academic performance, it did not make a significant independent contribution as a unique, "main effect" predictor variable. On the other hand, the variance that is to unique to self-motivation was important as a "compensatory predictor": a relatively high level of self-motivation compensated for a relatively low level of conscientiousness in predicting university GPA, and vice versa. These data underscore the fact that that self-motivation and conscientiousness, though highly correlated, are *not* redundant predictors: the variance that is unique to each of them may be necessary but not sufficient contributors to university GPA.

Finally, the composite variable of self-insight was not a significant "main effect" predictor of university GPA either. This was not a surprising outcome, however, because having an accurate knowledge of oneself does not guarantee good grades in college. For example, a person can have an accurate understanding about a specific area of academic weakness (e.g., "I am not good at math") or about a more general academic deficit ("I'm just not college material"). However, self-insight should relevant to goal setting because individuals who have good self-insight should have a good sense of what major is right for them, whether they have the motivation and ability to succeed in it, and how much time and effort they will need to commit in order to graduate on time. This view of the expected role of self-insight will be discussed in regard to Hypothesis 3 below.

More surprisingly, I found that openness to experience was a significant *negative* predictor of university GPA after controlling for the effects of gender, high school rank, and SAT/ACT scores. The direction of this correlation was different from that found in previous research. In previous research, some investigators reported that openness to experience positively predicted academic performance (Barchard, 2003; Farsides & Woodfield, 2003; Gray & Watson, 2002), whereas others reported that openness to experience did not predict academic performance (Busato et al., 2000; Conard, 2006; Duff et al, 2004; Furnham &

Chamorro-Premuzic, 2004; Oswald et al., 2004; Wolfe & Johnson, 1995). Noting these inconsistent results, Trapmann, Hell, Hirn, and Schuler (2007) conducted meta-analyses to determine which of the Big Five traits are consistently correlated with academic success in college, and found that openness to experience was not a reliable "main effect" predictor of college students' academic success.

A similar outcome was found in studies conducted in the workplace. Griffin and Hesketh (2004) reported that openness to experience had a differential predictive validity that depended on what aspect of job performance was being measured. They used NEO-PI-R openness subscale and identified two factors underlying openness of experience, openness of internal experience (including fantasy, aesthetics, and feelings facets of openness) and openness of external experience (including actions, ideas, and values facets of openness). Griffin and Hesketh argued that openness of external experience was associated with job performance, whereas openness of internal experience might have an association with awareness of negative emotions and feelings.

In the present study, openness to experience was a significant negative "main effect" predictor of GPA, which means that the higher was the student's openness to experience, the lower was his or her GPA. To explain this outcome, it is necessary to determine what "openness to experience" is. Openness to experience (or, simply, openness) includes the concepts of imagination, artistic interest, emotionality, adventurousness, intellect, and liberalism (Goldberg). People who are high in openness have more fantasies and daydreams about life and greater interest in art. They are also more likely than people low in openness to experience emotions and feelings deeply, try new activities and food, consider new ideas, and adopt unconventional values. On the other hand, people who are low in openness are more closed to experience, tend to obey conventions and traditions, prefer following familiar routines rather than trying new experiences, and have more limited interests. They also tend to be more conservative and more practical.

These differences could help to explain why openness to experience was negatively associated with university GPA in the present study. Students who are open to experience might pursue a variety of interests and spend time and energy on these other interests rather than studying. Contrariwise, students who are closed to experience might act like conventional college students and focus primarily on their studies, thereby achieving better grades.

In summary, the data relevant to Hypothesis 1 revealed that conscientiousness was a significant predictor of GPA, after controlling for SAT/ACT, high school rank, and gender. Nevertheless, when the five more specific and "essential" predictors (self-motivation, academic locus of control, family-/self-expectancy, and self-insight) were added, conscientiousness was no longer significant. However, of the five additional predictors only academic locus of control and self-expectancy were significant, whereas self-motivation, family-expectancy, and self-insight were not. In addition, openness was negatively predictive to university GPA after controlling gender, high school rank, SAT/ACT score. Finally, the SAT/ACT score proved to be the strongest unique predictor of university GPA, a frequently-replicated finding that may say little more than that past performance is the best (single) predictor of future performance.

4.1.2 Findings relevant to Hypothesis 2

Hypothesis 2 predicted that relatively high conscientiousness would compensate for the effect of relatively low self-motivation, and that relatively high self-motivation would compensate for the effect of relatively low conscientiousness in predicting university GPA. This hypothesis was confirmed. The interaction of conscientiousness and self-motivation was significant and took the predicted form. In addition, when I examined the simple slopes of conscientiousness for high, medium, and low self-motivation groups, I found that conscientiousness positively predicted GPA for students with low self-motivation but not for students with high or medium self-motivation. Moreover, when I examined the simple slopes of self-motivation for high, medium, and low conscientiousness groups, I found that that self-motivation positively predicted GPA for students with low conscientiousness but not high or medium conscientiousness.

In other words, a relatively high level of self-motivation compensated for a relatively low level of conscientiousness, and vice versa. Although these two predictors are themselves highly correlated (r = .73, p < .0001), they each appear to contain unique variance that is predictive of higher GPA scores when the level of the other predictor is low. To the best of my knowledge, this "mutually compensatory" relationship has not been demonstrated before.

4.4.3 Findings relevant to Hypothesis 3

In *Hypothesis 3*, I predicted that self-expectancy would interact with self-insight to predict university GPA; specifically, students with good self-insight would have a more realistic self-expectancy that would predict their GPA quite well, whereas students with poor self-insight would have a more unrealistic expectancy that would predict their GPA less well. However, the results did not support this prediction. Although self-expectancy interacted with self-insight to predict GPA, the interaction took a different form from the one I had predicted. Unfortunately, there is no obvious, or even straightforward, interpretation of this form of the interaction, which revealed that, for students who have high self-expectancy, self-insight was negatively correlated with GPA. Unless the interaction can be replicated in the same form, it may be premature to speculate any further about it.

4.2 Other Findings

The factor analyses revealed there were six latent factors underlying the predictor variables in this study. These broad factors were conscientiousness, family socioeconomic status (SES), self-confidence, extraversion, openness to experience, and family-expectancy/family social supports. Using these six factors and their 2- and 3-way interactions to predict university students' GPAs in a multiple regression model, I found that SES, self-confidence, extraversion, conscientiousness X self-confidence, SES X openness, openness X family-expectancy/social supports, SES X self-confidence X extraversion, and SES X openness X family-expectancy/social supports were all significantly associated with university GPA.

Several previous studies have revealed that higher SES is associated with better academic performance (Caldas & Bankston, 1997; Hecht & Greenfield, 2001; Ma, 2000; Okpala & Gillis-Olion, 1995; Okpala, Okpala, & Smith, 2001). This effect was replicated in the present study, in which SES was measured as a composite of parents' educational levels and family annual incomes. SES could affect GPA in at least three ways: through greater financial support that enables the student to spend more time on his or her studies, through more parental involvement in encouraging their academic pursuits (Georgiou, 1999), and through the heritability of the student's IQ, one manifestation of which is family SES (Stennett, 1969; Turkheimer, Haley, Waldron, D'Onofrio, & Gottesman, 2003).

The results of the latent factor multiple regression analysis further revealed that SES and openness to experience interacted to predict university GPA. For students with low SES, their openness to experience correlated negatively with their GPA. However, for students with high SES, their openness to experience correlated slightly positively with their GPA. A possible explanation is that, if family SES is linked to the heritability of the student's IQ, as suggested above, students from SES families may be more intellectually inclined than students from low SES families. If so, it would be reasonable to expect that high SES students would channel their openness to experience into intellectual pursuits, whereas low SES students would less likely to do that.

In addition, there was an interaction of openness and family expectancy/social supports. For students with high family expectancy/social supports, their openness negatively predicted their GPAs; however, for students with low family-expectancy, their openness slightly positively predicted GPA. Complicating things further, I also found a three-way interaction of SES, openness, and family expectancy/social supports. It still revealed that openness was negatively associated with GPA for students with high family expectancy/social supports, regardless of their SES levels. However, for students with low family expectancy/social supports, their

openness was *positively* associated with GPA if their SES was high, but was still negatively associated with GPA if their SES was low.

