MONEY ATTITUDES, ECONOMIC LOCUS OF CONTROL, AND FINANCIAL STRAIN AMONG COLLEGE STUDENTS

by

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TABLE OF CONTENTS

ACKNOWLEDGEMENTS ii

LIST OF TABLES v

ABSTRACT. vi

CHAPTER

I. INTRODUCTION
Statement of the Problem 2
Purpose of the Study 5
Justification for the Study. 6
Theoretical Framework. 8
Research Questions 9
Assumptions and Conditions of the Study 10
Limitations of the Study 10
Definitions 11
Summary. 12

II. REVIEW OF LITERATURE
Historical Synopsis of the Attitude – Behavior Relationship 14
Money Attitudes 21
Financial Practices 29
Locus of Control 31
Financial Stress. 34
Cultural Differences 37
Summary. 41

III. METHODS AND PROCEDURES
Survey Design. 42
Sample Selection 43
Instrumentation. 44
Variables in the Study 48
Data Analysis Procedures 48
Summary 50

IV. RESULTS
Sample Demographics 51
Analysis of the Sub Dimensions of the Three Major Scales 55
Analysis of the Research Questions. 58
Ancillary Questions. 67

Summary of Results and Findings. 69

V. DISCUSSION, CONCLUSIONS, AND IMPLICATIONS
Research Questions 72
Conclusions of the Study. 78
Implications and Recommendations for Future Research 80

REFERENCES. 86

APPENDICES
A. Human Subjects Proposal 96
B. Survey Instrument 98

LIST OF TABLES

4.1 Continuous variable demographics 52

4.2 Categorical variable demographics 53

4.3 Factor demographics 54

4.4 Variables with significant differences between schools 55

4.5 Reliability and descriptive statistics 56

4.6 Scale dimension correlations 57

4.7 Economic Locus of Control Scale MANCOVA 59

4.8 Discriminant analysis, Economic Locus of Control Scale and Gender. . 60

4.9 Interaction of cultural and class rank factors 62

4.10 Financial Strain Scale Mancova 63

4.11 Discriminant analysis, Financial Strain Scale and Gender 64

4.12 Money Attitude Scale MANCOVA. 66

4.13 Discriminant analysis, Money Attitude Scale and Gender 67

ABSTRACT

The relationship between attitudes and behavior has been studied extensively, yet research on money attitudes, perceptions of economic locus of control, and financial strain among college students is less abundant. Toward a better understanding of college student's attitudes and perceptions about money, an investigation of student money attitudes and perceptions of economic locus of control is advanced.

Research favors the validity of Furnham's assertion that money attitudes are clearly not one-dimensional, and encompass a multitude of dimensions. Assessing these attitudes yields clearly defined constructs that may be influenced through additional stimuli. Numerous studies support the contention that money attitudes are learned dispositions, initially developed through parental teachings and observation of family money practices, later refined through socialization and experience. Thus it might be considered that money behavior change may be best accomplished through money attitude change, the latter accomplished by additional focused stimuli.

Results of this study indicate significant differences in attitudes and perceptions of control over money matters between female and male college students, differences in the perceptions of influence over money matters between students from the Mexican American, Latino / Latina cultures and students from the Anglo American cultures, and differences in attitudes and practices between freshman students and upper class students.

This analysis suggests female students tended to feel less personal control over positive outcomes compared to male students, yet perceived uncontrollable chance as less influential on their financial circumstances. Female students indicated less difficulty in

meeting current obligations than did male students, while placing less importance on planning for future financial circumstances. Female students feel higher levels of anxiety over financial issues, have lower scores in financial literacy, and use money to impress or influence others less than male students.

This analysis found that freshman students from the Mexican American and Latino / Latina cultures felt a significantly higher influence over their financial situation from Powerful Others; this influence increasing as the student advanced through class levels. The analysis also indicates junior and senior level students spend significantly higher amounts of time working (including work study), and have a much higher probability of reducing class load or withdrawing from class due to financial constraints. Implications of the study and recommendations for further research are discussed.

CHAPTER I

INTRODUCTION

A child's perception of money begins at an early age. Money attitudes are learned dispositions, initially developed through parental teachings and observation of family money practices, later refined through socialization and experience. While discussions of sex and drugs have become commonplace, discussions of money remain scarce, perhaps the last taboo. One result is that many people learn about money almost exclusively from personal practice, and this not until the late teenage years.

For many entry-level college students, college life is the first time they are exposed to a significant degree of personal responsibility for their day-to-day finances. Many students in high school have part time jobs and manage personal issues such as automobile and some clothing expenses, but the parents or family handles, for the most part, major living expenses. Upon entering college, significant budget constraints may be placed upon the student, yet all too often the student has limited knowledge of budgeting procedures. Combined with the pervasive culture of credit and the proliferation of credit card marketing to this age group, it is little wonder so many college students succumb to extensive credit card and consumer debt before they leave school (Hayhoe, Leach, Allen, & Edwards, 2005; Norvilitis, Szablicki, & Wilson, 2003).

Matriculation periods for a college bachelor's degree are receiving increased scrutiny by both school administrators and taxpayers. For students who graduated from high school in 1992 and completed their bachelor's degree by December 2000, only one third of the students earned a bachelor's degree from the same school they had started in

within four years. Between 54% and 58% of students who completed their bachelor's degree in the same school as they started completed their program within six years (Adelman, 2006). As a result, numerous financial incentive programs have been developed with the specific purpose of motivating students to finish their program within four years. Three examples illustrate the types of programs being explored.

The state of New Mexico will pay up to 100% of the cost of tuition for eight semesters for students who meet eligibility requirements (New Mexico Higher Education Department, 2006). The state of Pennsylvania offers financial incentives direct to the college or university if the school succeeds in graduating at least 40% of the in-state students within four years (O'Beirne, 2002). Texas Tech University provides student loans to be forgiven if the student graduates within four years (for most majors) with a grade point average of at least 3.0 (Texas Tech University, 2006).

Statement of the Problem

Extended matriculation periods require additional costs borne by the taxpayer for the extended time to degree completion. In addition to the taxpayer funded direct costs, there is a substantial opportunity cost to the student for the extended matriculation period. From a financial perspective, both parties will likely benefit financially from student class loads sufficient to ensure a four-year degree. While the student must forgo increased income opportunities for higher class loads while in school, the combination of the financial incentives available and the significant increases in income potential upon completion of their program present a compelling case for the four-year program.

While each of the three incentive programs discussed above represents a substantial financial motivation for students to complete their bachelor's degree within a prescribed period of time, they also necessitate an increase in class load for many. However, a decrease in employment activities resulting from increased class load may pose a problem for many students. To further complicate matters for students reducing employment in order to increase class loads, research suggests that college students generally face a wide range of financial problems such as credit card abuse, lack of spending plans and budgeting practices, limited understanding of investment basics and limited knowledge of consumer rights and responsibilities (Bernheim & Garrett, 1996; Gorham, DeVaney, & Bechman, 1998; Joo, Grable, & Bagwell, 2003; Roberts & Jones, 2001). These financial problems and constraints suggest that a student's ability to cope with reduced income resulting from increased class loads may be moderated through the inclusion of some type of financial education program.

Dominguez and Robin (1999) argue that sound financial practices are founded on a money personality, or money ethic, consistent with an individual's perception of the monetary value of their "life force". Similarly, Bachrach (1999, 2001) suggests the financial choices and decisions we make in life are a function of a deep-seated belief we hold for the meaning and importance of money. Publications from both authors suggest an individual's money personality and value system is the very foundation for aligning the individual's money with their values, and that this is *the* necessary first step toward sound financial practices. Sound financial practices may also be influenced by money attitudes. Voluminous research indicates a direct relationship between attitudes and

behavior (i.e., Ajzen & Fishbein, 1980; Doob, 1947; LaPiere, 1934), and more recent research investigates relationships between attitudes and perceptions of behavioral control (Ajzen, 1985, 1991; Fazio, 1990).

No empirical research has been found that supports a proposition that money attitudes and perceptions of control over financial circumstance play a significant role in the financial practices of college students. However, research of attitude—behavior relationships does support a working hypothesis that assessing money attitudes and perceptions of control over financial circumstance is an initial step toward helping students overcome issues related to financial stress that may result from a reduction in income as a result of higher class loads and shorter matriculation periods.

Financial stress has been suggested as a primary reason for many freshmen students to seek employment during their first year of school, perhaps significantly contributing to extended matriculation periods. Lindholm, Astin, Choi, and Gutierrez-Zamano (2002) found that about 65% of students are concerned about how to pay for their education, with over 47% of freshmen students expecting to seek employment as a means of offsetting these stressful costs. In a study identifying sources of stress in college students, Ross, Niebling, and Heckert (1999) found that 71% of students in their study reported financial difficulties as a major source of stress. While financial difficulties were not one of the top five stressors, the need to seek employment as a result of financial difficulties may have increased the levels of four of the top five stressors: change in sleeping and eating habits, increased work load, and new responsibilities. Similar results were reported in an earlier study by Frazier and Schauben (1994), finding the two most

frequently experienced stressors among the all-female respondents were financial problems and test anxiety.

Purpose of the Study

The purpose of this research is to identify money attitudes, perceived economic locus of control, and dimensions of financial strain among college students in two southwestern United States universities. Money beliefs and attitudes, along with financial practices and habits, may have a direct relationship with financial literacy levels. Personal responsibility for an individual's financial success requires financial literacy at some base level. Yet Dara Duguay, former executive director for the Jump$tart Coalition for Financial Literacy argues that only about 10% of students report learning about money in school (Harr, 2000). Bernheim and Garrett (1996) explored the relationship between savings and financial literacy and suggest "education policy may prove to be a powerful tool, either in isolation or in combination with tax incentives, for stimulating rates of saving" (p. 1). Gorham et al. (1998) found that an individual's perception of their personal financial competency was one of the four major factors for predicting the number of financial practices utilized.

Acquiring a sufficient level of personal financial competency depends on education. During a symposium sponsored by the National Endowment for Financial Education (NEFE), personal financial literacy was defined as "the ability to read, analyze, manage, and communicate about the personal financial conditions that affect material well being. It includes the ability to discern financial choices, discuss money and financial issues without (or despite) discomfort, plan for the future, and respond

competently to life events that affect everyday financial decisions, including events in the general economy" (NEFE, 2002). This definition suggests a focus on functional financial literacy. The financial issues students face, perhaps for the first time in their lives as independent or at least quasi-independent individuals, necessitate a need for the practical application of money management topics. Noting deficits in personal financial literacy through all ages, the participants of the symposium agreed that the most optimal setting for financial literacy programs is as early as possible within the schools. Until the inclusion of financial literacy is mandated at the primary or secondary education levels, programs at the college level offer the best chance of helping students with the financial difficulties they may face.

As a preliminary step toward any further investigation of financial literacy levels of college students, money attitudes and control beliefs of students will be assessed. Additionally, given the impact of changing demographics on student populations (Murdock, White, Hoque, Pecotte, You, & Balkan, 2002), cultural differences in money attitudes and beliefs are identified. The results of this investigation may foster the development of a comprehensive financial education program to help students from diverse backgrounds avoid the need of seeking employment as a result of financial difficulties, and take advantage of the potential financial benefits provided by the incentive programs focused on reducing matriculation periods.

Justification for the Study

The relationship between attitudes and behavior has been studied extensively, yet research on money attitudes, perceptions of economic locus of control, and financial

stress among college students is less abundant. Early psychologists (Allport, 1935; LaPiere, 1934) questioned the ability of attitudes to predict behavior. However, attitude—behavior research gained significant ground as a result of investigations by Doob (1947). Doob argues that since attitudes are learned predispositions, the resulting response to the attitude must also be learned. The relationship between attitudes and locus of control has limited empirical support. Although the literature both supports (Furnham, 1986) and rejects (Ajzen, 2002; Kraft, Rise, Sutton, & Roysamb, 2005) the influence of locus of control in the attitude—behavior relationship, Furnham (1986) presents an empirically sound case for the inclusion of locus of control if the measure is specific to money and economics.

Toward a better understanding of college student's attitudes and perceptions about money, an investigation of student money attitudes and perceptions of economic locus of control is advanced. Research favors the validity of Furnham's (1984) assertion that money attitudes are clearly not one-dimensional, and encompass a multitude of dimensions. Assessing these attitudes yields clearly defined constructs that may be influenced through additional stimuli. Katona (1972) contends "attitudes constitute important intervening variables; they are generalized viewpoints with affective connotation, indicating what is good and favorable or bad and unfavorable. Attitudes are learned, that is, acquired and modified by past experience" (p. 550). Thus it might be considered that money behavior change may be best accomplished through money attitude change, the latter accomplished by additional focused stimuli.

Certainly culture is a fundamental aspect of past experience. Barajas (2003)

presents compelling evidence of significant differences in money attitudes of Mexican American individuals compared to Anglo individuals. Tseng (2004) identifies significant differences such as the high priority given to assisting family members experiencing difficult times among families from Asian and Latino cultures. The author reported that attitudes toward family obligations contributed to increased educational motivation, but that the fulfillment of the obligations resulted in decreased academic achievement. Similarly, Saunders and Serna (2004) identify the increased difficulty Latino students face as a result of the assistance given to family. These studies, combined with the changing demographic characteristics of college students (Murdock et al., 2002), suggest the need to explore culturally defined perceptions and attitudes.

Theoretical Framework

The theoretical framework for this study is based on the economic theory of opportunity cost. Originally introduced by Friedrich von Wieser in 1876 as the *Austrian alternative cost* and later translated by economists such as D. L. Green (1894), the theory is grounded in the economic reality that most resources are limited and scarce. As such, if a resource is used in one manner, any alternative use is forgone. The value of the forgone alternative use is called the opportunity cost. This is not the net value of the two (or more) alternatives, but simply the entire value of the forgone opportunity to use the resource differently.

The costs of an additional two years of education for a bachelor's degree entail numerous aspects. In addition to the actual costs involved, the opportunity cost of the additional two years includes the forgone income potential at the supposedly much higher

rate supported by degree completion. For students in most disciplines, this amounts to many thousands of dollars each year. Of course this value is reduced by the amount of income the student earns through employment during their program of study, but for most students, pre-degree hourly income potential is limited. Additionally, comparing these two values is likely beyond the capabilities of most students, perhaps leading many to value the two alternatives incorrectly. Although studies of college students (Chen & Volpe, 2002; Roberts & Jones, 2001) do not specifically measure a student's ability to apply the analysis necessary to compare costs of alternative matriculation periods, the studies do suggest limitations on college students' ability to analyze this kind of question.

