THE RELATIONSHIP OF CULTURAL INFLUENCES AND ACADEMIC SELF-EFFICACY BELIEFS ON ACADEMIC PERFORMANCE AMONG HISPANICS

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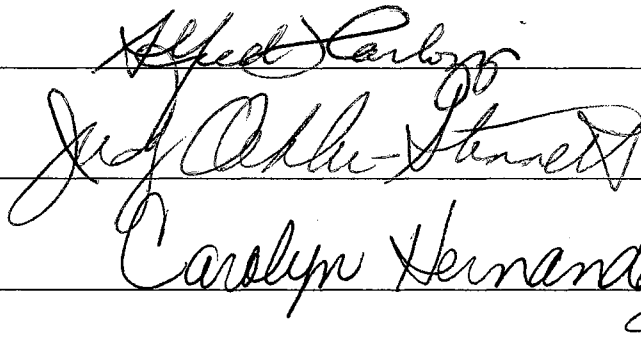

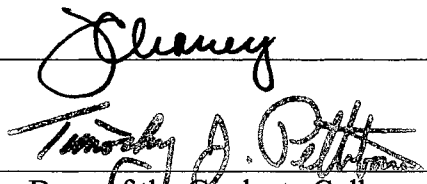

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TABLE OF CONTENTS

Chapter Page

LIST OF TABLES

CHAPTER I

Introduction

One of the most serious and explosive issues in the United States presently is how to meet the educational needs of culturally and linguistically diverse students (Bowman, 1989). Effective education for Hispanic students continues to baffle educators, administrators, politicians, and society at large. Numerous issues pervade this specific population of students in the school systems. Research findings have been consistent in pinpointing specific concerns that affect Hispanic students negatively. Some of these concerns include high dropout rates, low self-esteem, low self-efficacy, low academic achievement, and cultural and language differences (Alvirez, 1986; Buriel, 1993; Del Angel & Lujan, 1990; Ekstrom et al., 1986; Perez & De la Rosa, 1993; Wehlage & Rutter, 1986). If current trends in educational achievement continue, numerous students, primarily poor African-American, Asian, Native American, and Hispanic, will not obtain the education necessary for full participation in the economic and civic life of the country.

These issues have serious implications not only for dropouts but also for society in general who must help pay the price for an unfinished education. Concern over these issues is centered on the economic impact on our technologically advanced society who relies upon a well educated work force. Moreover, social problems such as juvenile delinquency, substance abuse, teenage pregnancy, poverty, unemployment and extreme low wages tend to escalate when the education of society's members is neglected or unfinished. Considering the impact these issues have on students and on society, it is imperative to undertake

rigorous study and action to ameliorate the problems experienced by this specific population.

Thus, it is important to examine the variables that influence the individual in school settings. Albert Bandura (1977), one of the most influential psychologists of our time, proposed that psychological processes - self-beliefs or self-efficacy, the notion that individuals create and develop self-perceptions of capabilities, become instrumental in the goals people pursue and in the control they are able to exercise over their environment. A decade later, Bandura situated the construct of self-efficacy within a social cognitive theory of development, noting that individuals possess a self-system that helps them exercise control over their thoughts, feelings and actions (Pajares, 1997). In addition, this self-system encompasses one's cognitive and affective structures and includes the ability to symbolize, learn from others, plan alternative strategies, and regulate one's own behavior.

In continuing to develop his theory, Bandura situated self-efficacy within the context of personal or human agency that operates in concert with sociocognitive factors in regulating human well-being and attainment (Pajares, 1997). Bandura (1997) proposed that effective intellectual functioning requires much more than merely understanding factual knowledge and logical operations for a given activity and action. It also requires metacognitive skills for how to organize, monitor, evaluate and regulate one's thinking processes. Bandura (1995) proposes that self-efficacy beliefs regulate human functioning through four major processes that include cognitive, motivational, affective, and selection

processes. Self-influences affect the selection process and construction of the environments, and in turn, environments exert their influence on motivation, affect and action that brings meaning to external events which influence peoples' lives. People's beliefs in their personal efficacy influence the choices they make their aspirations, and attainments. Self-perceptions, then, influence their behavior, how much effort they mobilize in a given endeavor, and how long they persist to bring the task to completion in the face of difficulties and setbacks.

Pajares & Schunk (1999) concur with Graham and Weiner, 1996, that current interest and research in educational psychology reflect a main direction in the field of motivation - the study of the self. The attention given to a student's sense of "self" is grounded on the assumption that the beliefs that students create, develop, and hold to be true about themselves are vital forces in their success or failure in school. In our society, schools and social systems operate on the belief that all students are similar, all can learn and have expectations that all need to function in a similar manner within the school context that is conducive to learning (Bowman, 1993). The ability to learn is an essential condition for living. Bowman posits that all children can learn, albeit in various manners, self-learning, direct teaching, observation, modeling, etc. and in various contexts - home, school, community, etc. Understanding how differences in culture and language affect children's learning and self-efficacy beliefs can further help us to comprehend what schools can do to enhance learning outcomes for many of the nation's children. Cultural influences and self-efficacy beliefs or self-perceptions

about academic pursuits need to be acknowledged, researched, and positively utilized for the benefit of all students.