Why did openness only positively predict university GPA for high SES students whose family expectancy and family social supports were both low? One possible explanation is that high SES parents who have high expectations about the students' academic performance may put a lot of pressure on these students. If these students are open to experience, they may escape their family's high academic expectations by pursuing more exciting and enjoyable activities instead than studying. On the other hand, high SES parents who do not expect their students to perform well in school may put relatively little pressure on them to succeed academically. These students therefore experience little pressure to succeed and are free to channel their openness to experience into their academic interests. This interpretation is consistent with Schutz and Davis's (2000) argument that people who view an event as threatening may lack the focus to prepare themselves for it, whereas people who view the same event as a challenge may devote the time and energy needed to prepare themselves sufficiently.

Of the variables tested in the latent factor model, self-confidence was a composite of sense of self, self concept clarity, academic self esteem, self-efficacy, academic locus of control (reversed), and neuroticism (reversed). Self-confidence represented the degree in which the individual has good self-knowledge and feels efficacious, confident, and emotionally stable. The results for this variable showed that students with strong self-confidence obtained better grades than those with weak self-confidence. A similar result has been found in previous studies. Specifically, Levitt, Guacci-Franco, and Levitt (1994) and Tavani and Losh (2003) reported that students with high self-confidence had better academic performance than did those with low self-confidence.

Why was self-confidence positively associated with university GPA? Students with high self-confidence believe they can achieve good academic performance, and this belief may justify investing their time in studying in order to get good grades. Another reason, as noted

above, is that self-confidence reflects the history of individuals' previous academic successes. If students earned good grades in middle school and high school, they are more likely to have developed strong self-confidence about their academic abilities. This means that self-confidence may predict university GPA because it is essentially a proxy measure of the student's previous academic performance (and academic ability). In other words, the student's high grades are caused by their academic abilities, and not by their high levels of self-confidence *per se*.

In the latent variable model, self-confidence was not just a significant "main effect" predictor; it also interacted with conscientiousness to predict students' GPAs. For students with high self-confidence, their conscientiousness did not influence their GPAs; however, for students with low self-confidence, their conscientiousness was positively related to their GPAs: the more conscientious they were, the higher GPA they got. That is, high level of conscientiousness could compensate for low level of self-confidence, and high level of self-confidence could also compensate for a low level of conscientiousness. However, if the students' self-confidence and conscientiousness both were low, their grade-point averages suffered greatly. These findings are important in suggesting that, if self-confidence is indeed a proxy measure of the student's academic ability, students with relatively low ability can still do well in college if they apply a high level of conscientiousness to their studies.

In the latent variable model, as in the earlier models, extraversion was negatively associated with GPA. This finding replicates a previous finding reported by Furnham and Chamorro-Premuzic (2004). Because extraverts are highly sociable and highly sensitive to immediate rewards (Garon & Moore, 2006; Hooper, Luciana, Wahlstrom, Conklin, & Yarger, 2008), they may be more easily distracted away from their studies and into more immediately rewarding social activities than introverts are, with a consequent effect on their grades.

Furthermore, there was a 3-way interaction of SES, self-confidence, and extraversion. It revealed that either high self-confidence or high SES (or both) can compensate for the

negative influence of extraversion on GPA. However, when students' SES and self-confidence were both low, their GPA suffered the most; whereas when students' SES and self-confidence were both high, their GPA benefited greatly. A possible explanation is that because high self-confident students have better academic learning skills and can justify investing their time in studying well, the more extraverted of these students may choose to socialize in the library and in other academic settings rather than in off-campus locations that would distract them from their studies. Therefore, even if students with high extraversion prefer spending more time in social activities, their high self-confidence based on previous academic success leads them to express their extraversion that contributes to, rather than detracts from their university GPA.

The same pattern is presented in the second three-way interaction with regard to high SES. Students with high SES may have greater financial support and more parental involvement to encourage their academic pursuits. Extraverts with high SES may, therefore, have sufficient resources that enable them to pursue academics full-time without having to work to pay for their education or to supplement their income. They can devote more energy to studying and more time to concentrate on their major. Therefore, even if students with high extraversion prefer spending more time in social activities, their high SES may offset the negative consequences caused by high extraversion.

Thus, either high self-confidence or high SES can compensate for the negative influence on GPA caused by high extraversion. However, students with both low self-confidence and low SES do not have these resources to remedy the "harm" caused by high extraversion, often resulting in lower GPA scores.

4.3 Conclusion

The present findings give us a good sense of what kinds of personality and social context variables are related as "main effect" predictors to university student's academic success, and they also suggest how those certain of these variables may interact with each other to predict university GPA.

First, and relevant to Hypothesis 1, although academic locus of control and self-expectancy (academic self-esteem) are associated with university GPA even when the effect of conscientiousness is statistically controlled, it is not clear whether these measures are of any genuine theoretical interest or whether they are simply proxy measures that reflect the students' previous level of academic success.

Second, and relevant to Hypothesis 2, the present findings reveal that although conscientiousness is an important predictor of GPA, a high level of self-motivation can compensate for a low level of conscientiousness (and vice versa).

Third, and relevant to Hypothesis 3, self-expectancy interacted with self-insight to predict university students' GPA. The form of this interaction was unexpected, however. It revealed that self-expectancy positively predicted GPA regardless of their level of self-insight. If self-expectancy was based on the student's previous level of academic performance, my more abstract measure of self-insight might have been irrelevant in light of the relatively well-defined performance expectancies that the students had developed based on their previous academic performance.

Fourth, the current results also revealed a number of three-way interaction effects that were unexpected and difficult to interpret in any straightforward way. It might make sense to wait and see which, if any, of these effects will replicate before speculating too much about their interpretation and potential importance.

4.4 Profiles of Prototypic High versus Low GPA Students

Because of the large number of predictors I examined in this study, I am able to use the data to sketch profiles of the prototypic student with a higher GPA and of the prototypic student with a lower GPA. The prototypic student with a higher GPA tends to be introverted, closed to experience, self-confident, from a high SES family, and has an internal academic locus of control and a high self-expectancy. In contrast, the prototypic student with lower GPA tends to be extraverted, open to experience, lower in self-confidence, from a low SES family, and has a

more external academic locus of control and low a self-expectancy. As unique predictors, self-confidence, SES, self-expectancy, and internal academic locus of control are the factors facilitating university students' academic performance, whereas extraversion and openness to experience are the factors undermining students' academic performance. Ironically, when it comes to getting good grades at the University of Texas at Arlington, it doesn't pay to be too extraverted and too interested in trying new experiences.

It should be noted, however, that the effects of openness in the present study were different from those reported in previous studies. In previous research, some investigators reported that openness to experience was positively correlated with academic performance (Barchard, 2003; Farsides & Woodfield, 2003; Gray & Watson, 2002), whereas others reported that openness to experience was uncorrelated to academic performance (Busato et al., 2000; Conard, 2006; Duff et al, 2004; Furnham & Chamorro-Premuzic, 2004; Oswald et al., 2004; Trapmann et al., & Schuler, 2007; Wolfe & Johnson, 1995).

Because the relation between openness to experience and academic success is highly inconsistent across studies, it is probably time to shift our attention away from "main effects" and toward interaction effects in which openness to experience plays a role. Unfortunately, although there were such interaction effects in the present study, none of them lent itself to a compelling and straightforward interpretation. Still, the present findings are important in suggesting that the key to understanding the role of openness to experience may lie in its interaction with other variables and not in its influence as a "main effect" predictor. These interaction effects clearly deserve additional study, with the first step being to determine which of them can be replicated.

4.5 Future Research

I plan to follow up participants in this study until their graduation. The follow-up study will use the same predictor variables to predict an expanded set of outcomes: the number of times the participants change their majors, the number of semesters it takes them to graduate,

and whether or not they drop out of college before graduation. In addition, I plan to examine the participants' cumulative GPA for their whole college experience to determine how stable the present findings are across time.