Although the value of the financial incentives for early matriculation is beyond the scope of this study, it is the income at the expense of increased class load that the financial incentives for earlier matriculation attempt to replace. Indeed, for some students, the value of the incentives will be significantly higher than the income forgone. Combined with the value of the increased earnings potential for even one year, this presents an opportunity for substantial cost reduction for those who complete their degree within four years.

Research Questions

The following research questions were developed for this study.

1. In a population of college students with different income levels, is there a statistically significant mean attitudinal difference among groups by gender, class level, and culture as these relate to perceptions of economic locus of control?

2. In a population of college students with different income levels, is there a statistically significant mean attitudinal difference among groups by gender, class level, and culture as these relate to financial strain?
3. In a population of college students with different income levels, is there a statistically significant mean attitudinal difference among groups by gender, class level, and culture as these relate to money attitudes?

Assumptions and Conditions of the Study

Three methodological assumptions were made.

1. Students who completed the research questionnaire were not different from those within their respective schools who did not complete it.
2. Students who completed the questionnaire did so accurately and completely.
3. Students who completed the questionnaire responded to the questions based on their own individual attitudes, beliefs, and practices and their responses were not influenced by perceptions of social desirability.

Limitations of the Study

1. The sample selection for this study was limited to college students within Texas Tech University and New Mexico Highlands University. Results of this study may not generalize to a broad population of college students.
2. The significant difference in size of the student population between the two schools is a limitation of this study. During the spring semester of 2006, New Mexico Highlands University had a student population of

approximately 3,550 students enrolled, while Texas Tech University had a population of about 28,000 students enrolled.

3. The survey was administered on-line within a self-report environment.
4. The data selection procedures constituted a convenience sampling.
5. In addition to potential social response bias, the data represent what the students were able and willing to disclose with respect to their own perceptions, beliefs, attitudes, and financial practices.

Definitions

The following are operational definitions for terms as they are used in this research:

Accessibility. The strength of the association between evaluation (see below) and the object (Fazio & Williams, 1986).

Attitudes. Attitudes are learned dispositions toward an object along a single continuum, ranging from favorable to unfavorable.

Economic Locus of Control. The perception of the factors responsible for the outcome of an event, with the additional condition that the event is monetary or financially defined.

Evaluation. The process by which an individual uses cognitive (thoughts) and affective (feelings) as a basis of judgment.

Financial literacy. The knowledge and understanding of financial topics sufficient to handle one's own personal finances successfully.

Financial strain. Financial strain is the anxiety, pressure, or stress associated from personal or family financial difficulties.

Latino / Latina. Used to describe a non-Anglo individual of Hispanic culture. This term

includes many individuals not necessarily Mexican-American.

Materialism. The desire for material possessions and wealth to the detriment of a values-defined quality of life (see values definition below).

Mexican-American. This term describes an individual of Mexican ancestry. Often differentiated from other Latino / Latina or Hispanic populations as Chicanos.

Stress. Stress is the mental and/or physical condition resulting from a perceived threat or demand that cannot be readily handled (Furnham, 1997).

Valence. The degree of attractiveness an individual, activity, or thing possess as a behavioral goal (http://www.britannica.com/).

Values. Values measure the relative worth and significance of the fundamental principles and standards that define one's identity.

Volitional control. The power of an individual to exercise free will over choices and decisions.

Summary

Increasing costs of higher education have prompted administrators of many public higher-education institutions to search for ways to motivate students to complete their bachelor's degree in shorter time. Matriculation periods for many students in public institutions have reached six years, with taxpayers footing much of the bill for the extended time over the traditional four-year bachelor's degree. In an attempt to motivate students to increase their class load and complete their degree sooner, many states and institutions have implemented financial incentive programs. Ideally the programs' monetary incentives will replace a good portion of the extra income students are currently

earning through employment, and allow the student to increase their class load instead.

Literature suggests students participate in a number of detrimental financial practices, which may prevent them from participating in the incentive programs. Research of financial literacy levels and money management practices indicate many students may lack an understanding of the true opportunity costs of a bachelor's degree that takes six years to complete instead of four. Helping students overcome many of their financial difficulties while at the same time reducing employment and increasing class load may help reduce the total cost of the education to both the student and the taxpayer. The efficacy of any particular program toward helping students overcome or manage their financial difficulties must begin with an understanding of the money attitudes the student has, and the extent to which the individual perceives control over their finances.

CHAPTER II

REVIEW OF LITERATURE

One of the main functions of this study was the assessment of money attitudes. Toward this goal, a review of the literature on attitudes with attention to the attitude–behavior relationship has been completed. Additionally, consistent with the purpose and justification for the study, economic locus of control, cultural influence, and financial stress were all reviewed. Electronic databases available through EBSCO and PsycINFO were used extensively. Results of these searches indicated numerous journals and texts with related literature specific to the variables used, as well as literature reviewing the development of scales for the variable's measure. Many studies were found in the microfiche files of the New Mexico Highlands University library, as well as a substantial collection available from on-line sources. An examination of the reference section in recent sources was used to identify the journals or other locations of specific works.

Historical Synopsis of the Attitude—Behavior Relationship

A thorough review of the literature on the attitude—behavior relationship was beyond the scope of this study. However, an understanding of the applicability of the attitude—behavior relationship to the present study requires at least an overview of the difficulties social psychologists have had in assessing this relationship. Between LaPiere's research (1934) and Wicker's extensive review (1969), many studies suggested a specific lack of relationship between attitudes and behavior. Indeed Wicker claims, "taken as a whole, these studies suggest that it is considerably more likely that attitudes

will be unrelated or only slightly related to overt behaviors than that attitudes will be closely related to actions" (p. 65).

Perhaps the greatest difficulty centered on the measurement techniques employed. Too often an assessment of how the behavior would scale was unavailable. A major advancement in attitude—behavior research resulted from research by Fishbein and Ajzen (1976) who argued that general attitude measures were very poor predictors of specific behavior. They reasoned that the behavior and attitude measures must be assessed on the same scale. Their research including this condition provided a significant increase in attitude—behavior correlations.

Earlier advances in the attitude—behavior relationship were the result of research by Doob (1947), who questioned the position that attitudes were one-dimensional (favorable—unfavorable). He argues that since attitudes are learned predispositions, the resulting response to the attitude must also be learned. Thus, Doob presents a case for the position that attitudes and behavior can be unrelated. Indeed it would seem they must be, since two or more people may share the same attitude about a particular entity, yet may behave in uniquely different ways.

One major critique of Doob's theory centered on the argument that his theory was in fact support for the conclusion that if two or more people shared the same behavior relative to some entity, then they must share the same attitude. In Chein's (1948) critique of Doob's theory, the author argues that two people may share the same favorable or unfavorable position, yet enjoy widely differing beliefs, consistent with the definition of

attitude as entailing cognitive, affective, and conative dimensions. Chein's position was that differences in any dimension between individuals result in different attitudes.

Fishbein (1966) extrapolates from Doob's theories to develop a model that disunites beliefs and intentions from attitudes, instead hypothesizing "beliefs and behavioral intentions are determinants or consequents of an individual's attitude" (p. 479). Support for this may be found in Chein's example above, since differences in any of the three dimensions suggest differences in attitude. Fishbein argues that behavior is a function of many variables, including situational factors and individual differences, and contends attitude, specifically disunited from beliefs and intentions, is just one of many variables influencing behavior. This position will help develop the foundation of the later theory of reasoned action.

Another significant advancement in the attitude—behavior relationship centers on the concept of correspondence between the attitude and the ultimate behavior target (Ajzen & Fishbein, 1977). This poses significant problems when the instrument fails as a behavior evaluation measure, and instead measures intention (LaPiere, 1934). The authors note "an attitudinal predictor is said to correspond to the behavioral criterion to the extent that the attitudinal entity is identical in all four elements with the behavioral entity" (p. 890). The four elements are defined as an action, the context in which the specific action is performed, a time element, and a target of the action. For purposes of debt reduction, if measuring an attitude toward a target of debt reduction, a behavioral criteria may be the value of the payments made through the implementation of a debt reduction plan, in varying contexts (credit card, equity loan), at varying times. The

authors argue that correspondence between two of the four elements, target and action, is necessary for relationships between attitude and behavior to occur. After reviewing 109 investigations of the attitude—behavior relationship, the authors conclude "to predict behavior from attitude, the investigator has to assure high correspondence between at least the target and action elements of the measures he employs" (p. 913).

Certainly a number of variables have been found to influence the attitude—behavior model, most notably attitude accessibility, individual characteristics as defined by self-monitoring measures, attitude strength, amount of information about the attitude object, confidence and direct experience with the attitude object, motivation and opportunity, and Ajzen's more recent conception of perceived behavioral control as a function of perceived self-efficacy and perceived controllability.

Attitude accessibility (Berger, 1992; Fazio & Williams, 1986; Fazio, Powell, & Williams, 1989; Holland, Verplanken, & Knippenberg, 2003) has a significant influence on the attitude—behavior relationship. The investigation by Fazio and Williams (1986) led the authors to suggest "a relatively accessible attitude is likely to bias interpretations of subsequently received information because it is likely to be activated automatically upon observation or mention of the attitude object" (p. 512). This leads to their assertion that the accessible attitude will enjoy greater attitudinal consistency over a period of time. Indeed, Fazio et al. (1989) argue that attitude accessibility is a greater influence on the strength of attitude dimension than other measures such as amount of information (Davidson, Yantis, Norwood, & Montano, 1985) or direct experience and confidence

(Fazio & Zanna, 1978b). The authors suggest this is a result of the construct operation at the information processing level.

Attitude strength, as measured by accessibility is a clear determinant in the MODE model proposed by Fazio (1990). Fazio argues that behavior is a function of the perceptions regarding the immediate situation, thus accessibility functioning at the processing level supports consistency in behavior. The MODE model incorporates into the attitude—behavior relationship the influence of opportunity and motivation. Fazio argues that motivation and opportunity are prerequisites for the deliberative, reasoned process of behavior choice.

Berger (1992) argues that attitude accessibility alone is not sufficient to increase influence over behavior by attitudes. He argues that the degree of confidence in the attitude is essential to understanding the influence over behavior. This is supported by Holland et al. (2003), arguing that "the confidence with which an attitude is held may be inferred from the ease with which the attitude come to mind, in very much the same way as accessibility affects confidence in answering knowledge questions" (p. 594). Their investigations suggest the repeated expression of an attitude increases the attitude's accessibility in memory, increasing the confidence in the memory resulting in a low probability of changing the attitude later.

Self-monitoring measures have been shown to influence the attitude—behavior relationship. High self-monitors are described as individual with the ability to adapt to the particular situation and circumstances life provides. These individuals tend to react to the influence of social norms. In contrast, low-self monitors generally make decision based

on individual beliefs, feelings, or values, resulting in decision based more on attitude to the object (DeBono & Omoto, 1993). The DeBono and Omoto study supported earlier work by Snyder and Tanke (1976) finding evidence of a moderating affect of self-monitoring measures on the attitude—behavior relationship. Citing concerns regarding the psychometric properties of instruments previously used to measure the construct of self-monitoring, Snyder and Gangestad (1986) found the measure taps a unique interpretable and meaningful variable with a causal relationship to influence on behavior. DeBono (1987) also found support for the moderating affect of self-monitoring on attitude. Their investigations support expectations that "high self-monitoring individuals expressed more attitude change after exposure to a message said to address a social-adjustive function, and low self-monitoring individuals experienced more attitude change after listening to a message presumably directed at a value-expressive function (p. 279).

The theory of reasoned action proposed by Ajzen and Fishbein (1980) argues that behavior is influenced by intention, and intention is influenced by the attitude toward the behavior and a measure of subjective norms. Weights, the authors argued, would be determined based on different behaviors. Trafimow and Finlay (1996) found that individually defined differences play a significant role in determining intentions. Results from their study indicated 79% of the respondents indicated intentions as a result of attitudes rather than subjective norms. Research by Sheeran and Orbell (1999) found the strength of the attitude-intention relationship had a positive relationship with the intention-behavior relationship. The norm-intention relationship and the intention-behavior relationship were not significantly correlated. As a result, the authors find

support for the proposition that intentions resulting from attitudes have a greater predictive power over behavior than intentions resulting from subjective norms. These studies all support the increased predictive potential of attitudes given increased attitude strength.

As noted above, Fazio et al. (1989) argue accessibility has a greater influence on the strength of an attitude than other measures such as the amount of information, direct experience, or attitude confidence. However, Davidson et al. (1985), while conceding limitations of variability over behavior and situations, argue for the "relative predominance of information and experience in determining attitude—behavior consistency" (p. 1196-1197). Additionally, Fazio, Powell, and Herr (1983) and Fazio and Zanna (1978a) argue for the significant influence of direct experience (Fazio & Zanna) and direct experience combined with confidence (Fazio et al.) on the strength of attitude measures.

This brief summary of the relatively early research on the attitude—behavior relationship will hopefully give the reader an appreciation of the applicability of attitudes on behavioral intentions and the subsequent actual behavior. Obviously few people would intend to amass overwhelming credit card debt during their college years, or indeed even suspect their educational program would require six years instead of the preconceived four. However, this is a common position for many college students before ultimate program completion. Therefore, assessing student attitudes toward money without assessing the student's perception of control over their finances would likely fall short in

helping to develop a financial education program with the goal of affecting matriculation periods.

Money Attitudes

Early work assessing the relationship between money and human behavior describe a number of relationships. Freud (1908) suggested many individuals subconsciously equate money to feces. Fenichel (1938) argues money represents unlimited power and respect, while Murray (1938), and McClelland and Winters (1971) suggested a strong relationship between money and personal achievement and recognition. Adler (1964) suggests the psychology and mentality resulting in the hoarding of wealth stems from inalterable feelings of insecurity and inferiority.

The work by Yamauchi and Templer (1982) was perhaps the first investigation toward the development of an empirically validated money attitude measurement scale. Earlier work by Goldberg and Lewis (1978) identified a number of constructs people tend to associate money with, including security, power, love, and freedom. Also advanced are numerous attitudes and actions the authors suggest are related to the irrational use of money, for instance unnecessary purchases that would not have been purchased except that they were on sale, feeling anxious and defensive when asked about money, or feeling money can solve all of one's problems. The measurement tool, however, was never psychometrically evaluated through empirical investigation. But as an initial step toward and empirically grounded measurement tool, it holds significant value. Yamauchi and Templer later used many of the questions (although, perhaps not word-for-word) in the development of their money attitude scale. For instance, Goldberg and Lewis (1978)

include in their irrationality money behavior section “you automatically say, “I can’t afford it”, whether you can or not” (p. 100). This very question is part of the retention dimension of the money attitude scale in Yamauchi and Templer’s work (1982, p. 524).