In attempting to understand the influence of culture on students' self-perceptions, then, we must look at various aspects of culture and its influence on the minority student. To get a better perspective of culture, the definition of culture given in Cuellar & Paniagua's Handbook of Multicultural Mental Health (2000) by Anthony J. Marsella will be used:

> "Shared learned meaning and behaviors that are transmitted from within a social activity context for purposes of promoting individual/societal adjustment, growth, and development. Culture has both external (i.e., artifacts, roles, activity contests, institutions) and internal (i.e. values, beliefs, attitudes, activity contexts, patterns of consciousness, personality styles, epistemology) representations. The shared meanings and behaviors are subject to continuous change and modification in response to changing internal and external circumstances." (p. 12)

This definition proposes that culture is a dynamic process that is subjected to continuous modification and change, with emphasis on adaptation and adjustment. Marsella posits that "Culture is the lens or template we use in constructing, defining and interpreting reality." (p. 12)

Biculturalism and language brokering are cultural influences that often leave their impact on Hispanic children. Ramirez (1983) defines biculturalism as an integration of the competencies and sensitivities associated with two cultures within a single person. Biculturalism represents an optimum level of adaptation Hispanics and other immigrant groups must experience in response to the demands of the two cultural worlds in their daily social interactions (Buriel, Perez, De Ment, Chavez, & Moran 1998). Language brokering refers to children who interpret for their non-English speaking parents (Buriel et al. 1998).

Children who act as language brokers also serve as a link for their parents' native culture and the mainstream American culture. Buriel (1993) posits that by virtue of translating for their parents, children with more language-brokering experience are likely to exhibit higher levels of biculturalism. He further cites Ramirez and Castaneda's 1974 research that theorized that the cognitive integration and synthesis required for biculturalism may also aid students' academic performance.

De Ment and Buriel (1999) proposed that language brokering involves cognitively demanding experiences such as understanding and translating messages requiring adult vocabulary and concepts. As a result of these interactions, children's academic performances may benefit as well as give rise to perceptions of academic self-efficacy. Furthermore, as a result of their interactions with adult and professionals of two cultures, language brokering and biculturalism may foster perceptions of enhanced social self-efficacy. It appears that cultural influences may have a positive influence on student self-perceptions, which in turn enhance academic self-efficacy and as a result may have a positive impact on academic performance. In the current study, biculturalism and language brokering are hypothesized to be positively related to self-efficacy and academic performance.

The current study builds on the earlier work of Buriel, Perez, De Ment, Chavez, and Moran (1998) who examined the relationship of language brokering to academic performance, biculturalism, academic self-efficacy, and social self-efficacy with a group of Hispanic adolescents (9^{th} and 10^{th} grade) attending a predominantly Latino high school in eastern Los Angeles. The present study

extended this work by examining the theoretically derived relationship of language brokering, biculturalism, academic self-efficacy, math self-efficacy and academic performance. Specifically, the math self-efficacy variable was included because research has shown it to be as strong a predictor of mathematical problem-solving ability as general mental ability, a variable that has been found to be a powerful predictor of academic performance (Pajares & Kranzler 1995). The social self-efficacy component was not examined in this study.

Purpose of the Study and Research Questions

The under-education and the inability to meet the educational needs of culturally and linguistically diverse students has become a serious and sensitive issue in the United States (Bowman, 1993, Perez & De la Rosa, 1993). Velez and Saenz (2001) report that recent trends suggest that the U. S. has not been successful in ensuring that all its youngsters are sufficiently well prepared to meet the challenges and opportunities of the future as they attempt to become part of the workforce. These authors note that Hispanics continue to lag significantly behind other racial and ethnic groups in the educational domain. Buriel (1984) notes that in general, social scientists have made the culture of the Mexican American or Hispanic a convenient "catch-all" for explaining the issues inherent in this group (p.95). Hence, if Hispanics do poorly in school, it is because their culture discourages achievement motivation; if they are involved with gangs or in other forms of delinquent behavior, it is because of the antisocial and violent nature of their culture. As a result of this "damaging culture paradigm" many social scientists and lay people feel that the only way to help the Hispanics

"necessitates complete disassociation from his or her native culture" (Buriel 1994, p. 95). Buriel argues in favor of a bicultural identity, which requires the retention of a strong traditional culture as well as acculturation to the social and economic mainstream of United States society.