Moreover, if we can identify certain specific behaviors (e.g. spending more time studying, more class preparation) by which personality traits affect GPA, we may be able to determine the processes by which individual difference/ social context variables are linked to academic performance. Additionally, by identifying those specific behaviors, educators may be better informed about how to help students avoid the dysfunctional behaviors (excessive partying, pursuit of non-academic interests) that undermine their academic performance and to encourage the behaviors which facilitate their academic attainment.

The present findings revealed that outside working time was negatively correlated with UTA students' GPA. However, Derous and Ryan (2008) found, more specifically, that "work-study interference," the intrapersonal role-conflicts between work and study, mediated the relationship between students' working time and well-being. Future research may be interested in applying the work-study interference scale to see if it mediates the relationship between students' working time and their academic performance. This mediated relationship would indicate that intrapersonal role-conflicts, rather than working time *per se*, significantly influence students' academic performance.

Finally, although the results of some previous studies have indicated that ethnicity (Derous & Ryan, 2008; Yang, 2008; Wang, 2008) influenced students' academic performance, Markus and Kitayama (2003) found a mismatch between culture and education level. They noted that, in America, middle-class parents focus on children's "self-direction," and their children usually are higher-educated than others from working-class contexts where their parents place a greater emphasis on "conforming to standards." As we know, self-direction is also an important value in individualistic cultures, whereas conforming to norms is a vital one in collectivistic cultures.

Because Markus and Kitayama (2003) found that characteristics in working-class contexts in the West are similar to those found in collectivistic cultures (i.e. interpersonal, social, and relational styles), and characteristics in middle-class contexts in the West are similar to those in the individualistic cultures (i.e. independent, efficacy, and autonomous), they proposed that there might be a miscorrelation between ethnicity and educational level because of the failure to consider socioeconomic status. In the future, I would like to investigate whether socioeconomic status is the mediator between ethnicity and academic performance to see if Markus and Kitayama's (2003) points can be supported.

4.6 Limitations of the Present Study

Two limitations of the present study should be noted. First, the family-expectancy variable might have had a very restricted range. Although the total scores on this variable ranged from 0 to 16, the mean was 14.14 and the standard deviation was 1.90. It can result in the problem of the restriction of range. In the future, it might be helpful to try to increase the variability on this measure, either by increasing the number of items or by making the rating scale more sensitive (i.e. use 7-point or 9-point Likert scale).

Second, because this was a correlational study, causal ordering is often indeterminate. For example, it is difficult to determine whether students' poor self-expectancy caused their current poor grades or whether their previous poor grades cause their current poor self-expectancy. There are two ways to help resolve the issue of casual ordering. First, by re-measuring the participants' personality traits at a later date, I could use the panel correlation technique (Cook & Campbell, 1979) to determine whether potential personality changes could significantly influence their GPA at the time. Second, if certain grade-relevant behaviors can be identified in relation to the personality traits (i.e. conscientious individuals are more likely to turn in their homework on time, spend more time in preparing exams, etc.), measuring these behavioral measures and assessing their role in meditational models may be a better way to

determine whether a causal relationship exists between students' personalities and their academic performance.

4.7 Practical Implications

The current study replicated the previous findings that extraversion is negatively associated with GPA (Furnham & Chamorro-Premuzic, 2004) whereas higher family SES is positively associated with university GPA (Caldas & Bankston, 1997; Hecht & Greenfield, 2001; Ma, 2000; Okpala & Gillis-Olion, 1995; Okpala, Okpala, & Smith, 2001), just as higher self-confidence is (Levitt, Guacci-Franco, and Levitt, 1994; Tavani & Losh, 2003).

The current study also replicated previous findings which showed that conscientiousness is a significant predictor of GPA after controlling for the effects of gender, SAT/ACT, and previous academic performance (Conard, 2006; Noftle & Robins, 2007; Oswald et al., 2004; Wolfe & Johnson, 1995; Wagerman & Funder, 2007). However, I found that academic locus of control and self-expectancy (academic self-esteem) account for much of the variance that has previously been attributed to the broader construct of conscientiousness as a predictor of university-level academic performance; and that high self-motivation can compensate for low conscientiousness and vice versa.

Though the negative link between openness to experience and GPA is inconsistent with the findings of previous studies (Barchard, 2003; Busato et al., 2000; Conard, 2006; Duff et al, 2004; Farsides & Woodfield, 2003; Furnham et al., 2004; Gray & Watson, 2002; Oswald et al., 2004; Trapmann et al., 2007; Wolfe & Johnson, 1995), I found that openness to experience interacted in complex and unexpected ways with other personality and social context variables.

The present findings suggest that introverts who come from high SES families and who have low openness to experience, high self-confidence, high self-expectancy, and an internal academic locus of control typical have higher university GPAs. Therefore, if colleges and universities use these individual difference variables as a secondary filter over and above the traditional predictors to select prospective students, they should be able to admit a greater

proportion of students who are more likely to be successful and receive their degrees. On the other hand, those students who are at greatest risk of not doing well academically—those who come from low SES families, are extraverts, open to experience, lacking in self-confidence, and who have low self-expectancy and an external academic locus of control—can be given appropriate interventions and tracked continually once they are admitted. Or, if necessary, they can be advised to alter their career path away from academia and pursue vocational training instead.

It is important to note, however, that some characteristics can remedy the negative influences of other characteristics on students' academic performance. For example, I found that high openness can be a facilitator of university students' academic performance when the students' SES is high but family expectancy is low. In addition, the negative influence of extraversion on GPA can be compensated for by high self-confidence or high SES. Thus, only students who have all the negative factors together may be at exceptionally high risk to fail in their university studies.

In summary, the findings of the present study indicate that certain individual personality variables and social context variables can predict university students' GPA, which is the primary measure of their academic performance. In the present sample, these individual personality and social context variables collectively accounted for 10.1% of the variance in GPA over and above gender and traditional measures of academic aptitude and previous academic performance (SAT/ACT scores and high school rank), which in this study accounted for 14.4% of the variance in university GPA.

By adding personality and social context variables to their selection models, university administrations should be able to increase the ratio of students who successfully complete their college education, with graduation rates potentially increasing from the current rate at UT-Arlington of 36.9% to as much as 62.8%. This estimate is based on the current UT-Arlington graduation rate, which was the rate of 2003 Fall freshman cohort graduating in 2007 (6–year

graduation rate) increasing 70.14% (the increased percentage caused by the individual difference personality and social context variables—10.1%—divided by the original percentage measured by the previous academic performance—14.4%).

APPENDIX A

SURVERY CONTENTS

Study Information	
Study Name	A Survey of Factors Relevant to the University Experience
Web Study	This study is an on-line survey administered by the system.
Pretest Restrictions	No Restrictions - [**View/Modify Restrictions**]
Duration	30 minutes
Timeslot Usage Limit	100 hours
Credits	0.5 credits
Researcher	Wen Cheng Email: **wenc@uta.edu**
Principal Investigator	**William Ickes, PhD**
Participant Sign-Up Deadline	24 hours before the survey is to be completed
Study Status	Not visible to participants -- [**Send a Request**] to make this study visible Inactive study (does not appear on list of available studies) Online (web) study administered by the system
IRB Approval Code	

Survey Introduction

This study takes the form of an on-line survey which you may now participate in. You will receive credit immediately upon completion of the survey. In this survey, you will be asked to provide information about your background, personal characteristics, and attitudes. With your permission, these data will later be linked with data about your university experience, such as the number of times you change your major, how many semesters you are enrolled at UT-Arlington while completing your degree, your overall academic performance, and so on. These data will be provided by the Office of Institutional Research Planning and Effectiveness and by the Office of Student Enrollment Services.

This on-line survey consists of a number of multiple-choice questions, and is divided into six sections. You must complete all sections in one sitting, as you are not allowed to resume the survey at another time from a point where you left off. While you are participating, your responses will be stored in a temporary holding area as you move through the sections, but they will not be permanently saved until you complete all sections and you are given a chance to review your responses.

NOTE: You will be automatically logged out after 30 minutes of inactivity, so please keep this in mind when completing this on-line survey.

Would you like to participate in the survey?