Other earlier works with no empirical support include the investigations of Price (1968). Her research resulted in what she called an economic value system. Her work was more in line with that of work by Tang (1992), who developed the money ethic scale. Like Tang, Price’s research was focused less on attitudes, accessing instead a measure of the fundamental values, or ethic ascribed to money. However, unlike Tang’s money ethic scale, Price’s work was never empirically evaluated.

Citing minimal research on the meaning of money, and a specific lack of investigation into the “relevant variables or probable “meanings” of money” (p. 219), Wernimont and Fitzpatrick (1972) reported seven factors resulting from their analysis. The authors titled these seven factors as 1) shameful failure, 2) social acceptability, 3) pooh-pooh attitude, 4) moral evil, 5) comfortable security, 6) social unacceptability, and 7) conservative business values. Of specific interest to the present investigation are the findings by Wernimont and Fitzpatrick that college students “seem to take a tense, worrisome, unhappy view of money, yet they tend to downgrade or play down the importance of it in terms of economic values and to look down on those who do value money more highly” (p. 225). The authors employed a modified semantic differential in 11 different groups differing in terms of life experiences. Thus, their groups ranged from college students and trainees, to scientists, technical supervisors, and sales-persons. The results support a significant difference in the perception of money across biographic

lines, but do not investigate specific relationships between money attitudes and other phenomena (i.e., financial stress).

As relationships between money attitudes and behavior were explored, it became clear that numerous dimensions, often at times at odds with each other, resided within the money attitude. Yamauchi and Templer (1982) propose three broad content areas, "(a) security, which concerns optimism, confidence, comfort, and its reverse, pessimism, insecurity, and dissatisfaction; (b) retention, which includes parsimony, hoarding, and obsessive personality traits; and (c) power-prestige, which comprises aspects of status, importance, superiority, and acquisition" (p. 522). Certainly many of these dimensions and sub-dimensions were not new in the study of the relationship between money and human behavior (i.e., Freud, 1908; Fenichel, 1938), but items measuring the constructs included in one psychometrically evaluated scale for the specific assessment of money attitude—behavior relationships had not previously been compiled.

Various money personalities have been advanced as the relationships between money and attitude expanded. From the security, power, love, and freedom constructs reported in the Goldberg and Lewis (1978) research, the authors suggested a classification system that attempted to align certain behaviors with these four constructs. "Security collectors" is the term given to individuals that exhibit a distrust of others verging on paranoia, and feel lower levels of anxiety as a result of their perception of independence on people as a result of an increased money supply. Indeed, the authors suggest for these individuals, "despite any pretense to the contrary, money is more important to the security collector than people" (p. 120). "Power grabbers" consider

money exclusively for its potential as a source of power and strength, feeling that without it, they would be helpless. “Love dealers” see money as a means of buying, selling, stealing or trading love, and use it as a defense against interpersonal emotional commitment. “Autonomy worshipers” are those who “fear dependency and seek to avoid it by adhering to a life-style based on independence and freedom” (p. 199-200). These individuals use see money as a foundation of freedom. Finding similar underlying dimensions, Forman (1987) advances the money personalities of the spendthrift, the miser, the gambler, the bargain hunter, and the tycoon.

Although college students were not the specific population of interest in Yamauchi and Templer’s (1982) investigations, the range in age of their sample from 17 to 75 with a mean age of 32 would include the age of the majority of college students. Of course, as with the earlier study by Wernimont and Fitzpatrick (1972), income was a significant factor, since most college students would fall into the lower income ranges. Results reported the extraction of 18 factors, loading into five substantive factors instead of the three dimensions hypothesized. Their first factor was labeled power-prestige. The authors suggest individuals who score high on this factor would “hold attitudes that indicate the importance of status seeking, competition, external recognition, and acquisition” (p. 523). Individuals scoring high on the second factor, labeled time-retention suggested an attitude encompassing clear planning, or preparedness behavior. Their third factor was labeled distrust. Individuals scoring high on this dimension indicated a clear distrusting attitude in matters regarding their financial practices. The fourth factor, labeled quality, entailed a fairly one-dimensional construct regarding the

value of quality in consumer purchases and the tendency to pay for the higher quality. Factor five, labeled anxiety, measured the amount of worry or anxiety associated with money or financial circumstance. This is the first time an empirically evaluated measurement of the money—attitude relationship identified a dimension of anxiety. This is of particular interest to the present study, since anxiety and stress will likely be positively correlated.

Since income may very well be a factor in research involving college students (Yamauchi & Templer, 1982), note that positive relationships with income were found for the power-prestige ($r = .16$), and time-retention ($r = .11$) dimensions, while negative relationships with income were found for the distrust ($r = -.06$) and anxiety ($r = -.09$) dimensions. Thus, the four resulting dimensions are essentially independent of income.

Reliability and validity of the Yamauchi and Templer (1982) instrument suggests a psychometrically sound measure. Twenty-nine items, resulting in the four factors of Power-Prestige, Retention-Time, Distrust, and Anxiety constitute the final form of the money attitude scale (MAS). Reliability of the final MAS, as measured by coefficient alpha, is reported as .77, certainly reasonable given the pioneering nature of their attitude scale development. Construct validity was accessed through correlation analysis between their money attitude scale and existing instruments predicted to measure similar constructs. These include the Machiavellianism scale (Christie & Geis, 1970) measuring manipulation tendencies in interpersonal interactions was hypothesized to correlate positively with the power-prestige dimension, the Personality or Anal Character Test (Klein, 1971) was hypothesized to correlate positively with the time-retention dimension,

the State-Trait Anxiety Inventory was hypothesized to correlate positively with the anxiety dimension, and the Paranoia subscale of Kincannon's (1968) Mini-Mult was hypothesized to correlate positively with the distrust dimension.

Following Yamauchi and Templer (1982), the next money attitude scale developed was the Money Beliefs and Behavior Scale (Furnham, 1984). Attempting to measure the relationship between money beliefs and behaviors, and measures of social, work, and demographic characteristics, Furnham identified the six factors of obsession, power/spending, retention, security/conservative, inadequate, and effort/ability. One limitation of the study as applicable to the present investigation is that Furnham's money attitude scale was developed in Great Britain.

Furnham's measure was a compilation of previous work on money madness by Goldberg and Lewis (1978), survey research by Rubinstein (1981), and items from the money attitude scale developed previously by Yamauchi and Templer (1982). Furnham reported significant differences in the perception of money in the future between older and younger respondents. Older individuals displayed higher levels of anxiety and worry over money, but as Furnham noted, this was perhaps a function of the increases financial responsibilities older participants had compared to younger participants. Those with more money were also more concerned with the future. Consistent with findings by Rubinstein (1981), Furnham found significant differences across political beliefs. Political conservatives tended to see few constraints on their financial situation, while political liberals considered the future to pose financial worries. Results from Furnham's (1984) study also indicate concern for money was higher among older people, females, those

with higher levels of neurosis, and those considered as coming from lower socio-economic groups.

A fairly new dimension of money attitude not measured or reported by earlier money attitude research was Furnham's dimension of effort/ability. This dimension is of particular interest to the present study because it measures a specific attitude toward the future acquisition of money. One of the premises of the current investigation is the perceived transitory nature of the financial circumstances students may have given their perceived ability to significantly increase their income upon program completion.

One limitation of Furnham's (1984) study is the lack of psychometric analysis. No reliability measures were reported for his six scales. Certainly external validity may pose a problem when using the measurement in other cultures. However, Bailey (1987) used a modified version of Furnham's measure and reported only three factors with acceptable reliability using Cronbach's alpha. Dimensions of obsession ($\alpha = .79$), inadequacy ($\alpha = .77$), and retention ($\alpha = .48$) were the three reliable factors reported. Bailey (1987) notes the differences in the characteristics of his sample compared to Furnham's (1984) sample. Bailey's sample was younger, less affluent, more religious, better educated, and had a higher proportion of both single participants and fewer employed. Perhaps most important, unlike Furnham's (1984) study, all of the participants in Bailey's investigation were college students with limited income.

The third money attitude scale identified in the literature is the money ethic scale developed by Tang (1992), primarily for use within the field of organization behavior. Citing limitations due to limited representation to broader populations and relatively low

correlations between constructs, Tang identified positive attitudes, evil (negative) attitudes, power, achievement, money management, and self-esteem dimensions. His hypotheses, clearly defined from previous research, were mostly supported. More affluent people tended to see money as less evil, and more for its representation of achievement. Citing Allport, Vernon and Lindzey (1970), Tang suggests "the economic man is interested in what is useful, whereas the political man is interested primarily in power" (1992, p. 198). His findings supported this hypothesis; achievement was positively correlated with economic value, and power and self-esteem were positively correlated with political values. Lastly, as hypothesized, religious values were negatively correlated with power and achievement, and positively correlated with the management of money and evil (negative) attitudes toward money.

Extending his work and attempting to access the validity of the money ethic scale across cultures, Tang (1993) translated his scale for use in Taiwan. From his study, he argues that students with happier and less stressful lives were those with lower expectations of money.

Further extending his investigations across varied cultures, Tang, Furnham, and Davis (as cited in Furnham and Argyle, 1998), explored the differences in money ethic between participants in America, Britain, and Taiwan. American workers' money ethic was positively correlated with the money management factor, and negatively correlated with the evil (negative) attitude. Respondents from Great Britain had money ethic scores suggested a high relationship between money and power. Workers in Taiwan held money attitudes that correlated positively with the achievement dimension.

Financial Practices

Measuring constructs such as attitudes and beliefs, as in the discussion above, has enjoyed reasonable success, and these have been studied across varied dimensions. Dimensions of financial strain (anxiety), budgeting and savings/accumulation, obsession, and power-prestige have all been identified. Other dimensions include security, financial well-being, inadequacy, distrust, and competency as a consumer. From the obsession dimension, a potential path to compulsive spending might be traced. Roberts and Jones (2001) found that the path from the three dimensions of power, anxiety and distrust to compulsive purchasing behavior was moderated by credit card use, and further advance financial education as a potential solution to the problems of burgeoning credit debt among college students.

Relationships between credit attitudes and money attitudes including sub-dimensions of affective, cognitive, and behavioral attributes (Norvilitis, Szablicki, & Wilson, 2003; Xiao, Noring, & Anderson, 1995), differences in spending habits related to credit usage (Hayhoe, Leach, Turner, Bruin, & Lawrence, 2000), relationships between materialism and credit card use (Pinto, Parente, & Palmer, 2001), relationships between compulsive buying and credit use and the proliferation of varied financial institution credit card sponsors within and partnered with the university administration (Roberts & Jones, 2001), levels of credit card use and numbers of credit cards carried (Hayhoe, Leach & Turner, 1999; Joo et al., 2003), and money ethic, ethnicity, and credit use by parents when students were children (Joo et al.,) have all been explored. Numerous trends have been identified, but since differing variables, both dependent and independent have

been measured, a consensus of factors leading to attitudes and practices is difficult to identify. While most studies found that students overall had favorable attitudes toward credit cards, research by Joo et al. found that about half of their sample of college students had limited knowledge of the finance charges and fees assessed by their card sponsor. The study by Hayhoe et al. (1999), suggests that the unfavorable cognitive attitude found in their study by students with four or more credit cards may be the result of having taken a class in personal finance. Age however was a factor for those with numerous cards (4 or more), thus historical behavior with subsequent consequences may have an affect on the cognitive attitude of older students who have had credit cards for longer periods of time, consistent with the Davies and Lea (1995) study. Hayhoe et al. (2000) found that participating in fewer financial management practices was a significant factor in the number of credit cards carried by students, and argue that perhaps students need to feel the stressful consequences of credit abuse before they seek help and implement good financial practices.

Although age has been found to be a significant factor in some studies, no clear consensus has been identified with regard to relationships between gender and credit use or money management practices. Hayhoe et al. (2000) found that for particular purchases and financial practices, females displayed lower credit card use and better financial practices, but a clear trend is hard to find. Chen and Volpe (2002) found that males scored significantly higher on a measure of financial literacy, and further that males placed a higher value on the financial literacy than did female participants. Gender was also found significant in the Hayhoe et al. (1999) study. Contrary to other findings with

regard to gender, Lim, Teo, and Loo (2003) found men to experience higher levels of financial stress, in addition to viewing money as a higher power source. The findings also suggest that those who had experienced financial hardship were more likely to consider money as a source of power and have a higher external locus of control. This seems consistent with theory of marriage positions within family economics that indicate men with higher external locus of control, who value money for the power it represents, tend to experience higher levels of financial stress given financial hardship. Research by Pinto, Mansfield, and Parente (2004) may support this, as their findings suggest that perceived financial well-being is related to a higher internal locus of control.

Pinto et al. (2001) found a significant relationship between credit card attitudes and a materialism measure, finding that those with higher scores (more materialistic) held a more favorable attitude toward credit card use. However, the study found no significance in the relationship between the materialism score and either the number of credit cards used or the balances carried on the cards. Roberts and Jones (2001) found a significant relationship between compulsive buying and the use of credit cards, and present a good case for the inclusion of financial education programs at the high school level in an attempt to limit the problems associated with credit-abusive and compulsive purchases. Additional support for financial education can be found in the Chen and Volpe (2002) study.

Locus of Control

Many students would agree with Ajzen's (2002) conclusion that "perceived control over performance of a behavior can account for a considerable variance in

intentions and actions" (p. 679). While control over a particular behavior requires an inspection of the internal and external forces in play that will either advance or hinder achievement of the behavior, Ajzen makes a strong case for the specific differentiation between perceived behavioral control and measures of locus of control. Indeed, research by Kraft, Rise, Sutton, and Roysamb (2005) support Ajzen's conclusions, and report negligible differences when the locus of control items are excluded as indicators of perceived behavioral control. Within the literature on specific money attitudes, Furnham argues for a measure of locus of control specific to financial behaviors, and advances an economic locus of control measure. From Fishbein and Ajzen (1976), one conjecture may be that the reason for the position by Ajzen (2002) and Kraft et al. (2005) is their measures were not specific to the behavior being measured, which of course is the position of Furnham.

Financial education may be of little value if personal responsibility is not included. Attribution of responsibility, often measured as a locus of control, has been studied extensively, generally (Rotter, 1966; Weiner, 1986) and with specific focus on stress, academic performance, and credit usage and attitudes. Davis and Davis (1972) found that while both internals and externals take credit for success, only internals tended to take personal responsibility for failures. Brewin and Shapiro (1984) argue that the differences in accepting responsibility for failures between internals and externals suggest the need to distinguish between locus of control for positive and negative outcomes, rather than as on one continuum. As does Furnham (1986), Brewin and Shapiro (1984) contend that the traditional locus of control measure should not be used to measure an

individual's responsibility for poor financial habits such as high credit card debt, and any potential financial stress resulting from these habits. Furnham's (1986) investigation of the relationship between the locus of control concept and economic behavior is perhaps the most significant to the present investigation. Citing research in organizational behavior using generalized locus of control scales (Rotter, 1966), Furnham contends these traditional locus of control measures are not situation specific, and suggests an economic locus of control measure is better suited to the situation specific behaviors of purchasing, saving, and investment behaviors.