Numerous issues pervade this specific population of students in the American school system. Velez and Saenz's (2001) overview of the literature of Hispanic dropouts identify various factors associated with school attrition. Some of these include poverty, teenage pregnancy, poor academic achievement, parent's educational attainment, and lack of motivation or low aspirations. Considering the impact these issues have on the students and on society, it is imperative to undertake rigorous study of the influence of cultural variables and self-efficacy on the Hispanic population in order to ameliorate the problems experienced by this population. Pajares (1996) notes that the context specific nature of self-efficacy beliefs makes these beliefs an ideal vehicle with which to explore differences in perceptions of competence as a function of such factors as age, race and ethnicity.

Bandura (1986, 1997) posits that individuals' beliefs about themselves are key elements in the exercise of control or personal agency, of behavior and motivation. According to Bandura, among the mechanisms of personal agency none is more central or pervasive than people's beliefs about personal efficacy. Social cognitive theorists hypothesize that students' self-efficacy beliefs, their judgments of their capability to perform academic tasks, are important determinants of academic motivation, selection process and performance (Bandura, 1986, Pajares, 1995, 1996b; Shunck, 1991). Therefore, it is appropriate

that research is conducted exploring cultural influences, self- efficacy and their effect on academic performance in a context specific nature. Thus, the first research question explored in this study asks, "Does a linear combination of variables math self-efficacy, academic self-efficacy, biculturalism, and language brokering predict academic performance?"

Bandura (1997) emphasized that to increase efficacy of prediction for self-efficacy beliefs, "self efficacy beliefs should be measured in terms of particularized judgments of capability that may vary across realms of activity, different levels of task demands within a given activity domain, and under different situational circumstance" (p.6). Pajares (1997) adds that efficacy beliefs need to be assessed at the optimal level of specificity that corresponds to the critical task being assessed and the domain of functioning being analyzed. Research indicates that there are numerous variables that influence academic performance. For this study, mathematics self-efficacy and academic self-efficacy are examined as predictor variables for academic performance. Additionally, the relationship between students' math self-efficacy beliefs and cultural influences, language brokering and biculturalism is explored. Therefore, the second question in this study asks, "Do biculturalism and language brokering predict math self-efficacy?" The last question explored in this study asks, "Does biculturalism and language brokering predict academic self-efficacy?"

Significance

This study attempted to shed some light on Hispanic math self-efficacy, academic self-efficacy, biculturalism and language brokering. Specifically

attempts were made to establish predictors of academic performance for Hispanics. As stated before, self-efficacy refers to one's judgments of capabilities to organize thoughts, feelings and actions to bring about a desired outcome (Bandura, 1986). Torres and Solberg (2001) propose that academic self-efficacy denotes one's confidence in performing academic tasks such as reading textbooks, asking questions in class, and preparing for examinations. These authors cite various researchers (e.g. Solberg et. al. 1993, 1998; Jerusalem & Schwarzer, 1992, Karpanty, 1998) who have argued that students with higher academic self-efficacy also have higher persistence resulting in better college outcomes because students with high self-efficacy beliefs perceive failure as a challenge rather than a threat. Thus, when students perceive difficult college tasks as challenges, their high self-efficacy beliefs lower academic stress and maintain psychological and emotional health (Torres & Solberg, 2001, p. 53, 54).

Exploring cultural variables, biculturalism and language brokering, and their effect on self-efficacy and academic performance will enable educators and society in general to enhance Hispanic education outcomes. According to Perez and De la Rosa (1993) low educational attainment levels have two major effects on Hispanics. First, it has a significant impact position on the labor market and results in their concentration in low-wages, unstable work and high rates of poverty. Second, because of the youthfulness and size of the Hispanic population, its educational status has a long-term social and economic consequence. Considering the implications for the student as well as society, it is urgent that the

problem be dealt with not only by the Hispanic community but also by the entire nation.

The failure of U. S. schools to successfully educate Hispanic students has been well documented in studies of delayed education, school attrition, and nonpersistence in college (Losey, 1995). Often, schools have ignored or rejected different cultural expression of development that are normal and adequate and on which school skills and knowledge can be built (Bowman, 1993). Consequently, children from poor and minority families are often judged to be inadequate because they do not easily learn the school curricula. Inadequate communication, inaccurate assessment, and inappropriate education are the inevitable results, with minority children labeled as "delayed" and their families as "dysfunctional" because they have different resources, lifestyles, and belief systems. It is probable that what is needed is for society to adopt a cultural paradigm shift. Instead of viewing culture as a handicap for the Hispanic student as well as other minority cultures, it is suggested that the positive aspects and benefits of cultural influences be built upon to enhance student's academic self-efficacy, which will directly effect their academic performance.

Definition of Terms

Biculturalism arises when the individual adds one or more cultures into his identity while still maintaining the native culture. Ramirez (1983) defines it as an integration of the competencies and sensitivities associated with two cultures. The concept of biculturalism is closely related to acculturation, which refers to the adaptation of a second culture. Biculturalism as defined by Buriel (1993) assumes

that acculturation can take place without a corresponding loss in ancestral cultural patterns.