YES, Start Survey | No, Decline to Participate

Part 1: Personal Background Information

Listed below are questions for the Section. **Please provide a response for every question.**

1. Your 10 digital student ID number (which is on your student ID card and begins with 1000, ex:1000xxxxxx)

2. What is your gender?

O male
O female

3. What is your racial/ethnic background?

O White/ Anglo-American
O Black/African-American
O Asian
O Native American or Alaskan Native
O Native Hawaiian
O Pacific Islander
O Other/Multiracial

4. Which of the following best describes your father's (or legal guardian's) level of education?

O no high school diploma or GED
O a high school diploma or GED
O some college or university education but no degree
O a two-year degree from a community college or university
O a four-year (bachelor's) degree from a college or university
O a master's degree from a college or university
O a doctoral (Ph.D.) degree from a college or university

5. Which of the following best describes your mother's (or legal guardian's) level of education?

O no high school diploma or GED
O a high school diploma or GED
O some college or university education but no degree
O a two-year degree from a community college or university
O a four-year (bachelor's) degree from a college or university
O a master's degree from a college or university
O a doctoral (Ph.D.) degree from a college or university

6. In which of the following ranges is your family's [or your legal guardian's] total annual household income?

O less than $30,000
O $30,000 to $50,000
O $50,000 to $70,000
O $70,000 to $90,000
O $90,000 to $110,000
O $110,000 to $130,000
O more than $130,000

7. How many siblings do you have?

O none
O 1
O 2
O 3
O 4

O 5
O more than 5

8. What is your birth order in your family?

O I am an only child (no brothers or sisters).
O I am a first-born child who has one or more younger siblings.
O I am a middle-born child who has at least one older and one younger sibling.
O I am a last-born child who has one or more older siblings.

9. What is your age range?

O 16-18
O 19~21
O 22~24
O 25~27
O 28~30
O 31~33
O 34~36
O 37 or older

10. What year are you in?

O Freshman
O Sophomore
O Junior
O Senior

Why are you attending UT-Arlington?

11. To prepare for a career doing the kind of work I am interested in.

O strongly agree
O agree
O disagree
O strongly disagree

12. To satisfy the expectations of my family.

O strongly agree
O agree
O disagree
O strongly disagree

13. To enjoy the university experience and have a good time.

O strongly agree
O agree
O disagree
O strongly disagree

14. To expand my knowledge of the world and my place in it.

O strongly agree
O agree
O disagree
O strongly disagree

15. To put off entering the workforce for a few more years.

O strongly agree
O agree
O disagree
O strongly disagree

16. To put myself in the position to earn substantially more money than I could without a university degree.

O strongly agree
O agree
O disagree
O strongly disagree

17. To find a partner to share my life with.

O strongly agree
O agree
O disagree
O strongly disagree

Outside Work Commitment

18. How many hours per week do you spend working at an "outside job" while attending UT-Arlington?

O none
O less than 10 hours per week
O between 10-20 hours per week
O between 20-30 hours per week
O more 30-40 hours per week
O more than 40 hours per week

Family economic support

19. My parents provide financial assistance so that I can attend UT-Arlington and work toward completing my degree.

O strongly agree
O agree
O disagree
O strongly disagree

20. Without my parents' financial help, I wouldn't be able to get a university education.

O strongly agree
O agree
O disagree
O strongly disagree

21. My parents "foot the bill" for most of my expenses as a college student.

O strongly agree
O agree
O disagree
O strongly disagree

22. I have to pay for my own university education, without any financial support from family members. (This item measures self-provided economic support).

O strongly agree
O agree
O disagree
O strongly disagree

Family Social support

23. My family members encourage me in my studies here at UT-Arlington.

O strongly agree
O agree
O disagree
O strongly disagree

24. My family members often question what I'm doing here at UT-Arlington, and wonder if my being here is worth all the time, effort, and money it involves.

O strongly agree
O agree
O disagree
O strongly disagree

25. My family members often question the need for a university education.

O strongly agree
O agree
O disagree
O strongly disagree

26. My family members emphasize the value of a university education and help keep me motivated at times when I feel discouraged.

O strongly agree
O agree
O disagree
O strongly disagree

Family expectancy

27. My family members expect me to do well in my studies here at UT-Arlington.

O strongly agree
O agree
O disagree
O strongly disagree

28. My family members would be disappointed if I didn't do well in my studies here at UT-Arlington.

O strongly agree
O agree
O disagree
O strongly disagree

29. I feel that my family members expect me to perform well academically, even if they don't make a major issue of it.

O strongly agree
O agree
O disagree
O strongly disagree

30. My family members would be upset if I didn't make good grades in my university courses.

O strongly agree
O agree
O disagree
O strongly disagree

Part 2: The Big Five Inventory (BFI-44)

I see MYSELF as someone who…

1.Is talkative.

O	O	O	O	O
strongly disagree	disagree somewhat	neither agree nor disagree	agree somewhat	strongly agree

2. Tends to find fault with others.

O	O	O	O	O
strongly disagree	disagree somewhat	neither agree nor disagree	agree somewhat	strongly agree

3. Does a thorough job.

O	O	O	O	O
strongly disagree	disagree somewhat	neither agree nor disagree	agree somewhat	strongly agree

4. Is depressed, blue.

O	O	O	O	O
strongly disagree	disagree somewhat	neither agree nor disagree	agree somewhat	strongly agree

5. Is original, comes up with new ideas.

O	O	O	O	O
strongly disagree	disagree somewhat	neither agree nor disagree	agree somewhat	strongly agree

6. Is reserved.

O	O	O	O	O
strongly disagree	disagree somewhat	neither agree nor disagree	agree somewhat	strongly agree

7. Is helpful and unselfish with others.

O	O	O	O	O
strongly disagree	disagree somewhat	neither agree nor disagree	agree somewhat	strongly agree

8. Can be somewhat careless.

O	O	O	O	O
strongly disagree	disagree somewhat	neither agree nor disagree	agree somewhat	strongly agree

9. Is relaxed, handles stress well.

O	O	O	O	O
strongly disagree	disagree somewhat	neither agree nor disagree	agree somewhat	strongly agree

10. Is curious about many different things.

O	O	O	O	O
strongly disagree	disagree somewhat	neither agree nor disagree	agree somewhat	strongly agree

11. Is full of energy.

O	O	O	O	O
strongly disagree	disagree somewhat	neither agree nor disagree	agree somewhat	strongly agree

12. Starts quarrels with others.

O	O	O	O	O
strongly disagree	disagree somewhat	neither agree nor disagree	agree somewhat	strongly agree

13. Is a reliable worker.

O	O	O	O	O
strongly disagree	disagree somewhat	neither agree nor disagree	agree somewhat	strongly agree

14. Can be tense.

O	O	O	O	O
strongly disagree	disagree somewhat	neither agree nor disagree	agree somewhat	strongly agree

15. Is ingenious, a deep thinker.

O	O	O	O	O
strongly disagree	disagree somewhat	neither agree nor disagree	agree somewhat	strongly agree

16. Generates a lot of enthusiasm.

O	O	O	O	O
strongly disagree	disagree somewhat	neither agree nor disagree	agree somewhat	strongly agree

17. Has a forgiving nature.

O	O	O	O	O
strongly disagree	disagree somewhat	neither agree nor disagree	agree somewhat	strongly agree

18. Tends to be disorganized.

O	O	O	O	O
strongly disagree	disagree somewhat	neither agree nor disagree	agree somewhat	strongly agree

19. Worries a lot.

O	O	O	O	O
strongly disagree	disagree somewhat	neither agree nor disagree	agree somewhat	strongly agree

20. Has an active imagination.

O	O	O	O	O
strongly disagree	disagree somewhat	neither agree nor disagree	agree somewhat	strongly agree

21. Tends to be quiet.

O	O	O	O	O
strongly disagree	disagree somewhat	neither agree nor disagree	agree somewhat	strongly agree

22. Is generally trusting.

O	O	O	O	O
strongly disagree	disagree somewhat	neither agree nor disagree	agree somewhat	strongly agree

23. Tends to be lazy.

O	O	O	O	O
strongly disagree	disagree somewhat	neither agree nor disagree	agree somewhat	strongly agree

24. Is emotionally stable, not easily upset.

O	O	O	O	O
strongly disagree	disagree somewhat	neither agree nor disagree	agree somewhat	strongly agree