Bernardi (1997) found a significant relationship between perceived stress and self-control. Although the participants within the study were entry-level workers in the accounting profession and out of school, the relative age similarities should allow for generalization to college students. As in the Bojuwoye (2002) study, the Bernardi study found gender to have a significant positive relationship to college stress, with females relating the stress they had perceived in college higher than males had. The study explored the relationships between stress, self-control, and higher achievement. Crocker and Luhtanen (2003) studied freshmen students specifically, finding low self-esteem did not predict financial problems or academic difficulties. Their findings suggest that students whose self-esteem is contingent on academics actually experienced higher financial stress. This may the natural result of paying more attention to academics and less to income-producing activities, but the amount of perceived control the student feels over academics would very likely exceed the amount of perceived control they feel over their finances.

Norvilitis et al. (2003) found no direct relationship between debt ratios and self-control. The research did however suggest that perceived financial well-being is related to a more internal locus of control. In a similar study of college students, Pinto et al. (2004) found no relationship between self-control and credit usage. The lack of significant findings in both studies may be due to the increased feeling of empowerment and self esteem during college years (Pascarella & Terenzini, 1991).

Financial Stress

One potential result of an individual college student's money attitudes and perceptions of control over their money are financial behaviors leading to increased levels of financial stress and strain. Although not generally recognized as a specific problem, financial stress has a tremendous affect on life. Financial stress has been shown to be a major component of overall stress. Bailey, Woodiel, Turner, and Young (1998) investigated the relationship between financial stress and overall stress, and found significant positive correlation between financial stress and overall stress. In their study, perceptions of low personal financial security were significantly related to all of the factors making up the personal stress scale. Davies and Lea (1995) found that many of the students exhibiting financial stress as a result of high debt loads felt the stress would be temporary and controllable, for the most part being eliminated when post-education employment opportunities were realized. Norvilitis, Szablicki, and Wilson (2003) found that students in their study did not see debt as a long-term stressor event, suggesting, "it is possible that most students in financial trouble view money as just one circumscribed area of life" (p. 943). It would seem from both of these studies that students consider the

stress related to high debt levels as transitory, and easily remedied upon completion of the education and the ability to pay down debt from employment.

The perception that debt loads and financial problems are transitory, and simply another reality of college life imply many students may view the opportunity cost of debt today, and the resulting increased stress and strain, as part of the path to the benefits that will result in employment opportunities tomorrow. Indeed, the discussions on money attitudes and financial practices above suggest many students do not recognize the full range of costs of their college-experience financial behaviors. The irrational use of money dimensions suggested by Goldberg and Lewis (1978), combined with the credit attitudes and practices of students (Davies & Lea, 1995; Hayhoe et al., 1999; Joo et al., 2003) would seem to support the acceptance of both financial difficulties and the resulting stress and strain identified by Norvilitis, Szablicki, and Wilson (2003).

Other studies of financial stress (Bojuwoye, 2002; Dickinson, 1996; Kim & Garman, 2003; Kim & Garman, 2004) all support a significant inverse relationship between financial stress and varying measures of well being, although neither of the Kim and Garman studies included college students as participants or respondents. Bojuwoye (2002) sampled students randomly in eight universities in South Africa. Financial difficulties and/or lack of financial support were rated highest of the stress induced factors in four of the five schools. Although not specific to college students, researchers of consumer credit counseling clients (Garman et al., 1999) revealed that financial stress was responsible for poor sleep patterns in almost 80% of the sample. Sixty-five percent

of the sample reported eating habit changes and 10% reported an increase in alcohol consumption.

Financial stress has been shown to have a detrimental impact on academic performance (Anderson & Cole, 1988) and overall well being (Bojuwoye, 2002; Dickinson, 1996). This may be a significant factor in the length of time required to complete the educational program since employment opportunities often interfere with class schedules and pose time constraints.

Although the early research by Trueblood (1957) suggests otherwise, subsequent studies have found an inverse relationship between employment hours worked and academic performance (Anderson & Cole, 1988; Devadoss & Foltz, 1996; Stewart, Lam, Betson, Wong, & Wong, 1999; Gavala & Flett, 2005). Additionally, the Gavala and Flett study found that the student's total stress score could account for 43% of the variability in well being. Finding stress as a strong predictor of well being, and threading this through comfort within the university environment as a strong predictor of academic enjoyment/motivation leading to academic performance, the authors argue for the implementation of stress management programs to help reduce stress and thereby increase academic performance. Stewart et al. (1999) found "subtle indicators" (p. 249) that effective stress management can positively affect academic performance.

As found in research by Devadoss and Foltz (1996) and Anderson and Cole (1988), academic performance is significantly influenced by class attendance. Thus, missing class either as a result of poor health (perhaps a result of financial stress) or employment responsibilities (almost certainly a result of financial stress) contributes to

reduced academic performance. Financial stress has been linked to health problems. Skinner, Zautra, and Reich (2004) found increased levels of financial stress to be a significant predictor of health declines in arthritis patients. In an earlier study by Fox and Chancey (1998), the authors argue that increased financial stress significantly contributes to poor physical health, conflict within families, marital dissolution, psychological distress, and decreased self-satisfaction.

Whether or not the assertion of Henry, Weber, and Yarbrough (2001) that "university students are vulnerable to financial crisis" (p. 246) may be applied to all college students, certainly students face increasing financial pressures and difficulties resulting in varying levels of financial stress.

Cultural Differences

Barajas (2003) identifies 10 barriers he suggests act as culturally derived constraints on financial success.

1. The *Patron-Peon* system: Depending on others to take care of you.
2. Mattress and mayonnaise jars: Storing rather than investing money.
3. *Mi Compadre*: Consulting (non) experts.
4. Business on a handshake: The trap of informality.
5. *Machismo:* More ego can mean less money.
6. Don't be a crab: Scarcity and abundance.
7. Fatalism: A divine excuse for doing nothing.
8. The lotto mentality: Getting something for nothing.
9. The *Mañana* syndrome: The pain of procrastination.

10. *Pobrecito Me:* Conflicting beliefs and attitudes about money.

Although the argument can certainly be made that some of these barriers, for instance "the lotto mentality: getting something for nothing" (p.81) apply to people from a wide variety of cultures, other barriers tend to "sabotage *ourselves*—with our beliefs about money, our abilities, and what's possible an impossible for us" (p. 8). Literature on the money attitudes and habit of Latinos, specifically those of Mexican American heritage support a number of these barriers. Acknowledging that the sample of Mexican American participants with their study would perhaps not generalize to the Mexican American population in general, Medina, Saegert, and Gresham (1996) found significant support for the mañana syndrome with regard to money practices. From their results, the authors suggest Mexican American individuals tended to use credit cards and personal debt to provide for immediate needs at the expense of long term planning. The authors assert Mexican American individuals "are less likely to engage in behaviors involving medium-to long-term personal gain – savings, investing, and speculating with money – at the expense of present consumption. Consistent with findings by Barajas (2003), Medina et al. argue Mexican Americans have a lower propensity to engage in long-term financial planning.

Medina et al. (1996) used a modified version of Yamauchi and Templer's (1982) money attitude scale, suggesting the modification resulted in a considerable increase in the amount of variance explained by the four subscales of power/prestige, retention/time, distrust/anxiety, and quality. From a sample of former students of a southwestern university with a large Mexican American population, no significant differences were

found in demographic variables of income, gender, or age between the Mexican American and Anglo American groups. Education, found by Furnham (1984) to be a moderating variable in money attitudes, was not measured since the entire sample was college educated. Although response bias was considered a potential problem due to a response rate of 16.5%, it was argued that the similar response ratios between both the Mexican American and Anglo American groups moderated this problem. Medina et al. modified Yamauchi and Templer's (1992) original money attitude scale by collapsing the third construct (distrust) with the fifth construct (anxiety) into a single dimension. The resulting reliability measures, as reported by Cronbach's alpha, ranged from .79 to .83, suggesting a fairly good reliability.

Mirowsky and Ross (1984) measured the previously asserted tendency of Mexicans and Mexican Americans to believe in external control (i.e., Madsen, 1973). Mirowsky and Ross found significant differences in the perception of external control between Mexican American and Anglo American participants. They further noted income and poverty levels accounted for very little in the variance, arguing that little of the increased tendencies of external locus of control in Mexican American individuals can be ascribed to poverty. This is consistent with later findings by Barajas (2003), who argues the Latino culture advocates the fatalistic lack of control over one's own life and finances.

Rabow and Rodriguez (1993) measured differences in money attitudes, money education, and financial practices among Mexican American sibling-pair (sister-brother) students whose parents had been born in Mexico. Their findings suggest no differences in

the amount of education concerning money the parents had provided, nor any significant differences in the perception of money and its value between siblings. This seems to argue for a cultural factor in view of findings by Chen and Volpe (2002) indicating a significant higher level of financial literacy for males in a study of American college students, and the Hayhoe et al. (2000) finding of no significant differences in credit card practices between male and female American college students.

Quintana, Vogel, and Ybarra (1991) found 20 years of research indicated Latino students displayed higher levels of financial stress than did Anglo students during their college years. Financial issues included student loan repayment, ability of their parents to provide financial support, and availability and qualification for financial aid. The latter two suggest the potential for these students to seek employment provided income sources. Quintana et al. (1991) found gender to be significant in their meta-analysis, citing Latina females reported higher levels of stress, a finding supported by later research by Bernardi (1997) and Bojuwoye (2002).

The discussion above suggests culture may play a significant role in the money attitudes, financial practices, and financial stress levels among college students. Additionally, fatalistic money attitudes (Barajas, 2003; Mirowsky & Ross, 1984) may impede the perceived behavioral control influence of Ajzen's (1985) theory of planned behavior model, or the motivation and opportunity components of Fazio's (1990) MODE model. Indeed, beliefs in external locus of control may certainly have a detrimental affect on the deliberative, reasoned process of behavior choice.

Summary

The literature review suggests a number of issues facing individuals with regard to their financial lives. College students in particular must deal with reduced income, the expansion of consumerism and the culture of credit (Muldrew, 1998), rapidly escalating costs of education, and a distinct lack of financial education programs available to them in high school (Harr, 2000).

Clearly the interactions between financial stress, money attitudes, and economic locus of control have a significant impact on college students. Identifying these relationships may provide insight into the money attitudes and behaviors of college students, and assist with the development of an effective tool to help students overcome many of the financial problems they face.

CHAPTER III

METHODS AND PROCEDURES

The purpose of this research was to identify money attitudes, perceived economic locus of control, and dimensions of financial strain among college students in two southwestern United States universities. Matriculation periods for many students to complete a bachelor's degree are six years (Adelman, 2006). A number of states and institutions have developed and implemented programs designed to offer financial incentives with the hope of motivating students to increase their class load to a level sufficient to complete their bachelor's degree within four years. In consideration of the numerous financial issues and difficulties many students may face as a result of the reduction in income due to increased class loads, some type of assistance program may need to be developed.

This chapter explains the methods and procedures that were used in this research. Survey procedures, sample selection, instrumentation, data collection strategies, and analytical procedures are discussed.

Survey Procedures

Approval from the Institutional Review Boards of Texas Tech University and New Mexico Highlands University was requested in Spring 2006 and obtained under exempt status before survey administration. See Appendix A for the Human Subjects Protocol.

Consistent with the research objectives, only currently enrolled college students were surveyed. The literature suggests culturally defined differences in all three variables

of interest, thus two universities were surveyed. One university, New Mexico Highlands University, a Hispanic Serving Institution (HIS) in northern New Mexico was surveyed to ensure a sufficiently large sample of Mexican American participants. The other university, Texas Tech, is a predominantly Anglo institution in west-central Texas.

Sample Selection

The data were collected through an Internet survey (see Appendix B) as recommended by Nesbary (2000) during the last two weeks of April 2006. The instrument was developed using survey software that facilitates web-based survey research. The link to the survey site was given to professors at New Mexico Highlands University for administration to students within the School of Business, and to professors at Texas Tech University for administration to students within the College of Human Sciences. Teachers were asked to tell students participation was voluntary, and they could drop out of the survey at any time. No personally identifying information was obtained through the survey. Colleges and classes from both universities were selected based on convenience. The student gave informed consent when they clicked on the link to participate. Extra credit for participation may have been awarded by some faculty as an incentive to participate.

The following research questions were investigated:

1. In a population of college students with different income levels, is there a statistically significant mean attitudinal difference among groups by gender, class level, and culture as these relate to perceptions of economic locus of control?

2. In a population of college students with different income levels, is there a statistically significant mean attitudinal difference among groups by gender, class level, and culture as these relate to financial strain?
3. In a population of college students with different income levels, is there a statistically significant mean attitudinal difference among groups by gender, class level, and culture as these relate to money attitudes?

Instrumentation

Money attitudes were measured using Yamauchi and Templer's (1982) money attitude scale (MAS). Although Furnham's (1984) money beliefs and behavior scale (MBBS) appears more comprehensive, problems with psychometric attributes and cross-cultural issues persist (Bailey, 1987; Yang & Lester, 2002). Additionally, Tang's (1992) money ethic scale (MES) does not include an "anxiety" dimension identified in Yamauchi and Templer's (1982) work.

As noted previously, reliability and validity of the Yamauchi and Templer (1982) instrument suggest a psychometrically sound measure. Reliability of the final scale, as measured by coefficient alpha, was reported as .77. Reliability coefficients for the four factors of the final MAS; Power-Prestige, Retention-Time, Distrust, and Anxiety were reported as .80, .78, .73, and .69 respectively. Construct validity was accessed through correlation analysis between the MAS and existing instruments predicted to measure similar constructs. Test-retest reliability was assessed through the administration of the final form of the MAS on two occasions five weeks apart. The test-retest reliability coefficient for the total score was reported as .88. Coefficients of the test-retest reliability

for the four factors of the final form of the MAS were reported as .95, .92, .87, and .88 respectively. Thus the measurement has good reliability. For this study, the 29 items of the MAS were measured on a continuous, five-point strongly disagree to strongly agree Likert-type scale.