Bicultural Involvement reflects a person's orientation, comfort when speaking English and/or Spanish and his/her level of involvement in either the American culture or the Hispanic culture or both cultures.

Language Brokering refers to children who interpret for their immigrant parents. Often language brokers continue to translate for others through their adolescence, and as adults. As adults, language brokers often look at this function as part of being bicultural.

Hispanic is an inclusive designation of people of Spanish origin and descent. There is much intracultural diversity among Hispanics who represent one of the fastest growing segments of the U.S. population (Velez & Saenz, 2001).

Reciprocal Determination refers to the view that how people interpret their own performance attainments informs and alters their environment and their self-beliefs which, in turn, informs and alters subsequent performance: (a) personal factors in the form of cognitions, affect, biological events, (b) behavior, and (c) environmental influences that create interactions which result in a triadic reciprocity (Bandura, 1986).

Self-Efficacy refers to "beliefs in one's capabilities to organize, and execute the courses of action required to manage prospective situations" (Bandura, 1997, p.2).

Assumptions

This study is based on several theoretical assumptions. First people strive for control of the events of their lives because it provides numerous personal and

social benefits (Bandura, 1997). Individuals create self-perceptions of capabilities in goals they pursue and in the control they are able to exercise over their environment. These self-beliefs enable individuals to exercise a measure of control over their thoughts, feelings and actions (Pajares, 1997). Self-efficacy beliefs also influence motivation and self-regulation in the selection process and the actions people will take. Beliefs of personal competence also determine the effort people will expend on an activity, how long they will persevere, and how resilient they will be in the face of adversity. The more people recognize they can influence the events in their lives, the more they can shape them to their specification, thereby influencing the direction they want their lives to take (Bandura, 1997).

Second, a person's evaluation of self-efficacy is derived from experiences in specific contexts and social milieu. People possess a self-system that enables them to exercise a measure of control over their thoughts, feelings, motivation, and actions. This self-system provides self-referent thought for perceiving, regulating, and evaluating behavior that results from the interaction of the individual and the environmental sources of influence. How people interpret the result of their own performance attainments informs and alters their environment and their self-beliefs, which in turn, alters their behavior or performance (Bandura, 1997)

Third, the meaning that group members attribute to cultural experience is relatively stable and represents mores and norm of definitions of what is right and/or accepted normal human behavior. The cultural experience and interactions

guide the developing child and it becomes the basis for their identity - who they are. Hispanics are a culturally homogeneous population that differs on a variety of cultural characteristics such as the ability to speak Spanish and appreciation for cultural values, holidays, and traditions. Biculturalism represents an optimum cultural adaptation strategy for Hispanics and other non-Western immigrant groups who often have to respond to the competing demands of two cultural worlds (Buriel, 1984).

Lastly, children and adolescents who participate in adult-like experiences as language brokers on a regular basis may develop cognitive skills that allows them to perform better in school (Buriel et al, 1998). Language brokers must be able to comprehend, interpret and translate messages using vocabulary and concepts that are very sophisticated for children of their age. These cognitively demanding experiences may directly affect their academic performance and enhance the child's perception of academic self-efficacy. Greater experience, competence and comfort in two cultures may provide bicultural students with more problem-solving strategies, and self-confidence for accessing academic resources at school in their communities (Buriel et al, 1998). Therefore, it seems logical to assume that interpersonal experience with two cultures and two languages may enhance students' feelings of academic self-efficacy and in turn improve their academic performance.

Limitations

A major limitation in this study is that it is limited to one geographical area. The university where this study was conducted serves a unique area, both

geographically and demographically. Known as the Lower Rio Grande Valley (LRGV), it is made up of four counties, Hidalgo, Cameron, Willacy, and Starr. The population is over eighty percent Hispanic with the majority of the population considered economically depressed. The per capita income in the LRGV is 69% below that of other Texas regions and the United States. The fact that this is an economically depressed area may skew the results of the data obtained.

A second limitation in this study is limited to self-report measures that may not have accurately represented the relationship among these variables. The data were collected using paper and pencil surveys, which can be subject to a number of response sets and self-report biases that may produce misleading results.

A third limitation to this study was the use of college students, a cohort of young adults, which may limit variance of diverse subjects, perspectives and self-efficacy.

CHAPTER II

Review of the Literature

The purpose of this current study is to examine the nature of the relationship between biculturalism, language brokering, academic self-efficacy and math self-efficacy; and to assess their accuracy of prediction of academic performance. The most prominent among recent voices calling for a new perspective in self-beliefs has been that of Albert Bandura, professor of psychology at Stanford University (Pajares, 2002). Pajares notes that research findings over the past 20 years have strengthened Bandura's claim that self-efficacy beliefs play an influential role in human agency. Pajares asserts that the common sense notion that, "*the beliefs that students create and develop and hold to be true about themselves are vital forces in their success or failure in school*" has been largely abandoned or researched inappropriately (Pajares, 2002 p. 5). He proposes that psychologists need to examine students' self-beliefs about their academic ability, as these are important components of motivation, self-regulation and academic achievement.