25. Is inventive.

O	O	O	O	O
strongly disagree	disagree somewhat	neither agree nor disagree	agree somewhat	strongly agree

26. Has an assertive personality.

O	O	O	O	O
strongly disagree	disagree somewhat	neither agree nor disagree	agree somewhat	strongly agree

27. Can be cold and aloof.

O	O	O	O	O
strongly disagree	disagree somewhat	neither agree nor disagree	agree somewhat	strongly agree

28. Perseveres until the task is finished.

O	O	O	O	O
strongly disagree	disagree somewhat	neither agree nor disagree	agree somewhat	strongly agree

29. Can be moody.

O	O	O	O	O
strongly disagree	disagree somewhat	neither agree nor disagree	agree somewhat	strongly agree

30. Values artistic, aesthetic experiences.

O	O	O	O	O
strongly disagree	disagree somewhat	neither agree nor disagree	agree somewhat	strongly agree

31. Is sometimes shy, inhibited.

O	O	O	O	O
strongly disagree	disagree somewhat	neither agree nor disagree	agree somewhat	strongly agree

32. Is considerate and kind to almost everyone.

O	O	O	O	O
strongly disagree	disagree somewhat	neither agree nor disagree	agree somewhat	strongly agree

33. Does things efficiently.

O	O	O	O	O
strongly disagree	disagree somewhat	neither agree nor disagree	agree somewhat	strongly agree

34. Remains calm in tense situations.

O	O	O	O	O
strongly disagree	disagree somewhat	neither agree nor disagree	agree somewhat	strongly agree

35. Prefers work that is routine.

O	O	O	O	O
strongly disagree	disagree somewhat	neither agree nor disagree	agree somewhat	strongly agree

36. Is outgoing, sociable.

O	O	O	O	O
strongly disagree	disagree somewhat	neither agree nor disagree	agree somewhat	strongly agree

37. Is sometimes rude to others.

O	O	O	O	O
strongly disagree	disagree somewhat	neither agree nor disagree	agree somewhat	strongly agree

38. Makes plans and follows through with them.

O	O	O	O	O
strongly disagree	disagree somewhat	neither agree nor disagree	agree somewhat	strongly agree

39. Gets nervous easily.

O	O	O	O	O
strongly disagree	disagree somewhat	neither agree nor disagree	agree somewhat	strongly agree

40. Likes to reflect, play with ideas.

O	O	O	O	O
strongly disagree	disagree somewhat	neither agree nor disagree	agree somewhat	strongly agree

41. Has few artistic interests.

O	O	O	O	O
strongly disagree	disagree somewhat	neither agree nor disagree	agree somewhat	strongly agree

42. Likes to cooperate with others.

O	O	O	O	O
strongly disagree	disagree somewhat	neither agree nor disagree	agree somewhat	strongly agree

43. Is easily distracted.

O	O	O	O	O
strongly disagree	disagree somewhat	neither agree nor disagree	agree somewhat	strongly agree

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

O	O	O	O	O
strongly disagree	disagree somewhat	neither agree nor disagree	agree somewhat	strongly agree

Part 3: Conscientiousness Subscale of IPIP-NEO Scale (Conscientiousness)

I am the person who...

1. Complete tasks successfully.

O	O	O	O	O
strongly disagree	disagree somewhat	neither agree nor disagree	agree somewhat	strongly agree

2. Excel in what I do

O	O	O	O	O
strongly disagree	disagree somewhat	neither agree nor disagree	agree somewhat	strongly agree

3. Handle tasks smoothly.

O	O	O	O	O
strongly disagree	disagree somewhat	neither agree nor disagree	agree somewhat	strongly agree

4. Am sure of my ground.

O	O	O	O	O
strongly disagree	disagree somewhat	neither agree nor disagree	agree somewhat	strongly agree

5. Come up with good solutions

O	O	O	O	O
strongly disagree	disagree somewhat	neither agree nor disagree	agree somewhat	strongly agree

6. Know how to get things done.

O	O	O	O	O
strongly disagree	disagree somewhat	neither agree nor disagree	agree somewhat	strongly agree

7. Misjudge situations.

O	O	O	O	O
strongly disagree	disagree somewhat	neither agree nor disagree	agree somewhat	strongly agree

8. Don't understand things.

O	O	O	O	O
strongly disagree	disagree somewhat	neither agree nor disagree	agree somewhat	strongly agree

9. Have little to contribute.

O	O	O	O	O
strongly disagree	disagree somewhat	neither agree nor disagree	agree somewhat	strongly agree

10. Don't see the consequences of things.

O	O	O	O	O
strongly disagree	disagree somewhat	neither agree nor disagree	agree somewhat	strongly agree

11. Like order.

O	O	O	O	O
strongly disagree	disagree somewhat	neither agree nor disagree	agree somewhat	strongly agree

12. Like to tidy up.

O	O	O	O	O
strongly disagree	disagree somewhat	neither agree nor disagree	agree somewhat	strongly agree

13. Want everything to be "just right."

O	O	O	O	O
strongly disagree	disagree somewhat	neither agree nor disagree	agree somewhat	strongly agree

14. Love order and regularity.

O	O	O	O	O
strongly disagree	disagree somewhat	neither agree nor disagree	agree somewhat	strongly agree

15. Do things according to a plan.

O	O	O	O	O
strongly disagree	disagree somewhat	neither agree nor disagree	agree somewhat	strongly agree

16. Often forget to put things back in their proper place.

O	O	O	O	O
strongly disagree	disagree somewhat	neither agree nor disagree	agree somewhat	strongly agree

17. Leave a mess in my room.

O	O	O	O	O
strongly disagree	disagree somewhat	neither agree nor disagree	agree somewhat	strongly agree

18. Leave my belongings around.

O	O	O	O	O
strongly disagree	disagree somewhat	neither agree nor disagree	agree somewhat	strongly agree

19. Am not bothered by messy people.

O	O	O	O	O
strongly disagree	disagree somewhat	neither agree nor disagree	agree somewhat	strongly agree

20. Am not bothered by disorder.

O	O	O	O	O
strongly disagree	disagree somewhat	neither agree nor disagree	agree somewhat	strongly agree

21. Try to follow the rules.

O	O	O	O	O
strongly disagree	disagree somewhat	neither agree nor disagree	agree somewhat	strongly agree

22. Keep my promises.

O	O	O	O	O
strongly disagree	disagree somewhat	neither agree nor disagree	agree somewhat	strongly agree

23. Pay my bills on time.

O	O	O	O	O
strongly disagree	disagree somewhat	neither agree nor disagree	agree somewhat	strongly agree

24. Tell the truth.

O	O	O	O	O
strongly disagree	disagree somewhat	neither agree nor disagree	agree somewhat	strongly agree

25. Listen to my conscience.

O	O	O	O	O
strongly disagree	disagree somewhat	neither agree nor disagree	agree somewhat	strongly agree

26. Break rules.

O	O	O	O	O
strongly disagree	disagree somewhat	neither agree nor disagree	agree somewhat	strongly agree

27. Break my promises.

O	O	O	O	O
strongly disagree	disagree somewhat	neither agree nor disagree	agree somewhat	strongly agree

28. Get others to do my duties.

O	O	O	O	O
strongly disagree	disagree somewhat	neither agree nor disagree	agree somewhat	strongly agree

29. Do the opposite of what is asked.

O	O	O	O	O
strongly disagree	disagree somewhat	neither agree nor disagree	agree somewhat	strongly agree

30. Misrepresent the facts.

O	O	O	O	O
strongly disagree	disagree somewhat	neither agree nor disagree	agree somewhat	strongly agree

31. Go straight for the goal.

O	O	O	O	O
strongly disagree	disagree somewhat	neither agree nor disagree	agree somewhat	strongly agree

32. Work hard.

O	O	O	O	O
strongly disagree	disagree somewhat	neither agree nor disagree	agree somewhat	strongly agree

33. Turn plans into actions.

O	O	O	O	O
strongly disagree	disagree somewhat	neither agree nor disagree	agree somewhat	strongly agree