The Financial Strain Survey (FSS) developed and tested for psychometric qualities by Aldana and Liljenquist (1998) was used to assess financial strain. Items were measured on a continuous, five-point never to always Likert-type scale. Reliability for the FSS (Aldana & Liljenquist) was reported based on Cronbach's alpha. The FSS resulted in five factors:

1. Education ($\alpha = .62$) assessed a general feeling of financial knowledge, and the specific knowledge of how interest applies to credit cards.
2. Relationships ($\alpha = .87$) assessed the influence of financial practices on interpersonal relationships.
3. Physical ($\alpha = .89$) assessed the influence of financial worries and stress on sleep, muscle pain, headaches, and heartburn.
4. Credit Card Use ($\alpha = .82$) assessed credit card purchase and payment practices.
5. Meeting obligations ($\alpha = .87$) assessed the respondents' ability to pay bills on time.

Reliability coefficients suggest the subscales of the measurement reliably assess the construct.

Aldana and Liljenquist (1998) utilized a number of validity tools. Predictive

validity was established through the use of discriminant analysis (Field, 2005). With the exception of the education factor, the two groups used in their research (consumer credit counseling clients and a control group) scored significantly different values for each of the other four dimensions, in addition to scoring significantly different total strain scores. A comparison of debt to income ratios for the two groups assessed concurrent validity. The authors reported significant differences between groups in the debt to income ratios. Credit counseling clients had statistically significant higher debt to income ratios as well in addition to their higher overall financial strain scores.

Research indicating the lack of significant influence on attitudes from broad locus of control measures (Ajzen, 2002; Kraft et al., 2005) suggests the use of a situation-specific measurement such as Furnham's (1986) Economic Locus of Control Scale (ELCS). Considering the influence on both intentions and intention-driven behavior from perceived behavioral control, it seems clear some form of individually attributive influence should be considered (Ajzen, 1985, 1987). Citing results from research in the application of locus of control to organizational behavior, Furnham (1986) summarizes by suggesting "the more a person is orientated toward internal control, the more he or she will feel that his/her performance will lead to desired outcomes, while the more he is orientated to external control, the less likely he or she is to have high performance-to-outcome expectancy" (p. 31). From this, Furnham developed a situation-specific measurement of internal-external control over financial issues. This scale was used toward an assessment of perceived control over money matters among college students.

Psychometric properties for the scale suggest a valid and reliable instrument.

Giving the 40-item instrument to ten people, one week apart assessed test-retest reliability. A reliability coefficient of .86 was recorded. Reliability of the full instrument was assessed by Cronbach's alpha. Furnham (1986) reports an alpha coefficient of .78 for the whole scale.

As an assessment of validity, Furnham used correlation analysis between the ELCS and Rotter's original (1966) locus of control measurement. Rotter's (1966) internal locus of control beliefs showed significant positive correlation with Furnham's (1986) ELCS measurement, but negatively with beliefs that powerful others controlled economic status. Of the 40 items, 22 items resulted in four factors, defined by Furnham as an internal dimension, a chance dimension, an external/denial dimension, and a powerful others dimension. For this study, economic locus of control (ELCS) was measured on a continuous, five-point strongly disagree to strongly agree Likert-type scale.

The review of literature suggests gender, age, and culture may all be significant variables in the assessment of financial stress, differing money attitudes, and differing perceptions of control over the financial circumstances students have. Therefore, measures of demographic characteristics were also included. A recent study (Hayes, 2005) suggests college students experience increasing levels of financial strain as they advance through class years. Additional questions regarding the student's satisfaction with their current standard of living, and perceptions of frequency, adequacy, and dependability of income were included as additional attitudinal measures. Including these factors in this study adds to the body of literature with regard to college students specifically.

Original survey questions (see appendix B) were randomly ordered prior to administration to help control for acquiescence and pattern. The survey was then administered to eight graduate students and four faculty members of Texas Tech University as a pilot test before it was posted to the website for student participation. Recommendations from pilot study participants regarding clarification of items and instructions were accepted, and the survey was modified prior to administration to students. The final survey consisted of 88 questions and took approximately 30 minutes to complete.

Variables in the Study

The dependent variables for this research were developed through the creation of a summed score for each of the subscales from the three major scales used: Money Attitude Scale (MAS), Economic Locus of Control Scale (ELCS), and the Financial Strain Scale (FSS). Independent variables included cultural identification, class level, and gender. A monthly expenses variable, as a proxy for income, was used as a covariate.

Data Analysis Procedures

This research entailed a causal comparative study. In addition to descriptive analysis procedures, multivariate analysis of covariance (MANCOVA) procedures within a related factorial design were used to determine cultural, class level, and gender differences among the dependent variable subscales measuring money attitudes, economic locus of control, and financial stress among college students. The multivariate analysis of covariance is appropriate because a student's income level, as measured by

monthly expenses, may act as a confounding variable and no random assignment to groups has been used. One limitation of the procedure is that the groups may differ as a result of influence from other factors not measured, in addition to the influence of the monthly expenses covariate.

In an effort to minimize Type I error and provide a multivariate analysis of effects through considering the correlation between subscales of each of the three main measurement scales while controlling for the affects of varying income levels, the MANCOVA examines the main effects of the three factors on the various subscales, and any interaction effects of the factors on the dependent variables. The multivariate analysis of variance can detect when groups differ across interrelationships between variables (Huberty & Morris, 1989). Analyzed within multiple univariate procedures, dependent variables may not reveal differences across the groups. Analyzed as a system defining different constructs, differences within the groups as a result of the factors may be evident. Requirements for multivariate analysis of covariance, specifically multivariate normality, homogeneity of the covariance matrices, independence of observations, and absence of multicollinearity among the dependent variables were all examined.

Discriminant analysis was used as a follow up given significant MANCOVA's. Since the use of the multiple ANCOVA's as a follow up procedure does not account for the relationship between the sub constructs (dependent variables) of each scale analysis, discriminant analysis was used to find the linear combination of the dependent variables that best separated the groups (Field, 2005).

Mathematically, there is no difference between multivariate analysis of variance and discriminant analysis. Using univariate procedures as a follow up to a significant omnibus *F* from a multivariate design can not account for differences based on some linear combination of the sub dimensions. Discriminant analysis preserves this relationship, and seeks the best linear combination that discriminates significant factor groups. Discriminant analysis procedures using categorical variables as the dependent variable produce results similar to multiple regression procedures used when dependent variables are continuous. The significant independent (categorical) variable from the MANCOVA procedure becomes the dependent variable in the discriminant analysis procedure. The sub dimensions of the scale form a linear function, with beta coefficients indicating the strength of the sub dimension's power to separate the groups of the dependent variable.

Summary

This chapter provided a description of the sample origin, instrumentation, and methods and procedures of this study. A causal comparative study was employed to help develop a clearer understanding of college students' money attitudes, perceived economic control beliefs, and financial strain. Using monthly expenses as a proxy for income as the covariate, multivariate analysis of covariance procedures were conducted to determine attitudinal and perception differences among different cultural, class level, and gender groups as these relate to the various subscales of the Money Attitude Scale, Economic Locus of Control Scale, and Financial Strain Scale.

CHAPTER IV

RESULTS

This chapter reports the findings of the research. The data from this study were used in the investigation of money attitudes, perceptions of economic locus of control, and financial strain among a sample of college students. The following sections will be used to report the results: (a) sample demographics of continuous variables, categorical variables, and the three factors used in the MANCOVA analysis, (b) analysis of the sub dimensions representing the Money Attitude Scale, the Economic Locus of Control Scale, and the Financial Strain Scale, (c) analysis of the research questions, and (d) ancillary questions.

Sample Demographics

Descriptive statistics were used to describe the sample. A total of 260 students from Texas Tech University (TTU) and New Mexico Highlands University (NMHU) completed the web survey over a two-week period during the end of April 2006. Seven participants from TTU and three from NMHU were deleted since they were graduate students and outside the interest of this research. Due to the significant interference of outliers within the covariate variable in multivariate analysis of covariance (Tabachnick & Fidel, 2001), 16 extreme outliers within the monthly expenses variable were deleted. The resulting sample included 49 students from NMHU and 185 students from TTU, for a total of 234 students. Tables 4.1 – 4.3 describe the characteristics of the final sample used for analysis.

As described in Table 4.1, the data suggest the typical respondent was about 22 years old, took between four and five classes during spring and fall semesters, worked less than 20 hours each week including work study, and had slightly better than a 3.0 grade point average. Table 4.3 identifies additional characteristics of the sample. Of the total sample, 79 % were from Texas Tech. The data are skewed with regard to both gender (66.7% female) and class rank (only 9% freshman). Two-thirds of the sample identified their culture as Anglo American, while about 18% identified with the Mexican American or other Latino / Latina culture.

As shown in table 4.2, a little more than half of the students surveyed indicated they could only afford some of the things they want, but not all. Almost 18% of the sample indicated they are only able to meet necessities, and a little more than 6% either feel they can afford everything they want with money left over or feel their income is not adequate at all.

Table 4.1. Continuous variable demographics.

Variable	N	Min	Max	Mean	SD
Age	234	18	56	22.46	5.75
GPA	234	1.2	4	3.14	0.49
Current semester hours	234	6	23	14.4	2.78
Last semester hours	234	0	21	13.8	3.62
Hours worked	234	0	60	17.33	14.01
Monthly expenses	234	75	2870	822.76	497.7

Table 4.2. Categorical variable demographics.

Variable	Categories	n	N	%
School attended	TTU	185	234	79.1
	NMHU	49		20.9
First generation college student	Yes	86	234	36.8
	No	148		63.2
TTU students aware of the Graduate on Time program	Aware	123	181	68
	Not aware	58		32
TTU students participating in the Graduate on Time program	Participant	30	180	16.7
	Non-participant	150		83.3
NMHU students participating in the education lottery	Participant	16	48	33.3
	Non-participant	32		66.7
Adequacy of income	Afford everything	15	234	6.4
	Afford about everything	41		17.5
	Afford only some things	123		52.6
	Meet necessities only	41		17.5
	Not adequate at all	14		6
Lifestyle compared to peers now	Worse	21	234	9
	Same	128		54.7
	Better	85		36.3
Lifestyle compared to parents now	Worse	87	234	37.2
	Same	101		43.2
	Better	46		19.7
Reduced class load to work more	Yes	44	234	18.8
	No	190		81.2
Dropped out to work more	Yes	15	234	6.4
	No	219		93.6

Table 4.3. Factor demographics.

Variable	Categories	n	N	%
Gender	Female	156	234	66.7
	Male	78		33.3
Culture	Mexican American	27	234	11.5
	Other Latino / Latina	15		6.4
	African American	7		3
	Anglo American	156		66.7
	American Indian	8		3.4
	Asian	5		2.1
	Other non-white	16		6.8
Class rank	Freshman	21	234	9
	Sophomore	57		24.4
	Junior	76		32.5
	Senior	80		34.2

Table 4.4 identifies those variables with significant differences between the two schools. The data indicate the average age of students at New Mexico Highlands University is older by about six years, $t(232) = 6.98$, $p < .001$, with a slightly higher GPA $t(232) = 2.24$, $p = .026$. Additionally, first generation college students, students with neither parent having graduated from college, are more likely to attend NMHU (71.4% compared to 27.5% at TTU), *chi-square*$(1) = 32.06$, $p < .001$, and as expected the population from NMHU has a significantly higher proportion of students who identified with the Mexican American and Latino / Latina cultures, *chi-square*$(6) = 112.23$, $p < .001$.

Table 4.4. Variables with significant differences between schools.

Variable	Mean TTU	Mean NMHU	t	df	sig.
Age	21.23	27.1	6.98	232	<.001
GPA	3.1	3.28	2.24	232	0.026
Monthly expenses	858	689	-2.129	232	0.034

Variable	Frequency TTU	Frequency NMHU	*chi* -square	df	sig.
1st generation college student	51 / 185	35 / 49	32.06	1	<.001
Culture			112.23	6	<.001
Mexican American	9 / 185	18 / 49			
Other Latino / Latina	3 / 185	12 / 49			
African American	6 / 185	1 / 49			
Anglo American	148 / 185	8 / 49			
American Indian	1 / 185	7 / 49			
Asian	5 / 185	0 / 49			
Other non-White	13 / 185	3 / 49			

Analysis of the Sub Dimensions of the Three Major Scales

The reliability coefficients and descriptive statistics for the three major scales and the sub dimensions of each are detailed in Table 4.5. Where available, reliability coefficients have been provided within the table for comparison purposes. For example, Furnham (1986, 2002) did not report reliability coefficients for the sub dimensions of the Economic Locus of Control Scale, and no reliability coefficient for the total Financial Strain Scale was reported by Aldana and Liljenquist (1998).

Table 4.5. Reliability and descriptive statistics.

N=234	Mean	SD	Sample Cronbach's Alpha	Original Cronbach's Alpha	Dimension items
Money Attitudes			0.82	0.77	29
Power-Prestige	19.07	6.21	0.85	0.81	9
Retention-Time	21.47	4.51	0.76	0.78	7
Distrust	21.27	4.33	0.74	0.73	7
Anxiety	18.64	4.07	0.69	0.69	6
Economic Locus of Control			0.75	0.78	22
Internal	27.01	3.11	0.64	n/a	7
External-Denial	12.12	2.81	0.58	n/a	5
Chance	13.93	3.21	0.62	n/a	6
Powerful-Others	10.77	2.63	0.75	n/a	4
Financial Strain			0.88	n/a	18
Education	10.96	2.31	0.78	0.62	3
Relationships	8.52	3.01	0.81	0.87	4
Physical	8.07	3.41	0.84	0.89	4
Credit Card Use	4.94	2.34	0.79	0.82	3
Meeting Obligations	7.01	3.42	0.89	0.87	4

All questions were measured on a scale of 1 – 5. For instance, the credit card use dimension of the Financial Strain Scale would measure from 3 – 15. A mean value of 4.94 might be considered low compared to the 10.96 average score on the Education dimension measured on the same 3 – 15 scale. Reliability coefficients for the sample are very similar to the coefficients reported by the scale developers. With the exception of the External-Denial and Chance dimensions of the Economic Locus of Control Scale, reliability coefficients for the sample are all .64 and above.

Correlation analysis is required due to the use of sub-scales measuring different dimensions of the three major scales. Given the use of multivariate analysis of covariance to answer the primary research questions, some correlation between the sub dimensions is expected. And while some correlation is not a significant problem, correlations above .5 (note the correlations of the Financial Strain Scale dimensions) indicate a potential limitation of the procedures using this data. Correlations between the various sub-dimensions of each scale are listed in Table 4.6. Significance is determined at either the .01 level or the .05 level.

Table 4.6. Scale dimension correlations.