Biculturalism implies that the individual can participate in two cultural contexts and that being bicultural involves learning communication and negotiation skills in two different cultural contexts, each with a separate set of rules (Szapocznik, et. al. 1980). One of the major changes an immigrant encounters is exposure to the English language. Often, children of immigrant parents are the first members of their family to attend school in the United States and they are exposed to the English language on a daily basis. Another

component in this study is language brokering which refers to children who interpret for their immigrant parents. Children who are language brokers, by virtue of translating for their parents in two distinct cultures are likely to exhibit higher levels of biculturalism (Buriel, Perez, De Ment, Chavez, Moran, 1998). Results of their research indicated that biculturalism and language brokering are positively related to academic performance. Thus the current review presents theories of biculturalism, language brokering and self-efficacy, particularly academic and math self-efficacy.

Self-Efficacy

According to Albert Bandura, people have always striven to control events that affect their lives (1997). The constant striving for control over live circumstances pervades almost everything people do throughout the life course because it provides personal and social benefits. Bandura posits that a sense of uncertainty in important aspects of life can be confusing; thus, to the extent that people can bring about significant outcomes with accuracy of prediction, fosters in an individual a sense of adaptive preparedness. Conversely, to the extent that people feel that they are unable to exert control over things they do, affects the person's life which may result in apprehension, apathy or despair. Therefore, the ability to achieve one's desired outcomes and to prevent undesired ones, provides a powerful incentive for development of personal control. The more people recognize that they can influence the events of their lives, the more they can effect change to their specifications thereby contributing to the direction they want their lives to take (Bandura, 1997).

Bandura's research on the concept of self-efficacy began with his seminal publication in 1977, *Self-Efficacy: Toward a Unifying Theory of Behavioral Change.* Initially trained as a behaviorist, by the mid 1970s he became aware that a key element was missing from the prevalent theories including his own - that individuals create and develop self-perceptions of capability that become instrumental to the goals they pursue and to the control they are able to exercise over their environment (Pajares, 2002). Bandura proposed that:

> "Learning would be exceedingly difficulty, not to mention hazardous, if people had to rely solely on the effects of their own actions to inform them what to do. Fortunately, most human behavior is learned observationally through modeling: from observing others one forms an idea of how new behaviors are performed, and on later occasions this coded information serves as a guide for action. Because people can learn from example what to do, at least in approximate forms, before performing any behavior, they're spared needless errors" (Bandura, 1977 p. 22).

In 1986, with his publication of *Social Foundations of Thought and Action: A Social Cognitive Theory,* Bandura posited that individuals possess beliefs that enable them to exercise a measure of control over their thoughts, feelings and actions. Thus, what a person thinks and feels influences the actions he/she will take. These beliefs create a self-system that encompasses cognitive and affective structures, including the ability to learn from others, to plan alternative strategies, to regulate one's own behavior, and to engage in self-reflection (Pajares, 1996). The self-system takes the lead in providing self-reflection mechanisms for perceiving, regulating, and evaluating behavior.

Bandura (1986) considered the human capability for self-reflection to be the most unique human capability. This form of self-referent thought enables people to evaluate and alter their own thinking and behavior. Using an analogy of

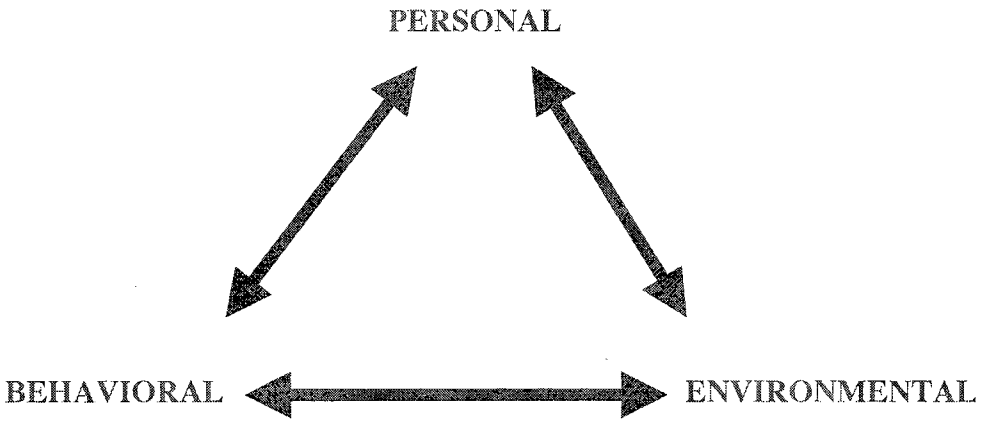
a barometer, an instrument for determining the pressure of the atmosphere which aid in the judgment of probable weather changes, a person's belief in their personal self-efficacy then serves in the judgments utilized to guide that person's life. Bandura (1986) proposed that through the process of self-reflection, which mediates between knowledge and actions, people evaluate their experiences and thought processes. Self-reflective judgments include perceptions of self-efficacy - beliefs in one's capabilities to organize, execute the courses of action required to manage prospective situations. The knowledge, skills, and attainments people have previously accomplished are often poor predictors of future accomplishments because the beliefs that people hold about their abilities and about the outcomes of their efforts powerfully affect their actions. Self-efficacy beliefs are critical determinants of how well knowledge and skills are acquired and help determine what people do with the knowledge and skills they have. Thus, people's self-efficacy beliefs can often be better predictors of how people will behave (Pajares, 1996, 2002).