34. Plunge into tasks with all my heart.

O	O	O	O	O
strongly disagree	disagree somewhat	neither agree nor disagree	agree somewhat	strongly agree

35. Do more than what's expected of me.

O	O	O	O	O
strongly disagree	disagree somewhat	neither agree nor disagree	agree somewhat	strongly agree

36. Set high standards for myself and others.

O	O	O	O	O
strongly disagree	disagree somewhat	neither agree nor disagree	agree somewhat	strongly agree

37. Demand quality.

O	O	O	O	O
strongly disagree	disagree somewhat	neither agree nor disagree	agree somewhat	strongly agree

38. Am not highly motivated to succeed.

O	O	O	O	O
strongly disagree	disagree somewhat	neither agree nor disagree	agree somewhat	strongly agree

39. Do just enough work to get by.

O	O	O	O	O
strongly disagree	disagree somewhat	neither agree nor disagree	agree somewhat	strongly agree

40. Put little time and effort into my work.

O	O	O	O	O
strongly disagree	disagree somewhat	neither agree nor disagree	agree somewhat	strongly agree

41. Get chores done right away.

O	O	O	O	O
strongly disagree	disagree somewhat	neither agree nor disagree	agree somewhat	strongly agree

42. Am always prepared.

O	O	O	O	O
strongly disagree	disagree somewhat	neither agree nor disagree	agree somewhat	strongly agree

43. Start tasks right away.

O	O	O	O	O
strongly disagree	disagree somewhat	neither agree nor disagree	agree somewhat	strongly agree

44. Get to work at once.

O	O	O	O	O
strongly disagree	disagree somewhat	neither agree nor disagree	agree somewhat	strongly agree

45. Carry out my plans.

O	O	O	O	O
strongly disagree	disagree somewhat	neither agree nor disagree	agree somewhat	strongly agree

46. Find it difficult to get down to work.

O	O	O	O	O
strongly disagree	disagree somewhat	neither agree nor disagree	agree somewhat	strongly agree

47. Waste my time.

O	O	O	O	O
strongly disagree	disagree somewhat	neither agree nor disagree	agree somewhat	strongly agree

48. Need a push to get started.

O	O	O	O	O
strongly disagree	disagree somewhat	neither agree nor disagree	agree somewhat	strongly agree

49. Have difficulty starting tasks

O	O	O	O	O
strongly disagree	disagree somewhat	neither agree nor disagree	agree somewhat	strongly agree

50. Postpone decisions.

O	O	O	O	O
strongly disagree	disagree somewhat	neither agree nor disagree	agree somewhat	strongly agree

51. Avoid mistakes.

O	O	O	O	O
strongly disagree	disagree somewhat	neither agree nor disagree	agree somewhat	strongly agree

52. Choose my words with care.

O	O	O	O	O
strongly disagree	disagree somewhat	neither agree nor disagree	agree somewhat	strongly agree

53. Stick to my chosen path.

O	O	O	O	O
strongly disagree	disagree somewhat	neither agree nor disagree	agree somewhat	strongly agree

54. Jump into things without thinking.

O	O	O	O	O
strongly disagree	disagree somewhat	neither agree nor disagree	agree somewhat	strongly agree

55. Make rash decisions.

O	O	O	O	O
Strongly disagree	disagree somewhat	neither agree nor disagree	agree somewhat	strongly agree

56. Like to act on a whim.

O	O	O	O	O
strongly disagree	disagree somewhat	neither agree nor disagree	agree somewhat	strongly agree

57. Rush into things.

O	O	O	O	O
strongly disagree	disagree somewhat	neither agree nor disagree	agree somewhat	strongly agree

58. Do crazy things.

O	O	O	O	O
strongly disagree	disagree somewhat	neither agree nor disagree	agree somewhat	strongly agree

59. Act without thinking.

O	O	O	O	O
strongly disagree	disagree somewhat	neither agree nor disagree	agree somewhat	strongly agree

60. Often make last-minute plans.

O	O	O	O	O
strongly disagree	disagree somewhat	neither agree nor disagree	agree somewhat	strongly agree

Part 4: Academic Self-esteem Scale (ASES)

Listed below are questions for the section. **Please provide a response for every question.**

1. I feel confident about my academic ability.

O	O	O	O	O
strongly disagree	disagree somewhat	neither agree nor disagree	agree somewhat	strongly agree

2. I am able to understand the material in the readings my instructors assign.

O	O	O	O	O
strongly disagree	disagree somewhat	neither agree nor disagree	agree somewhat	strongly agree

3. Some of the concepts that other students seem to grasp easily are difficult for me to learn.

O	O	O	O	O
strongly disagree	disagree somewhat	neither agree nor disagree	agree somewhat	strongly agree

4. I worry that my academic ability isn't sufficient for me to do well in my university classes.

O	O	O	O	O
strongly disagree	disagree somewhat	neither agree nor disagree	agree somewhat	strongly agree

5. I often struggle with the course material I am assigned to read.

O	O	O	O	O
strongly disagree	disagree somewhat	neither agree nor disagree	agree somewhat	strongly agree

6. I can easily grasp new concepts when they are presented to me.

O	O	O	O	O
strongly disagree	disagree somewhat	neither agree nor disagree	agree somewhat	strongly agree

Part 5: Self-motivation Inventory (SMI)

Listed below are questions for the section. **Please provide a response for every question.**

1. I'm not very good at committing myself to do things.

O	O	O	O	O
extremely uncharacteristic of me	somewhat uncharacteristic of me	neither characteristic nor uncharacteristic of me	somewhat characteristic of me	extremely characteristic of me

2. Whenever I get bored with projects I start, I drop them to do something else.

O	O	O	O	O
extremely uncharacteristic of me	somewhat uncharacteristic of me	neither characteristic nor uncharacteristic of me	somewhat characteristic of me	extremely characteristic of me

3. I can persevere at stressful tasks, even when they are physically tiring or painful.

O	O	O	O	O
extremely uncharacteristic of me	somewhat uncharacteristic of me	neither characteristic nor uncharacteristic of me	somewhat characteristic of me	extremely characteristic of me

4. If something gets to be too much of an effort to do, I'm likely to just forget it.

O	O	O	O	O
extremely uncharacteristic of me	somewhat uncharacteristic of me	neither characteristic nor uncharacteristic of me	somewhat characteristic of me	extremely characteristic of me

5. I'm really concerned about developing and maintaining self-discipline.

O	O	O	O	O
extremely uncharacteristic of me	somewhat uncharacteristic of me	neither characteristic nor uncharacteristic of me	somewhat characteristic of me	extremely characteristic of me

6. I'm good at keeping promises, especially the ones I make to myself.

O	O	O	O	O
extremely uncharacteristic of me	somewhat uncharacteristic of me	neither characteristic nor uncharacteristic of me	somewhat characteristic of me	extremely characteristic of me

7. I don't work any harder than I have to.

O	O	O	O	O
extremely uncharacteristic of me	somewhat uncharacteristic of me	neither characteristic nor uncharacteristic of me	somewhat characteristic of me	extremely characteristic of me

8. I seldom work to my full capacity.

O	O	O	O	O
extremely uncharacteristic of me	somewhat uncharacteristic of me	neither characteristic nor uncharacteristic of me	somewhat characteristic of me	extremely characteristic of me

9. I'm just not the goal-setting type.

O	O	O	O	O
extremely uncharacteristic of me	somewhat uncharacteristic of me	neither characteristic nor uncharacteristic of me	somewhat characteristic of me	extremely characteristic of me

10. When I take on a difficult job, I make a point of sticking with it until it's completed.

O	O	O	O	O
extremely uncharacteristic of me	somewhat uncharacteristic of me	neither characteristic nor uncharacteristic of me	somewhat characteristic of me	extremely characteristic of me

11. I'm willing to work for things I want as long as it's not a big hassle for me.

O	O	O	O	O
extremely uncharacteristic of me	somewhat uncharacteristic of me	neither characteristic nor uncharacteristic of me	somewhat characteristic of me	extremely characteristic of me

12. I have a lot of self-motivation.

O	O	O	O	O
extremely uncharacteristic of me	somewhat uncharacteristic of me	neither characteristic nor uncharacteristic of me	somewhat characteristic of me	extremely characteristic of me