Money Attitudes	PP	RT	D	A
Power Prestige	1	0.02	.28**	.42**
Retention Time	-	1	0.11	-.14*
Distrust	-	-	1	.42**
Anxiety	-	-	-	1

Economic Locus of Control	I	ED	C	PO
Internal	1	0.12	-.16*	.14*
External Denial	-	1	.44**	.39**
Chance	-	-	1	.52**
Powerful Others	-	-	-	1

Financial Strain	E	R	P	CCU	MO
Education	1	-.14*	-.16*	-.12	-.24**
Relationships	-	1	.63**	.59**	.48**
Physical	-	-	1	.57**	.60**
Credit Card Use	-	-	-	1	.64**
Meeting Obligations	-	-	-	-	1

N=234 for all correlations
** Significant at the .01 level
* Significant at the .05 level

Analysis of the Research Questions

The research questions for this study focused on differences in Money Attitudes, Economic Locus of Control, and Financial Strain across the factors of culture, gender, and class rank in a sample of college students from two universities. A factorial multivariate analysis of covariance (MANCOVA) procedure was employed using monthly expenses as a covariate, factors including gender, culture, and class rank, and dependent variables of the sub dimensions of the major scales. Due to the final sample size (N = 234) and minimum cell size requirements, the culture variable was recoded into three categories; 1) those of the Mexican American and Latino / Latina culture, 2) those of the Anglo American culture, and 3) those of other non-White cultures. As a result of the unequal group sizes in all three factors, Pillai's Trace test statistic is used. The first research question is related to perceptions of economic locus of control:

1. In a population of college students with different income levels, is there a statistically significant mean attitudinal difference among groups by gender, class level, and culture as these relate to perceptions of economic locus of control?

Table 4.7 describes the findings of the omnibus *F* of the MANCOVA analysis for the dimensions of the Economic Locus of Control Scale. Only gender, $F(4, 207) = 2.61$, $p = .036$, and the interaction between culture and class rank, $F(24, 840) = 1.57$, $p = .04$, were found significant. Box's Test indicates the homogeneity of variance condition was not met in this analysis, $F(140, 4216.95) = 1.25$, $p < .03$. Levene's Test of equality of error variance for the individual sub dimensions are as follows:

Internal dimension:	$F(22, 211) = 1.77$	$p = .02$
Chance dimension:	$F(22, 211) = 1.51$	$p < .001$
External Denial dimension:	$F(22, 211) = 1.17$	$p = .331$
Powerful Others dimension:	$F(22, 211) = 1.00$	$p = .472$

Table 4.7. Economic Locus of Control Scale MANCOVA.

Factor: Gender Dimension	Female n = 156	Male n = 78	*F*	*p*	Partial Eta sq.
Economic Locus of Control	62.86	65.98	2.61	0.036	0.048
Internal	26.66	28.5	7.93	0.005	0.036
Chance	14.06	13.9	0.147	0.702	0.001
External Denial	11.99	12.31	0.166	0.684	0.001
Powerful Others	10.15	11.27	3.32	0.07	0.016
Interaction Culture * Class	---	---	1.57	0.04	0.043
Non-significant factors					
Monthly expenses	---	---	0.212	0.931	0.004
Culture	---	---	1.72	0.092	0.032
Class	---	---	1.1	0.419	0.019
Culture * Gender	---	---	0.896	0.52	0.017
Gender * Class	---	---	1.12	0.344	0.021
Culture * Gender * Class	---	---	1.44	0.095	0.034

The follow up discriminant analysis procedure, summarized in Table 4.8, indicates all dimensions of the Economic Locus of Control Scale discriminate by gender. The tests of equality of group means for the four dimensions all result in significant differences, all with *p* values of .031 or less. Wilks' Lambda describes the strength of the discriminating power of the dimension; lower values suggesting a higher ability to

discriminate between gender groups. The structure matrix (values increase as power increases), which accounts for collinearity between dimensions, indicates the Powerful Others dimension has the most discriminating power, followed by the External Denial, Chance and Internal locus dimensions.

Table 4.8. Discriminant analysis, Economic Locus of Control Scale and Gender.

Test of equality of group means.

Dimension	Wilks' Lambda	F	df1	df2
Internal	0.98	4.72	1	232
Chance	0.979	5.02	1	232
External Denial	0.964	8.74	1	232
Powerful Others	0.958	10.06	1	232

Structure Matrix Dimension	
Internal	0.523
Chance	0.539
External Denial	0.711
Powerful others	0.763

Classification function coefficients		
	Female	Male
Internal	3.15	3.24
Chance	1.86	1.9
External Denial	0.33	0.41
Powerful others	-0.15	-0.05
(Constant)	-56.49	-61.62

The classification function coefficients indicate females perceive levels of influence over their money matters from all dimensions. Compared to male students, female students tend to feel less personal control over positive outcomes, perceive uncontrollable chance as less influential on their financial circumstances, and consider poverty more real and controllable.

This analysis suggests that the function of the four dimensions correctly classifies

females 96.2% of the time, but misclassifies males 14.1% of the time, resulting in an overall classification of about 68.8%. Other significant differences within the Powerful Others dimension result from the interaction between the cultural factor and the class rank factor. As reported in Table 4.9, this suggests there is a linear combination that produces significant differences when interaction effects between the factors of class rank and culture occur.

For freshmen, the data suggest differences in the Powerful Others dimension across culture and class levels. The strength of the influence of the Powerful Others dimension found in the discriminant analysis is supported through inspection of the interaction effect. Freshman students indicate a significantly lower influence over their money matters from Powerful Others within the Anglo American and Other non-white cultures, while freshman students from the Mexican American, Latino / Latina culture exhibit a surprisingly high influence over their money matters from Powerful Others.

Table 4.9. Interaction of cultural and class rank factors.

Dimension	Culture	Class rank	Mean	*F*	*p*	Partial Eta sq.
Powerful Others	Mexican Amerian					
	Latino / Latina	Freshman	12.83	2.726	0.014	0.072
		Sophomore	9.72	"	"	"
		Junior	10.37	"	"	"
		Senior	11.03	"	"	"
	Anglo					
	American	Freshman	10.59	"	"	"
		Sophomore	11.37	"	"	"
		Junior	10.9	"	"	"
		Senior	10.85	"	"	"
	Othe non					
	White	Freshman	6.93	"	"	"
		Sophomore	9.24	"	"	"
		Junior	11.5	"	"	"
		Senior	12.43	"	"	"

The second research question is related to levels of financial strain:

2. In a population of college students with different income levels, is there a statistically significant mean attitudinal difference among groups by gender, class level, and culture as these relate to financial strain?

Gender is the only factor that shows significant differences, $F(5, 206) = 4.45$, $p = .001$. Table 4.10 describes the findings of the omnibus *F* of the MANCOVA analysis for the dimensions of the Financial Strain Scale. Box's Test indicates the homogeneity of variance condition is not met in this analysis, $F(180, 4752.40) = 1.49$, $p < .001$. Levene's Test of equality of error variance for the individual sub dimensions are as follows:

Education dimension:	$F(22, 211) = 1.19$	$p = .262$
Relationships dimension:	$F(22, 211) = 2.01$	$p < .01$
Physical dimension:	$F(22, 211) = 1.82$	$p = .016$
Credit Card Use dimension:	$F(22, 211) = 1.31$	$p = .168$
Meeting Obligations dimension:	$F(22, 211) = 1.68$	$p = .033$

Table 4.10. Financial Strain Scale Mancova.

Factor: Gender Dimension	Female n = 156	Male n = 78	*F*	*p*	Partial Eta sq.
Financial Strain	37.44	42.36	4.45	0.001	0.097
Education	10.84	11.76	2.94	0.08	0.014
Relationships	7.52	9.62	10.21	0.002	0.046
Physical	7.44	8.31	1.36	0.245	0.006
Credit Card Use	5	5.14	0.06	0.81	0
Meeting Obligations	6.64	7.53	1.71	0.19	0.008
Non-significant factors					
Monthly expenses	---	---	1.05	0.389	0.025
Culture	---	---	0.635	0.784	0.015
Class	---	---	1.35	0.169	0.032
Culture * Gender	---	---	1.02	0.425	0.024
Culture * Class	---	---	1.26	0.161	0.035
Gender * Class	---	---	0.865	0.604	0.021
Culture * Gender * Class	---	---	1.51	0.054	0.035

Discriminant analysis for the gender group and the five dimensions of the Financial Strain Scale indicate a significant difference in the Relationships, Education, and Meeting Obligations dimensions. Table 4.11 summarizes the output. The dimensions

of Physical and Credit Card Use in the Financial Strain Scale are not found significant in the discriminant analysis. After controlling for collinearity with the dimensions (note that six correlations within the Financial Strain Scale were above .5), the structure matrix indicates the Relationships dimension has the greatest power to differentiate gender groups. The Education and Meeting Obligations dimensions follow. The analysis suggests that females tend to have slightly lower scores on financial education and awareness of issues such as debt interest, feel that money has a lower negative influence on their relationships resulting from arguments or disagreements over money, and have less difficulty meeting their financial obligations. It should be noted that an analysis of monthly income fails to find any significant differences by gender. The discriminant model correctly identifies females almost 93% of the time, but misclassifies males almost 20% of the time. This results in a correct classification 68.4% of the time.

Table 4.11. Discriminant analysis, Financial Strain Scale and Gender.

Test of equality of group means.

Dimension	Wilks' Lambda	F	df1	df2
Internal	0.98	4.72	1	232
Chance	0.979	5.02	1	232
External Denial	0.964	8.74	1	232
Powerful Others	0.958	10.06	1	232

Structure Matrix Dimension	
Internal	0.523
Chance	0.539
External Denial	0.711
Powerful others	0.763

Classification function coefficients		
	Female	Male
Internal	3.15	3.24
Chance	1.86	1.9
External Denial	0.33	0.41
Powerful others	-0.15	-0.05
(Constant)	-56.49	-61.62

The third research question is related to money attitudes.

3. In a population of college students with different income levels, is there a statistically significant mean attitudinal difference among groups by gender, class level, and culture as these relate to money attitudes?

Table 4.12 describes the findings of the omnibus *F* of the MANCOVA analysis for the dimensions of the Money Attitude Scale. Again, gender is the only factor with significant differences across the four dimensions of the Money Attitude Scale, $F(4, 207) = 4.11$, $p = .003$. Unlike the dimensions of the Economic Locus of Control Scale and the Financial Strain Scale, the multivariate test for homogeneity of dispersion matrices, Box's Test, results in a lack of significance, $F(140, 4216.95) = .92$, $p = .74$. Levene's Test of equality of error variance for the individual sub dimensions are as follows:

Power Prestige dimension:	$F(22, 211) = 1.2$	$p = .248$
Retention Time dimension:	$F(22, 211) = 1.29$	$p = .178$
Distrust dimension:	$F(22, 211) = 1.40$	$p = .116$
Anxiety dimension:	$F(22, 211) = .69$	$p = .849$

Table 4.12. Money Attitude Scale MANCOVA.

Factor: Gender Dimension	Female n = 156	Male n = 78	*F*	*p*	Partial Eta sq.
Money Attitudes	78.17	81.74	4.11	0.003	0.074
Power Prestige	18.26	20.33	2.92	0.014	0.014
Retention Time	20.3	22.09	2.43	0.011	0.011
Distrust	20.73	21.94	1.56	0.007	0.007
Anxiety	18.88	17.38	3.39	0.016	0.016
Non-significant factors					
Monthly expenses	---	---	0.751	0.558	0.014
Culture	---	---	0.663	0.725	0.013
Class	---	---	1.06	0.39	0.02
Culture * Gender	---	---	1.14	0.331	0.022
Culture * Class	---	---	1.28	0.165	0.036
Gender * Class	---	---	0.747	0.705	0.014
Culture * Gender * Class	---	---	1.28	0.18	0.03

Discriminant analysis fails to find significant differences in the Distrust dimension, $F(1, 232) = 1.21$, $p = .273$. The other three dimensions all suggest significant power to differentiate gender. Table 4.13 describes the results of the discriminant analysis for the Money Attitude Scale. The structure matrix and the tests of equality of group means find the same order in dimensions, as expected due to the lack of any correlation coefficients greater than .42 within the Money Attitude Scale dimensions. This condition suggests a lower likelihood of collinearity issues.

The results of the discriminant analysis suggest female students tend to use money to impress others or as a success symbol significantly less than male students. The preparedness or planning constructs of the Time Retention dimension seem very similar

from the classification function coefficients, yet there is a significant difference in means between the two groups; $\overline{X}_{female} = 20.74$, $\overline{X}_{male} = 22.91$, indicating females place a lower value on the activities of planning for their financial future. Lastly, females tend to display higher levels of anxiety with regard to their money, perhaps feeling higher levels of worry or concern over their money matters.

Table 4.13. Discriminant analysis, Money Attitude Scale and Gender.

Test of equality of group means.

Dimension	Wilks' Lambda	F	df1	df2
Power Prestige	0.952	11.68	1	232
Retention Time	0.948	12.63	1	232
Distrust	0.995	1.21	1	232
Anxiety	0.959	9.98	1	232

Structure Matrix Dimension	
Power Prestige	0.46
Retention Time	0.479
Distrust	0.148
Anxiety	0.425

Classification function coefficients		
	Female	Male
Power Prestige	0.09	0.23
Retention Time	1.11	1.2
Distrust	0.58	0.65
Anxiety	0.98	0.785
(Constant)	-28.32	-30.87

Ancillary Questions

Given the magnitude of the differences by gender in each of the three research questions, additional findings regarding gender were examined through *chi-square* analyses. The data for this sample suggest no significant differences in the level of monthly expenses, GPA, current semester hours enrolled, or hours worked each week

including work-study between females and males. Additionally, the data from this sample suggest no significant differences between females and males in the frequency to reduce class load in order to work more due to financial constraints, nor does the analysis find any significant differences between females and males in the frequency to drop out for a semester in order to work more due to financial constraints. Almost 19% of the sample report they have had to reduce their class load in order to work more due to income / expense constraints during at least one semester, while a little over 6% have had to drop out of class for at least one semester in order to earn more income.

The data do not indicate any differences in the GPA or current semester hours enrolled between the four class levels, however significant differences were noted in the monthly expenditures and hours worked each week between freshman and juniors, and freshman and seniors. Freshman students spent significantly less each month than either junior or senior students, $\overline{X}_{\text{freshman}} = \$382$, $\overline{X}_{\text{junior}} = \$945$, $\overline{X}_{\text{senior}} = \$913$; $t(3, 230) = 10.27$, $p < .001$, and freshman students worked significantly fewer hours each week including work study than do either juniors or seniors, $\overline{X}_{\text{freshman}} = 8.3$ hours, $\overline{X}_{\text{junior}} = 18.4$ hours, $\overline{X}_{\text{senior}} = 20$ hours; $t(3, 230) = 4.57$, $p < .005$. Additionally, *chi-square* analysis suggests a significantly higher frequency for senior students to reduce class load to work more, *chi-square*$(3) = 10.84$, $p < .02$, and a higher frequency for senior students to drop out for a semester due to the need to work more, *chi-square*$(3) = 8.61$, $p < .035$.