To accomplish a task requires two components, learner's self-efficacy and self-regulatory system. Bandura asserts that "a major goal of formal education should be to equip students with intellectual tools, self-beliefs and self-regulatory capabilities to educate themselves throughout their lifetime." (Bandura, 1993 p.136). These personal resources enable students to acquire knowledge and gain skills to improve their lives. Self-efficacy refers to the belief that one can successfully complete the behavior required to produce a desired outcome. It is an assessment about how well one can organize and implement effective strategies in

a situation that may include novel and often-stressful elements. The second component, self-regulatory system entails a complex process that involves acquiring self-regulation skills for regulating motivation, affect, and social functioning. Zimmerman (1997) notes that most all theories of self-regulated learning acknowledge that skills in self-regulation alone are insufficient to ensure that they will be used well in particular conditions of learning. Bandura asserts that self-regulatory skills will not contribute much if students don't apply them persistently in the face of difficulties or stressors. The higher students' beliefs to regulate their motivation and learning activities, the more certain they are in their efficacy to master academic subjects. Students' perceptions of their academic efficacy, in turn, promotes intellectual achievement, directly and by raising academic aspirations (Bandura, 1995).

Self-efficacy beliefs influence the goals people set for themselves as well as the evaluative judgments they make about their performance attainments. How individuals interpret their performance attainments informs and alters their environments and their self-beliefs which in turn alters their subsequent performances (Pajares, 2002). This is the basis for Bandura's concept of reciprocal determinism. Bandura argues that human adaptation and change are rooted in social systems. Individuals are viewed both as producers and products of their own environments and their own social systems. Social learning theory explains human behavior in terms of reciprocal interaction between cognitive, behavioral and environmental influences. That is (a) personal factors, which include cognitive, affective, and biological events, (b) behavior or actions, and (c)

environmental influences create interactions that result in triadic reciprocity (Bandura, 1986).



Thus, unless people believe that they can accomplish a desired action, they will have no incentive to do so. Self-efficacy beliefs are a major basis for action, for it is the belief people hold about themselves and their personal competence that guide their actions in several ways. First, beliefs will influence the choices people make. People engage in tasks they feel competent and confident in and avoid those they do not feel capable of doing. Second, self-efficacy beliefs help determine how much effort an individual will mobilize to complete the task or activity at hand, how long he/she will persevere when confronted with barriers and how resilient he/she will be in confronting antagonistic situations. The greater the sense of efficacy, the greater the effort, perseverance and resilience the person will manifest in accomplishing tasks. Conversely, the lower the sense of efficacy, the less effort, perseverance and resilience the person will demonstrate in their actions (Pajares, 1996, 1997).

Self-Efficacy Sources of Influence

Bandura proposes that people's beliefs concerning their efficacy can be developed by four main sources of influence (1995). First, *mastery experiences* are the most effective way of creating self-efficacy. Through these experiences individual gauge the effects of their actions, successes enhance one's belief in his/her personal efficacy, and failures undermine it. Bandura believes that when people experience only easy successes they come to expect quick results and are easily discouraged by failure. To develop a resilient sense of efficacy, it requires experience in overcoming barriers and/or difficulties through perseverance or sustained effort.

The second main source of influence of creating and strengthening self-efficacy beliefs is through the *vicarious experiences* provided by social models (Bandura, 1995). When people see other people similar to them succeed by perseverance it raises their beliefs that they too can succeed. Likewise, observing others fail despite great effort lowers observers' judgments of their own efficacy and undermines their level of motivation. Bandura argues that the impact of modeling on beliefs of personal efficacy is strongly influenced by perceived similarity of the models. Thus, a significant role model in one's life can help instill self-beliefs that will influence the course of action and the direction that life will take. Influential models, through their behavior and expressed ways of thinking can convey knowledge and teach observers effective skills and strategies for managing environmental stressors.