13. I'm good at making decisions and standing by them.

O	O	O	O	O
extremely uncharacteristic of me	somewhat uncharacteristic of me	neither characteristic nor uncharacteristic of me	somewhat characteristic of me	extremely characteristic of me

14. I generally take the path of least resistance.

O	O	O	O	O
extremely uncharacteristic of me	somewhat uncharacteristic of me	neither characteristic nor uncharacteristic of me	somewhat characteristic of me	extremely characteristic of me

15. I get discouraged easily.

O	O	O	O	O
extremely uncharacteristic of me	somewhat uncharacteristic of me	neither characteristic nor uncharacteristic of me	somewhat characteristic of me	extremely characteristic of me

16. If I tell somebody I'll do something, you can depend on it being done.

O	O	O	O	O
extremely uncharacteristic of me	somewhat uncharacteristic of me	neither characteristic nor uncharacteristic of me	somewhat characteristic of me	extremely characteristic of me

17. I don't like to overextend myself.

O	O	O	O	O
extremely uncharacteristic of me	somewhat uncharacteristic of me	neither characteristic nor uncharacteristic of me	somewhat characteristic of me	extremely characteristic of me

18. I'm basically lazy.

O	O	O	O	O
extremely uncharacteristic of me	somewhat uncharacteristic of me	neither characteristic nor uncharacteristic of me	somewhat characteristic of me	extremely characteristic of me

19. I have a very hard-driving, aggressive personality.

O	O	O	O	O
extremely uncharacteristic of me	somewhat uncharacteristic of me	neither characteristic nor uncharacteristic of me	somewhat characteristic of me	extremely characteristic of me

20. I work harder than most of my friends.

O	O	O	O	O
extremely uncharacteristic of me	somewhat uncharacteristic of me	neither characteristic nor uncharacteristic of me	somewhat characteristic of me	extremely characteristic of me

21. I can persist in spite of pain or discomfort.

O	O	O	O	O
extremely uncharacteristic of me	somewhat uncharacteristic of me	neither characteristic nor uncharacteristic of me	somewhat characteristic of me	extremely characteristic of me

22. I like to set goals and work toward them.

O	O	O	O	O
extremely uncharacteristic of me	somewhat uncharacteristic of me	neither characteristic nor uncharacteristic of me	somewhat characteristic of me	extremely characteristic of me

23. Sometimes I push myself harder than I should.

O	O	O	O	O
extremely uncharacteristic of me	somewhat uncharacteristic of me	neither characteristic nor uncharacteristic of me	somewhat characteristic of me	extremely characteristic of me

24. I tend to be overly apathetic.

O	O	O	O	O
extremely uncharacteristic of me	somewhat uncharacteristic of me	neither characteristic nor uncharacteristic of me	somewhat characteristic of me	extremely characteristic of me

25. I seldom, if ever, let myself down.

O	O	O	O	O
extremely uncharacteristic of me	somewhat uncharacteristic of me	neither characteristic nor uncharacteristic of me	somewhat characteristic of me	extremely characteristic of me

26. I'm not very reliable.

O	O	O	O	O
extremely uncharacteristic of me	somewhat uncharacteristic of me	neither characteristic nor uncharacteristic of me	somewhat characteristic of me	extremely characteristic of me

27. I like to take on jobs that challenge me.

O	O	O	O	O
extremely uncharacteristic of me	somewhat uncharacteristic of me	neither characteristic nor uncharacteristic of me	somewhat characteristic of me	extremely characteristic of me

28. I change my mind about things quite easily.

O	O	O	O	O
extremely uncharacteristic of me	somewhat uncharacteristic of me	neither characteristic nor uncharacteristic of me	somewhat characteristic of me	extremely characteristic of me

29. I have a lot of willpower.

O	O	O	O	O
extremely uncharacteristic of me	somewhat uncharacteristic of me	neither characteristic nor uncharacteristic of me	somewhat characteristic of me	extremely characteristic of me

30. I'm not likely to put myself out if I don't have to.

O	O	O	O	O
extremely uncharacteristic of me	somewhat uncharacteristic of me	neither characteristic nor uncharacteristic of me	somewhat characteristic of me	extremely characteristic of me

31. Things just don't matter much to me.

O	O	O	O	O
extremely uncharacteristic of me	somewhat uncharacteristic of me	neither characteristic nor uncharacteristic of me	somewhat characteristic of me	extremely characteristic of me

32. I avoid stressful situations.

O	O	O	O	O
extremely uncharacteristic of me	somewhat uncharacteristic of me	neither characteristic nor uncharacteristic of me	somewhat characteristic of me	extremely characteristic of me

33. I often work to the point of exhaustion.

O	O	O	O	O
extremely uncharacteristic of me	somewhat uncharacteristic of me	neither characteristic nor uncharacteristic of me	somewhat characteristic of me	extremely characteristic of me

34. I don't impose much structure on my activities.

O	O	O	O	O
extremely uncharacteristic of me	somewhat uncharacteristic of me	neither characteristic nor uncharacteristic of me	somewhat characteristic of me	extremely characteristic of me

35. I never force myself to do things I don't feel like doing.

O	O	O	O	O
extremely uncharacteristic of me	somewhat uncharacteristic of me	neither characteristic nor uncharacteristic of me	somewhat characteristic of me	extremely characteristic of me

36. It takes a lot to get me going.

O	O	O	O	O
extremely uncharacteristic of me	somewhat uncharacteristic of me	neither characteristic nor uncharacteristic of me	somewhat characteristic of me	extremely characteristic of me

37. Whenever I reach a goal, I set a higher one.

O	O	O	O	O
extremely uncharacteristic of me	somewhat uncharacteristic of me	neither characteristic nor uncharacteristic of me	somewhat characteristic of me	extremely characteristic of me

38. I can persist in spite of failure.

O	O	O	O	O
extremely uncharacteristic of me	somewhat uncharacteristic of me	neither characteristic nor uncharacteristic of me	somewhat characteristic of me	extremely characteristic of me

39. I have a strong desire to achieve.

O	O	O	O	O
extremely uncharacteristic of me	somewhat uncharacteristic of me	neither characteristic nor uncharacteristic of me	somewhat characteristic of me	extremely characteristic of me

40. I don't have much self-discipline.

O	O	O	O	O
extremely uncharacteristic of me	somewhat uncharacteristic of me	neither characteristic nor uncharacteristic of me	somewhat characteristic of me	extremely characteristic of me

Part 6: Sense of Self Scale (SOSS)

Listed below are questions for the section. **Please provide a response for every question.**

1. I wish I were more consistent in my feelings.

O	O	O	O	O
strongly disagree	disagree somewhat	neither agree nor disagree	agree somewhat	strongly agree

2. It's hard for me to figure out my own personality, interests, and opinions.

O	O	O	O	O
strongly disagree	disagree somewhat	neither agree nor disagree	agree somewhat	strongly agree

3. I often confuse my own thoughts and feelings with those of others.

O	O	O	O	O
strongly disagree	disagree somewhat	neither agree nor disagree	agree somewhat	strongly agree

4. I often think how fragile my existence is.

O	O	O	O	O
strongly disagree	disagree somewhat	neither agree nor disagree	agree somewhat	strongly agree

5. I have a pretty good sense of what my long-term goals are in life.

O	O	O	O	O
strongly disagree	disagree somewhat	neither agree nor disagree	agree somewhat	strongly agree

6. I sometimes wonder if people can actually see me.

O	O	O	O	O
strongly disagree	disagree somewhat	neither agree nor disagree	agree somewhat	strongly agree

7. Other people's thoughts and feelings seem to carry greater weight than my own.

O	O	O	O	O
strongly disagree	disagree somewhat	neither agree nor disagree	agree somewhat	strongly agree

8. I have a clear and definite sense of who I am and what I'm all about.

O	O	O	O	O
strongly disagree	disagree somewhat	neither agree nor disagree	agree somewhat	strongly agree

9. My opinions and values can change almost as quickly as my moods.

O	O	O	O	O
strongly disagree	disagree somewhat	neither agree nor disagree	agree somewhat	strongly agree

10. It bothers me that my personality doesn't seem to be well defined.

O	O	O	O	O
strongly disagree	disagree somewhat	neither agree nor disagree	agree somewhat	strongly agree

11. I'm not sure that I can understand or put much trust in my thoughts and feelings.

O	O	O	O	O
strongly disagree	disagree somewhat	neither agree nor disagree	agree somewhat	strongly agree

12. I find it difficult to distinguish my beliefs and perspectives from other people’s beliefs and perspectives.

O	O	O	O	O
strongly disagree	disagree somewhat	neither agree nor disagree	agree somewhat	strongly agree

13. Who am I? is a question that I ask myself a lot.

O	O	O	O	O
strongly disagree	disagree somewhat	neither agree nor disagree	agree somewhat	strongly agree

14. I need other people to help me understand what I think or how I feel.

O	O	O	O	O
strongly disagree	disagree somewhat	neither agree nor disagree	agree somewhat	strongly agree

15. My beliefs and values can change from day to day.

O	O	O	O	O
strongly disagree	disagree somewhat	neither agree nor disagree	agree somewhat	strongly agree

16. I tend to be very sure of myself and stick to my own preferences even when the group I am with expresses different preferences.