The data do not indicate any differences between cultures in any of these characteristic variables. It should be noted that although the cross-tabulation procedures resulting in the *chi-square* statistic are questionable, given the seven categories of the

culture variable, no significant differences were found from the *chi-square* procedure between the three categories of the collapsed culture variable.

Summary of Results and Findings

Based on a multivariate analysis of covariance using monthly expenses as a covariate and factors of gender, culture, and class rank, only gender was found to be a significant factor from this college student data with respect to the sub dimensions of the Economic Locus of Control Scale, the Financial Strain Scale, and the Money Attitude Scale. The interaction of culture and class rank was found significant in the Economic Locus of Control Scale analysis, but no other interaction affects were identified in any of the scales used.

Data from the Economic Locus of Control Scale suggest female students tended to feel less personal control over positive outcomes compared to male students. Female students also perceived uncontrollable chance as less influential on their financial circumstances, and considered poverty more real and controllable through economic policy than the male students. The discriminant function developed from the four dimensions of the scale correctly differentiate females from males about 96% of the time, yet only correctly classify males about 84% of the time. From the significant interaction of culture and class rank, the data suggest freshman students from the Mexican American and Latino / Latina cultures felt a significantly higher influence over their financial situation from Powerful Others, while freshman from the other cultures felt significantly less influence over their financial situation from Powerful Others. It should be noted that the data result in a disproportionately low number of freshman students, perhaps

contributing to the surprisingly high perception of influence over their financial circumstances from Powerful Others by students from the Mexican American, Latino / Latina cultures.

Data from the Financial Strain Scale indicate female students tended to feel less disruptive interference caused by money in their relationships compared to male students. Results also show that female students exhibited lower scores on financial education and awareness, but had significantly less difficulty in meeting their financial obligations compared to male students. No significant differences were found in the Credit Card Use dimension.

Results of the analysis of the Money Attitude Scale indicate female students viewed money as a success symbol or use it to impress others to a significantly lesser degree than do male students. Female students also tended to display significantly higher levels of anxiety or worry over their money, yet showed a significantly lower tendency to prepare or plan for future financial difficulties.

From this sample of college students, the average student had a GPA of about 3.14, took four or five classes during regular spring or fall semesters while working about 17 hours each week (including work study) and spent, on average, $822 each month. Difference testing procedures indicate freshman students spent significantly less each month than did junior or senior students, but they also worked significantly fewer hours each week (including work study). Additionally, senior level students showed a significantly higher frequency of both reducing class load levels and dropping out for a semester during spring or fall semesters in order to work more due to financial

requirements. From the entire data set, about 37% of the students were first generation college students (although the inclusion of New Mexico Highlands University students, with a 71.4% first generation college student frequency may skew this value), and about 24% of the students surveyed indicated their income was either not adequate at all or only sufficient to cover necessities.

CHAPTER V

DISCUSSION, CONCLUSIONS, AND IMPLICATIONS

This chapter provides a discussion of the findings of the study. The summary addresses three major areas: (a) primary and ancillary research questions as they relate to the review of literature, (b) conclusions of the study, and (c) implications and recommendations for future research.

Research Questions

With the exception of an interaction effect between culture and class rank on the Powerful Others dimension of the Economic Locus of Control Scale, gender was identified as the only factor of significance in this study of college students from two Southwestern Universities when controlling for monthly expenses. This is consistent with the literature review, however the lack of significance in all dimensions of the scales used from the culture factor (interaction effect noted above exempted) is surprising. Of course, this may be due to sample size issues and a large number of Anglo American students in the survey.

Results of the analysis of research question one suggest differences as a result of the culture and class rank factor. Consistent with literature (Barajas, 2003; Medina et al., 1996), an interesting finding of the current study is differences in the Powerful Others dimension between students from the Mexican American, Latino / Latina culture compared to other cultures as a result of the interaction effect of culture and class rank. It appears that freshman students from the Mexican American and Latino / Latina cultures tend to feel increased influence over their money matters from Powerful Others compared

to freshman students from the Anglo American or Other non-white cultures. Additionally, freshman students from the Mexican American and Latino / Latina cultures feel stronger influence over their money matters from Powerful Others compared to other class groups within their culture. Put in perspective, with the exception of freshman from the Mexican American and Latino / Latina cultures, students from all cultures tend to feel increased influence over their money matters from Powerful Others as they advance through the class ranks. Other cultural differences identified by the literature are not supported by the current study. Higher perceptions of external locus of control (Mirowsky & Ross, 1984), and higher levels of financial stress (measured here by the Anxiety dimension) as reported by Quintana et al. (1991) can neither be confirmed nor rejected by the current analysis.

Results of the analysis of research question two identify differences resulting only from the gender factor. Chen and Volpe (2002) reported males in their sample scored higher on measures of financial literacy, in addition to placing a higher value on financial literacy than the females in the study. While these two constructs were not measured directly here, the analysis indicates that female students feel less educated and less aware of financial topics. Even though one of the questions of the Education dimension referred specifically to knowledge of how interest works on credit cards, the difference in feelings of financial education do not affect credit card usage, as reported by Hayhoe et al. (2000).

The increased levels of anxiety and concern for current money matters among female students may partially explain the differences in the ability to meet current

financial obligations. Although no differences are identified between female and male students in reported monthly expenses, female students report less difficulty in their ability to meet current obligations. Combined with a lack of significant differences in the number of hours worked each week between female and male students, the lesser difficulty of meeting current obligations for female students may simply be the result of the time dimension; current obligations must be dealt with even at the expense of future considerations.

Results of the analysis of research question three suggest differences in dimensions of Power Prestige, Retention Time, and Anxiety are all influenced by gender. Female students tend to use money to influence others less than do male students. Yamauchi and Templer (1982) argue those scoring low on this dimension maintain perceptions that minimize the belief that money can be equated with status or levels of success. Alternatively, the authors suggest those with higher scores on this dimension tend to "hold attitudes that indicate the importance of status seeking, compensation, external recognition, and acquisition (Yamauchi & Templer, p. 523). The lower scores females display on the Time Retention dimension in the present study indicate they place lower importance on planning for their financial future and financial preparedness compared to males in the study. This seems to contradict results indicating females display higher levels of anxiety with regard to their money, supporting similar findings reported by Furnham (1984). However, this seeming contradiction may be the result of the time dimension. Questions from the Time Retention dimension focus more on future money issues, while questions from the Anxiety dimension focus on current money

issues. It would seem female students tend to be more concerned and anxious about current financial circumstances, resulting in increased concern with current issues at the expense of planning for future money concerns.

The increased levels of anxiety among female students are also contrary to findings by Lim, Teo, and Loo (2003), citing higher levels of financial stress among males when the time dimension entailed future considerations instead of current concerns. Cultural factors may be an influence with regard to differences in financial stress between male and female individuals. Research by Lim et al. is based on a survey of respondents from Singapore, and does not include respondents from other cultures. Higher levels of anxiety regarding money among female students in the current analysis are consistent with research by Quintana et al. (1991), Bernardi (1997), and Bojuwoye (2002), whose findings were all based on data including individuals of the Mexican American culture. Given the size of the group of students combined from the Mexican American and Latino / Latina cultures in the current study, findings of increased anxiety among females are consistent.

In light of the increasing attention to the length of time most college students take to complete a traditional bachelor's degree, data on the propensity to reduce class load or drop out of school for a semester as a result of the need to work more are of particular interest. From the sample, almost 19% reported they have had to reduce their class load in at least one regular semester in order to work more due to financial constraints. The analysis suggests this generally happens during the junior or senior class years. Many schools require the student to live on campus during the first and second years of school;

perhaps contributing to lower overall costs and the lack of additional income need. This analysis suggests junior and senior student have significantly higher monthly expenses that are more than triple the expenses of their lower classmen, and not surprisingly, work more than twice as many hours each week.

Certainly numerous factors influence the length of time a student spends completing a bachelor's degree. One factor not measured in the present study centers on the influence of finding a husband and mate on female students. Glenn and Marquardt (2001) report that about 83% of female students surveyed in their study consider being married a very important goal, while about 63% said they hoped to meet a husband while at college. Leppel (2002) argues data from her study suggests women "may feel that their education is less critical since their husbands serve as primary breadwinner" (p. 446). If marriage is in fact an important issue for female students in the junior and senior classes, one result may be increasing matriculation rates. Regardless of the many factors contributing to the phenomena, extended matriculation periods have been receiving increased attention. Many schools and states are implementing programs to motivate students to complete their program in four years. The program at Texas Tech University establishes student loans that will be completely forgiven if the student graduates within four years (five years for Engineering or Architecture degrees) and the student complete their program with at least a 3.0 grade point average. Considering the average GPA for students at TTU in this sample was currently about 3.1, this seems like a remarkable opportunity. In order to complete a traditional program in four years, class loads may need to be increased to five or six classes from the current four to five class average, but

if student loans and grants help eliminate the need for additional work hours, hours currently being spent on work could easily cover the additional time required to complete the program.

Of the 68% of respondents who knew about the Graduate on Time Program with the Be on Time Loan provisions at TTU, only about 6% of the students survey currently participate in the program. Of course, since the program is available only to freshman students who enter into an agreement at the beginning of their program, the 9% freshman sample may be skewing the participation rate. Further research may provide significant results to help the school achieve a higher participation rate in the Graduate on Time program.

A similar program is offered by the state of New Mexico to freshman students. The program will pay for eight semesters of tuition to students who maintain at least a 2.5 grade point average. Like the program at TTU, the intent is to reduce matriculation periods for students. Knowledge of the statewide program is broad, yet only one third of the students at New Mexico Highlands University are currently participating in the program. Participation rates suggest additional research may provide insight into ways to effectively increase participation in both school's programs. Considering the trends identified from this survey indicating increased time working and higher monthly expenses for students in their junior and senior year, financial education programs during the first year of college may prove effective as a way to help college students adopt spending strategies that may reduce the need for additional employment during their junior or senior class years.

The adequacy of income for most students is what might be expected from full time college students. It is interesting that although there is no significant difference in the perceptions of income adequacy between students of the two different schools, students of NMHU report significantly reduced monthly expenses compared to students at TTU. Students from NMHU report their monthly expenses are only about 80% of the monthly expenses of students from TTU, with no significant differences in the number of hours spent working including work-study.

Conclusions of the Study

As a representation of a larger population, the data in the current study have a number of shortcomings. The data resulted in 9% of the students classified as freshman. This is not representative of the typical college demographic. The Institutional Research Department of Texas Tech University (personal communication, May 2nd, 2006) reports that for the current semester, freshman at TTU constitute 23.12 % of the undergraduate population, while the sophomore, junior and senior populations are 21.13 %, 23.37 %, and 30.40 % respectively. The lower percentage of freshman students is perhaps the result of the type of classes where surveys were administered. The College of Human Sciences classes surveyed at TTU are considered upper level classes, although freshman and sophomore students often enroll. Even though the introductory economics and some of the other business classes surveyed at NMHU are considered lower level as measured by class numbers, during the semester the survey was administered the proportion of freshman was less than expected.

Further issues with the data can be found in the proportion of female students.

General populations do not include females consisting of two-thirds of the population, indicating a bias toward females since two-thirds of the respondents in this study are female. Cultural identification of the survey participants is more like national trends, although a higher proportion of Mexican American – Latino / Latina students might be expected given the geographic region of the two schools. Student population of Hispanic students at Texas Tech for the 2005-2006 academic year was just over 11% according to the Institutional Research Department of Texas Tech University (personal communication, May 2nd, 2006).

Outliers can have significant effects on procedures requiring normality, as is the case in any analysis of variance. Multivariate analyses of covariance procedures are extremely sensitive to outliers in the covariate. Elimination of these outliers, while correcting for the problems of normality in the covariate, resulted in a reduction of data. Additional difficulties with normality are found in the dependent variables of the study. Inspection suggests both skewed distributions and outliers in many of the dimensions of all three primary scales. While the analysis is not too sensitive to data with skewed distributions, outliers pose a significant problem. However, the elimination of the outliers would have resulted in significant manipulation and data loss. And while some of the individual responses were outliers in multiple dimensions of the three scales, the total number across all 13-scale dimensions was deemed too high to eliminate them all. Since none of the individual dimensions contained excessive extreme outliers from a univariate perspective, and no ranking of importance of dimensions is applicable, it was determined that fewer issues would likely arise by not eliminating the outliers in all scale dimensions.

Implications and Recommendations for Future Research

Future research of this topic should include a larger sample. Ideally, each class cohort should be representative of the broad population. Cultural identification, while certainly influenced by the geographic location of the college or school, should be focused directly on those cultures of interest. The current analysis, perhaps as a result of the geographic location of the two schools, did not reflect a true African American, Asian American, or American Indian proportion. Future studies may be able to identify schools with a significant population of students from the cultures of interest, such as Tribal Colleges and Universities, Historically Black Colleges and Universities, Hispanic Serving Institutions, and those that serve Asian Americans and Pacific Islanders. Administering the survey to college students within this type of structured sampling frame may help identify differences in money attitudes and perceptions of control over financial matters without the sample representation limitations constraining the current study.

While noting the limitations of the data and the procedures used, this analysis provides a number of implications. One of the most significant implications of the research is the need to address the increased tendency of junior and senior students to reduce class load or drop out for a semester in order to earn more money through employment. While many factors either directly contribute or merely influence a student's matriculation period, the need to reduce class load or drop out for one or more semesters in order to work more due to financial constraints may be open to other types of influence. Findings from the current study suggest additional research into gender-

financial strain relationships may yield insight for college administrators trying to motivate students toward shorter matriculation periods. While the current study does not find significant differences in credit card usage between male and female students, higher levels of anxiety due to current financial circumstances is consistent with findings by Lyons (2004), who found that female students have a higher risk of succumbing to difficulties with credit card payments. And while increased difficulties meeting credit card obligations do not necessarily lead to more time spent in employment, there is an increased potential for reduced class loads given difficulties meeting credit card payments among female students from the Lyons study combined with findings in the current study indicating female students feel higher levels of anxiety over current money matters.

Incentive programs aimed at shortened matriculation periods offer financial rewards for those who complete their degree within a prescribed period of time. However, the additional class load and study time required to meet incentive program conditions argues for less time allotted to employment. Program requirements for a bachelor's degree vary, but a common number of credit hours required are about 136. In order to accomplish this within four years, the student would need to enroll for at least 15 hours in half of the semesters, and at least 18 hours in the other half. This analysis indicated the average hours enrolled in by students responding to the survey is about 14.4 hours.