The third influential source of creating or strengthening self-efficacy is through *social persuasion* (Bandura, 1995). When people are verbally persuaded that they have what it takes to succeed or master a given activity, they are more likely to mobilize greater effort and persevere than if they doubt their capabilities. People who have been persuaded that they lack the capabilities tend to avoid challenging activities and give up quickly when difficulties arise. Just as positive verbal feedback encourages and empowers and individual, negative verbal persuasions can defeat and weaken self-beliefs.

Lastly, the fourth main source of influence has to do with the individual's *physiological and emotional states* in judging his/her capabilities. Often people interpret their stress reactions and tension as signs of their poor performance. In physical activities they interpret their aches/pains and fatigue as signs of physical weakness. The individual's mood also affects people's judgment of their personal efficacy. Bandura cites Kavanagh & Bower (1985) who state that positive mood enhances self-efficacy and despondent mood diminishes an individual's sense of efficacy. Information conveyed through the four main sources of influence gains its significance for the individual through cognitive processing by which that information is selected, weighted and integrated into self-efficacy judgments (Bandura, 1995).

Self-Efficacy Mediational Processes

Cognitive Processes

Psychological processes (i.e. cognitive, motivational, affective) over which self-efficacy exerts some control are intrinsically involved in the

development of cognitive competence (Bandura, 1997). Students' beliefs in their efficacy to master difficult academic content is one of the main ways by which efficacy beliefs contribute to the development of cognitive competence that influences academic achievement. Bandura cites two major research studies that verified that self-efficacy beliefs contributed to intellectual performance. The first study was that of Collins (1982). In this research he selected children who judged themselves as having either high or low self-efficacy at three levels of mathematical ability. They were given difficult math problems to solve at each level of mathematical ability. Children who had stronger beliefs in their ability discarded faulty strategies and solved more problems and reworked more of the failed items more accurately than children of equal ability who doubted their self-efficacy. Collins found that children's self-efficacy beliefs predicted more interest and positive attitudes toward mathematics where as actual mathematical ability did not.

Schunk's (1989) study included participants who were children with severe deficits in mathematical and language skills (Bandura, 1997). A self-directed learning program was structured in easily mastered steps for the children. Initially they acquired basic principles and practiced applying them. The program also had a social influence component that included modeling of cognitive operations, instruction in higher order strategies, performance feedback, which influence self-appraisal of capabilities, and positive incentives as motivators for the development of cognitive skills. Schunk found that efficacy beliefs are influenced by the acquisition of cognitive skills. However, even when children

had the same level of cognitive skill development they differ in their cognitive functioning depending on the strength of their perceived self-efficacy. The efficacy beliefs children form affect how consistently and effectively they apply the knowledge and skills they know. Thus, Bandura argues that perceived self-efficacy is a better predictor of intellectual performance than skills alone.

Motivational Processes

Self-efficacy beliefs play a key role in the self-regulation of motivation (A. Bandura, 1993). Bandura proposes that most motivation has a cognitive basis. People motivate themselves and guide their actions by the exercise of planning. They set goals for themselves and plan their actions to achieve those goals. Three theories, attribution theory, expectancy-value theory, and goal theory have spawned three different forms of motivation concepts, *casual attributions, outcome expectancies*, and *cognized goals* respectively. In casual attributions people attribute their failures to insufficient effort or to low ability. People with a high sense of self-efficacy attribute their failures to insufficient effort, whereas those with a diminished sense of self-efficacy attribute their failures to their low ability. Outcome expectations refer to the expectation that one's behavior will produce certain outcomes. Bandura posits that people act on their beliefs of what they can do as well as their beliefs about the outcomes of their performance.

Goals people set for themselves provide a powerful source of motivation. Goal setting provides people with direction to their behavior and creates incentives to persist in their effort until their goal is achieved. Bandura (1993) argues that goals operate largely through self-influence processes. These include

affective reactions to one's performance; one's perceived self-efficacy to attain goals, and adjusting one's goals depending on the progress achieved. Self-efficacy beliefs influence motivation in various ways. They determine the goals people set for themselves, how much effort they will expend, how long they will persevere in the face of adversity and their resilience to failures. People with strong self-efficacy beliefs exert greater effort to challenges; where as those who have self-doubts about their capabilities easily give up when faced with obstacles and failures. Schunk (1991) adds that the motivational benefits of goals depend on their proximity (close-at-hand or short-term goals). Students can judge their progress toward proximal goals more easily than with distant goals. Bandura (1997) adds that short-term goals enable the individual in developing a sense of personal efficacy and make complex activities easier by breaking them down in obtainable steps.

Affective Processes

Pajares and Johnson (1996) argued that anxiety is, in part, determined by the confidence individuals bring to a task. It is only when people believe they cannot control events that they have reason to fear them; moreover, efficacy beliefs predict *"how well people cope with threats and how much fear arousal they experience" (p. 321).* People's beliefs in their capabilities affect how much stress and depression they experience in threatening or difficult situations (Bandura 1993). Bandura (1997) posits that a high sense of coping capability encourages individuals to adopt strategies or actions to cope with an adversarial environment. People who believe they are not able to manage stressors/threats

experience increased anxiety arousal, depression, dwell on their inability to cope, and view their environment as adversarial. Where as those who believe they can handle any stressor or threats in their environment do not experience disturbing thought patterns.