O	O	O	O	O
strongly disagree	disagree somewhat	neither agree nor disagree	agree somewhat	strongly agree

Part 7: Self-concept Clarity Scale (SCCS)

Listed below are questions for the section. **Please provide a response for every question.**

1. My beliefs about myself often conflict with one another.

O	O	O	O	O
strongly disagree	disagree somewhat	neither agree nor disagree	agree somewhat	strongly agree

2. On one day I might have one opinion of myself and on another day I might have a different opinion.

O	O	O	O	O
strongly disagree	disagree somewhat	neither agree nor disagree	agree somewhat	strongly agree

3. I spend a lot of time wondering about what kind of person I really am.

O	O	O	O	O
strongly disagree	disagree somewhat	neither agree nor disagree	agree somewhat	strongly agree

4. Sometimes I feel that I am not really the person that I appear to be.

O	O	O	O	O
strongly disagree	disagree somewhat	neither agree nor disagree	agree somewhat	strongly agree

5. When I think about the kind of person I have been in the past, I'm not sure what I was really like.

O	O	O	O	O
strongly disagree	disagree somewhat	neither agree nor disagree	agree somewhat	strongly agree

6. I seldom experience conflict between the different aspects of my personality.

O	O	O	O	O
strongly disagree	disagree somewhat	neither agree nor disagree	agree somewhat	strongly agree

7. Sometimes I think I know other people better than I know myself.

O	O	O	O	O
strongly disagree	disagree somewhat	neither agree nor disagree	agree somewhat	strongly agree

8. My beliefs about myself seem to change very frequently.

O	O	O	O	O
strongly disagree	disagree somewhat	neither agree nor disagree	agree somewhat	strongly agree

9. If I were asked to describe my personality, my description might end up being different from one day to another day.

O	O	O	O	O
strongly disagree	disagree somewhat	neither agree nor disagree	agree somewhat	strongly agree

10. Even if I wanted to, I don't think I could tell someone what I'm really like.

O	O	O	O	O
strongly disagree	disagree somewhat	neither agree nor disagree	agree somewhat	strongly agree

11. In general, I have a clear sense of who I am and what I am.

O	O	O	O	O
strongly disagree	disagree somewhat	neither agree nor disagree	agree somewhat	strongly agree

12. It is often hard for me to make up my mind about things because I don't really know what I want.

O	O	O	O	O
strongly disagree	disagree somewhat	neither agree nor disagree	agree somewhat	strongly agree

Part 8: Academic Locus of Control Scale (ALOCS)

Listed below are questions for the Section. **Please provide a response for every question.**

1. University grades most often reflect the effort you put into classes.

   O true
   O false

2. I came to university because it was expected of me.

   O true
   O false

3. I have largely determined my own career goals.

   O true
   O false

4. Some people have a knack for writing, while others will never write well no matter how hard they try.

   O true
   O false

5. I have taken a course because it was an easy good grade at least once.

   O true
   O false

6. Professors sometimes make an early impression of you and then no matter what you do, you cannot change the impression.

   O true
   O false

7. There are some subjects in which I could never do well.

   O true
   O false

8. Some students, such as student leaders and athletes, get free rides in university classes.

   O true
   O false

9. I sometimes feel that there is nothing I can do to improve my situation.

   O true
   O false

10. I never feel really hopeless---there is always something I can do to improve my situation.

    O true
    O false

11. I would never allow social activities to affect my studies.

    O true
    O false

12. There are many more important things for me than getting good grades.

    O true
    O false

13. Studying every day is important.

    O true
    O false

14. For some courses it is not important to go to class.

    O true
    O false

15. I consider myself highly motivated to achieve success in life.

    O true
    O false

16. I am a good writer.

    O true
    O false

17. Doing work on time is always important to me.

    O true
    O false

18. What I learn is more determined by university and course requirements than by what I want to learn.

    O true
    O false

19. I have been known to spend a lot of time making decisions which others do not take seriously.

    O true
    O false

20. I am easily distracted.

    O true
    O false

21. I am easily talked out of studying.

    O true
    O false

22. I get depressed sometimes and then there is no way I can accomplish what I know I should be doing.

    O true
    O false

23. Things will probably go wrong for me some time in the near future.

    O true
    O false

24. I keep changing my mind about my career goals.

    O true
    O false

25. I feel I will someday make a real contribution to the world if I work hard at it.

    O true
    O false

26. There has been at least one instance in school where social activity impaired my academic performance.

    O true
    O false

27. I would like to graduate from university, but there are more important things in my life.

    O true
    O false

28. I plan well and I stick to my plans.

    O true
    O false

Part 9: The Release Consent

The major goal of this research is to investigate factors that might predict outcomes of your university experience such as your semester grade point averages, your overall GPA, your choice(s) of major, and the number of semesters you are enrolled prior to graduating. To obtain these measures for data analysis, we need your consent for UT-Arlington to release the data to us. Please read the following release statement and indicate whether or not you give consent.

Listed below are questions for this section of the survey. **Please provide a response for every question.** If you are given the option to decline to answer a question, then declining to answer is considered a response.

1. I consent to release the student record information described above as data to be used in conjunction with the research survey that I have just completed. The conditions of my consent are that all of the data I provide will be kept anonymous, will not identify me as an individual, and will be used for aggregate data analyses only. (This is the end of the survey.)

O I consent to the release of these data

O I do not consent to the release of these data

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FOOTNOTE

[1] When the 14 outliers were included in the data. For *Hypothesis 1*, gender was not significant in block 1, b = .169, t (351) =1.82, *ns*. In the block 3, adding Big Five and the other five addition predictors, conscientiousness was still a significant predictor for GPA, b = .027, t (346) =2.42, $p < .05$, sr^2=1.7%. Other significances stayed the same, but only the values marginally changed. For *Hypothesis 2*, self-motivation did not predict GPA across the three different levels of conscientiousness (-1 *S.D.*: b = .005, t (386) =1.59, *ns*; 0 *S.D.*: b = .001, t (386) = .51, *ns*; +1 *S.D.*: b = -.002, t (386) = -.72, *ns*); whereas conscientiousness did predict GPA while self-motivation was low and medium (-1 *S.D.*: b = .038, t (386) =3.01, sr^2=2.3%; 0 *S.D.*: b = .023, t (386) =2.01, sr^2=1.0%), but not high (+1 *S.D.*: b = .008, t (386) = .62, *ns*). For *Hypothesis 3*, self-expectancy interacted with self-insight to predict GPA, b = -.001, t (286) = - 2.40, $p < .05$. However, self-expectancy predicted GPA across the three levels of self-insight. The results were the same as the models in which the outliers were excluded, however, only the values changed slightly.

BIOGRAPHICAL INFORMATION

Wen Cheng graduated with a Bachelor of Science in Psychology from the University in Taipei, Taiwan, in 2004. She received a Master of Science in Experimental Psychology from the University of Texas at Arlington in 2008 under the supervision of Dr. William Ickes. She is planning on continuing to get her PhD in Experimental Psychology at the University of Texas at Arlington.