Considering the significant increases in both the monthly expenditures and the hours devoted to employment between freshman students and junior or senior students,

program administrators may find financial education programs focusing on attitude – behavior relationships of significant value in helping students manage their finances while enrolling for enough credit hours to complete their degrees according to incentive program requirements. The student will reap significant financial benefits while in school, in addition to the reduced opportunity cost resulting from shortened matriculation periods.

While the survey did not gather extensive financial practices data, the findings that females tend to do significantly less planning for future financial circumstances suggest a need for focused education and awareness programs. The role of women in society has changed significantly, and many are taking on increased responsibility for employment activities and family financial well-being. Educational and awareness programs focused on planning for future financial conditions will help prepare these female students for the time in most women's lives when they are totally responsible for their own finances, or for the finances of an entire family. And while female students in this study indicated less difficulty in meeting current financial obligations compared to male students, they do so at the price of higher levels of anxiety over their current money matters. This is consistent with the significantly lower scores in their perceptions of how financially educated they are. Given the lower levels of financial education, the female student's feelings of limited influence over positive outcomes is perhaps not surprising, but combined with their perceptions that their personal finances are less influenced by chance or uncontrollable circumstances, financial education programs specifically developed to differentiate gender issues seem warranted.

As noted in the results section, no direct differences were observed between students of different cultures. There were, however, intimations that further research may yield culturally defined perceptions of money and individual control over money given sufficient sample sizes. Leppel (2002) espouses the inclusion of programs specifically focused on students from "educationally disadvantaged backgrounds" (p. 445) and specifically identifies Black women as a potential audience for such programs. As a result of the increasing proportion of non-white students enrolling in colleges and universities across the country, numerous programs are being developed with specific attention to multicultural emphasis. But not only are students today coming from different cultures, they are increasingly first generation college students, those coming from families whose parents never completed a college degree. It seems clear that traditional financial education programs, teaching various economic and financial topics to a homogenous audience, must now be replaced with programs that are developed with attention to the specific gender and cultural differences in money matters among a population of students from families perhaps less sophisticated than the families of college students of previous generations.

The efficacy of financial education programs continues to be reviewed. At a policy level, financial literacy issues are being welcomed with alacrity by state legislatures, many of which may soon join trends among other states to reintroduce economics and basic personal finance into high school requirements. However, education alone may not suffice without further research into the attitude – behavior relationship

specific to college students. It is during the college years when many young people, often for the first time, must accept the primary responsibility for most daily living expenses.

Perhaps most promising is Ajzen's (1985) theory, which argues that an individual's perception of control over a particular behavior is a function of the necessary opportunities and resources available to the individual. These perceptions of controllability influence both the ultimate behavior and the behavioral intentions. Ajzen's model does not consider the amount of actual control an individual has in a particular situation. The model is influenced by the "possible effects of perceived behavioral control on achievement of behavioral goals" (Ajzen, 1987, p. 45). One of the problems in the application of the theory of reasoned action in Ajzen's (1987) study was the theory's reliance on individual volitional control. Indeed, this is one of the foundations of intention. However, very often an individual is precluded from exercising volitional control due to external constraints. An attempt to solve this issue was the inclusion of the influence that perceived behavioral control exercises over both intention and behavior, resulting in Ajzen's (1991) Theory of Planned Behavior.

The current analysis suggests Furnham's (1986) Economic Locus of Control Scale may prove useful in ascertaining some level of perceived control over financial circumstances. Future research using Ajzen's Theory of Planned Behavior (2002) model with inputs from money attitude dimensions of anxiety and time-retention, combined with the internal and chance dimensions of Furnham's (1986) scale may help define an attitude – behavior relationship as the foundation of financial education program success.

This study may help illuminate college students' money attitudes and perceptions of control over money and financial circumstances, and perhaps give future researchers a starting point into effective financial education program development. The development would necessitate an examination of specific behaviors and the relationship these behaviors have to specific attitudes.

While the scales used in this study were not developed specifically for this study, results of the analyses using these scales are encouraging. A study designed to examine attitude – behavior relationships using Ajzen's Theory of Planned Behavior (2002) and measuring perceptions of behavioral control using a money specific measure such as Furnham's (1986) Economic Locus of Control Scale may help identify the attitudes related to detrimental financial practices. This may help advance the development of an educational program to address the specific money attitudes of college students from diverse populations, and help clarify any relationships between these money attitudes and the perceptions of control the student has over their money and financial matters.

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APPENDIX A

Human Subjects (IRB Protocol)

Dr. Dorothy Bagwell, Ph.D., AFC® (Primary Investigator)
Assistant Professor, Personal Financial Planning

John V. Hayes, MBA, CFP®
Doctoral Candidate, Applied and Professional Studies

Proposal Title: Money Attitudes, Economic Locus of Control, and Financial Strain Among College Students

I. Rationale

The purpose of this research is to identify money attitudes, perceptions of economic locus of control, and dimensions of financial strain among college students in two southwestern United States universities. Matriculation periods for many students to complete a bachelor's degree now exceed six years. For students who started in a four year college, one third of the students earned a bachelor's degree from the same school within four years. Between 54% and 58% of students who completed their bachelor's degree in the same school as they started completed their program within six years (Adelman, 2006). As a result, numerous financial incentive programs have been developed with the specific purpose of motivating students to finish their program within four years.

Extended matriculation periods require additional costs borne by the taxpayer for the extended time to degree completion. Additionally, in addition to direct costs, there is a substantial opportunity cost to the student for the extended matriculation period. From a financial perspective, both parties will likely benefit financially from student class loads sufficient to ensure a four-year degree. While the student must forgo increased income opportunities for higher class loads while in school, the combination of the financial incentives available and the significant increases in income potential upon completion of their program present a compelling case for the four-year program.

Money beliefs and attitudes, along with financial practices and habits, may have a direct relationship with financial literacy levels. As a preliminary step toward any further investigation of financial literacy levels of college students, money attitudes and control beliefs of students need to be assessed. Additionally, given the impact of changing demographics on student populations (Murdock et al., 2002), cultural differences in money attitudes and beliefs should be identified.

II. Subjects

Subjects for this research project will be selected on a voluntary basis from students of Texas Tech University and New Mexico Highlands University. No structured sampling

procedures will be used; it will constitute a convenience sample.

III. Procedures

Data will be collected through the use of an internet survey. Thus, there will be no physical harm to the participants. The survey instrument will include general demographic data (i.e. age, gender, class level), and questions from three previously developed instruments accessing money attitudes (Money Attitude Scale), beliefs of economic locus of control (Economic Locus of Control Scale), and perceptions of financial strain (Financial Strain Scale). Additional questions will gather data on employment, income and expenses, income frequency, adequacy, and dependability, the propensity to reduce class load in order to seek employment opportunities, and the propensity to withdraw from school for one or more semesters in order to seek employment opportunities.

The instrument includes a provision requiring responses to every question in each section before the student can advance to the following section. As a result of the sensitive nature of divulging financial practices and data, students may feel uncomfortable during their survey experience. However, participants will be fully informed of the confidentiality of their responses, and since no personal identifying information will be collected, the students will be assured of anonymity.

IV. Adverse Events and Liability

The students understand participation is completely voluntary and the researchers assure anonymity, thus no potential adverse affects or liability issues are foreseen.

APPENDIX B

Survey Instrument

Thank you very much for taking the time to complete this survey. All answers will be kept completely confidential. Each question will allow only one response, and you will not be able to advance to the next page if you leave any questions unanswered on the current page.

This research is an attempt to identify money attitudes, beliefs of economic locus of control, and financial stress among college students with specific attention to cultural differences. Please be assured of complete anonymity, as no personally identifying information will be collected.

Again, thank you for your participation.

Contact information:

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Dorothy Bagwell Ph.D., College of Human Sciences, Applied and Professional Studies, Texas Tech University, dottie.bagwell@ttu.edu

Survey link: http://www.surveymonkey.com/s.asp?u=961831776850

Demographics

1. What school do you attend?

   New Mexico Highlands University Texas Tech University

2. What is your age?

   _____

3. What is your gender?

   Female Male

4. What culture do you most identify with?

   Mexican American Other Latino/Latina African American

   Anglo American American Indian Asian

   Other non-white

5. What is your current GPA?

   _____

6. How many credit hours are you enrolled for this semester?

   _____

7. How many credit hours did were you enrolled for last fall?

   _____

8. What class level best describes your current rank?

   Freshman Sophomore Junior Senior Graduate student

9. Including work-study or other financial aid, how many hours each week do you work?

   _____

10. On average, how much do you spend per month? (total of: education, housing, transportation, food, entertainment, etc.).

    _____

11. During a Spring or Fall semester, have you ever had to drop one or more classes in order to work more? For how many semesters has this happened?

_____

12. Have you ever had to drop out for a Spring or Fall semester in order to earn more money through employment?

    Yes No

13. Looking back over all the places you received income from during the past 12 months, describe how dependable your income was.

    a. Income not dependable at all. You never or seldom know how much more than a month in advance how much you would have, and when or if you would get any.
    b. Income received regularly but amount varies a lot.
    c. Income dependable part of the year but not all of the year. This would be seasonal income, such as summer and holiday break employment.
    d. Dependable amount received regularly, plus a fluctuating amount above that. Even though it may have been small, you always knew you would get a certain amount regularly (such as monthly help from parents or scholarship), in addition to other income that was not so dependable.
    e. Steady income. You knew how much you could count on getting and when you would get it.

14. Is your lifestyle the same, better, or worse off now than your parents' lifestyle is now?

    Worse Same Better

15. Is your lifestyle the same, better, or worse off now than the lifestyle of your fellow students now?

    Worse Same Better

16. To what extent do you think your income is enough to live on?

    a. Can afford everything I want and still have money.
    b. Can afford about everything I want.
    c. Can afford some of the things I want, but not all I want.
    d. Can meet necessities only.
    e. Not at all adequate.

17. Did either of your parents graduate from college?

    Yes No

18. For Texas Tech students, (NMHU students please mark not applicable) do you know about the Graduate on Time program with the Be on Time student loan provisions?

    Yes No Not Applicable

19. For Texas Tech students, (NMHU students please mark not applicable) do you participate in the Graduate on Time program?

    Yes No Not Applicable

20. For Highlands University students, (TTU students please mark not applicable) do you participate in the New Mexico lottery scholarship?

    Yes No Not Applicable

Money Attitude Scale (MAS)

Measurement Scale:

Strongly disagree Disagree Neutral Agree Strongly agree

This data will be used to evaluate money attitudes. Please answer each question by selecting the answer you think BEST describes your honest attitudes, beliefs, and practices.

Power-Prestige dimension

1. I use money to influence other people to do things for me.
2. I must admit that I purchase things because I know they will impress others.
3. In all honesty, I own nice things in order to impress others.
4. I behave as if money were the ultimate symbol of success.
5. People I know tell me that I place too much emphasis on the amount of money a person has as a sign of his success.
6. I seem to find that I show more respect to people with more money than I have.
7. Although I should judge the success of people by their deeds, I am more influenced by the amount of money they have.
8. I often try to find out if other people make more money than I do.

Retention-Time dimension

1. I do financial planning for the future.
2. I put money aside on a regular basis for the future.
3. I save now to prepare for my old age.
4. I keep track of my money.

5. I follow a careful financial budget.
6. I am very prudent with money.
7. I have money available in the event of another economic depression.

Distrust dimension

1. I argue or complain about the cost of things I buy.
2. It bothers me when I discover I could have gotten something for less elsewhere.
3. After buying something, I wonder if I could have gotten something for less elsewhere.
4. I automatically say, "I can't afford it" whether I can or not.
5. When I buy something, I complain about the price I paid.
6. I hesitate to spend money, even on necessities.
7. When I make a major purchase, I have the suspicion that I have been taken advantage of.

Anxiety dimension

1. It's hard for me to pass up a bargain.
2. I am bothered when I have to pass up a bargain.
3. I spend money to make myself feel better.
4. I show signs of nervousness when I don't have enough money.
5. I show worrisome behavior when it comes to money.
6. I worry I will not be financially secure.

Economic Locus of Control Scale (ELCS)

Measurement Scale:

Strongly disagree Disagree Neutral Agree Strongly agree

The data from this section will be used to measure economic locus of control beliefs. Please answer each question by selecting the answer you think BEST describes your honest beliefs and practices.

Internal dimension

1. Saving and careful investing is a key factor in becoming rich.
2. Whether or not I get to become wealthy depends mostly on my ability.
3. In the long run, people who take very good care of their finances stay wealthy.
4. If I become poor, it is usually my own fault.
5. I am usually able to protect my personal interests.
6. When I get what I want, it is usually because I worked hard for it.
7. My life is determined by my own actions.

Chance dimension

1. There is little one can do to prevent poverty.
2. Becoming rich has nothing to do with luck.
3. Regarding money, there isn't much you can do for yourself when you are poor.
4. It's not always wise for me to save because many things turn out to be a matter of good or bad fortune.
5. It is chiefly a matter of fate whether I become rich or poor.
6. Only those who inherit or win money can possible become rich.

External/Denial dimension

1. People's poverty results from their own idleness.
2. The seriousness of poverty is overstated.
3. When I get what I want, it is usually because I am lucky.
4. In the Western world, there is really no such thing as poverty.
5. Politicians can do very little to prevent poverty.

Powerful Others dimension

1. I feel that my finances are mostly determined by powerful people.
2. Although I might have ability, I will not become better off without appealing to those in positions of power.
3. People like myself have little chance of protecting our personal interests when they are in conflict with those of strong pressure groups.
4. Getting what I want financially requires pleasing those people above me.

Financial Strain Scale (FSS)

Measurement Scale:

Never Rarely Sometimes Often Always

This data will be used to measure financial strain. Below are a number of questions and statements. Please indicate how often they describe you by marking the best answer.

Education dimension

1. I know how interest works on my credit cards.
2. I feel financially educated.
3. I feel well informed about financial matters.

Relationships dimension

1. There are disagreements about money in my home.
2. I tend to argue with others about money.
3. Financial problems hurt my relationships.
4. My relationships with others are affected by financial problems.

Physical dimension

1. Are you ever unable to sleep well because of financial worries?
2. Do you ever get headaches from worry over financial matters?
3. Do your muscles get tense when you add up your bills?
4. Does your financial situation cause you to feel heartburn or an upset stomach?

Credit card use dimension

1. I take on more debt to get nicer things.
2. I get new credit cards to pay off old ones.

3. I make purchases on credit cards hoping that I will have the money later.

Meeting obligations dimension

1. I pay my bills on time.
2. I find it difficult to pay my bills.
3. Many of my bills are past due.
4. I don't have enough money to pay my bills.