Pajares (1996) concurs with Bandura's notion that a high sense of self-efficacy fosters in the individual a sense of calmness as they approach difficult situations. Low self-efficacy fosters a sense of pessimism in the individual that makes him/her believe that the task or activity on hand is much more difficult than it really is. Pessimistic beliefs aid in the development of feelings of anxiety, depression, stress, and tunnel vision in problem resolution. It appears that central to self-efficacy effects is one's ability to manage the stressors created in our day-to-day functioning by means of a more positive analysis of existing risks and available coping resources. This in turn results in the tendency to see demanding situations as challenges rather than threats (Chemers et al., 2001).

Selection Processes

According to Bandura (1995), people's lives are shaped by the selection of environments known to cultivate certain potentialities and life-styles. People determine their life course by the choices they make, by developing different competencies, interests, and social networks. People with a strong sense of efficacy who are confident in their capabilities, approach difficult tasks as challenges to be mastered rather than threats to be avoided. These people set challenging goals, remain committed to them and increase their efforts in the face of adversity. In contrast, people who have a low sense of self-efficacy avoid

difficult tasks and view them as personal threats. These people have low aspirations, weak commitments to their goals, and decrease their efforts and give up quickly when faced with difficulties. People with low self-efficacy dwell on their personal deficiencies, obstacles they might encounter, and adverse outcomes rather than focusing on how to perform successfully.

Academic Self-Efficacy

Perceived academic self-efficacy is defined as personal judgments of one's capabilities to organize and execute courses of action to attain designated types of educational performances (Bandura, 1997, Zimmerman, 1997). These beliefs of self-capabilities affect motivation by influencing the effort and persistence students expend on academic tasks, as well as the anxiety level they experience (Pajares and Miller 1995). Moreover, these self-beliefs influence academic outcomes partly because the confidence that students have in their own capabilities help determine what they do with the knowledge and skills they posses. The confidence with which students face academic tasks than largely determines academic performance. For example, the more confident students feel when taking a mathematics test, the more time and effort they employ on solving the problems at hand. Students with greater confidence will work harder, longer and be less anxious, thereby increasing the probability of enhancing academic performance (Pajares & Miller, 1995, Pajares & Schunk 1999).

The construct of self-efficacy has a number of unique characteristics that are implicit in the assessment methodology. First, self-efficacy involves judgments of capabilities to perform activities. Students judge their capabilities to

fulfill given task demands. Second, self-efficacy beliefs are multidimensional and are linked to different domains of functioning. Domain-specific self-efficacy beliefs may differ in math, English, sports or in any domain. Third, self-efficacy measures are context dependent. Fourth, characteristic of self-efficacy measures, relative to their strength dimension, is their dependence on a mastery criterion of performance rather than normative or other criteria (Zimmerman, 1997).

Self-efficacy beliefs have received increasing attention in educational research primarily in studies of academic motivation and self-regulation. According to Pajares, (1996) self-efficacy research has been focused primarily on two major academic domains. One area has explored the relationship between efficacy beliefs and college major and career choices, focusing in math and science. He notes that researchers have reported that mathematics self-efficacy of college undergraduates is more predictive of their mathematics interest and choice of math-related courses than either math achievement or math outcome expectations. Moreover, male undergraduates report higher mathematics self-efficacy than do female undergraduates (Hackett & Betz, 1989, Pajares and Miller, 1994, 1995b).

The second area of research in the academic domain has explored the relationship among self-efficacy beliefs and other related psychological constructs and academic motivation and achievement. Studies have been conducted that explore self-efficacy beliefs and its relationship with other similar constructs, such as problem solving (Bouffard-Bouchard, 1989), persistence, modeling (Schunk 1984, 1991), academic achievement (Bandura, 1996, Pajares, 1996,

Pajares & Schunk, 1999), anxiety and self-concept (Pajares & Miller, 1994). With respect to mathematics self-efficacy numerous studies by Hackett (1985, 1989), Pajares (1994, 1995), Schunk (1991) and associates have been conducted. Generally researchers have reported that self-efficacy beliefs are correlated with other self-beliefs, motivation constructs, and academic choices, changes and achievement.

In various studies conducted by Zimmerman and his associates (1981, 1989, 1994), their research has been instrumental in tracing the relationships among self-efficacy perceptions, self-efficacy for self-regulation, and academic achievement. Zimmerman, Bandura and Martinez-Pons (1992) used path analysis to demonstrate that academic self-efficacy mediated the influence of self-efficacy for self-regulated learning on academic achievement. Their study found that perceived self-efficacy for self-regulated learning enhanced perceived efficacy for academic performance. Perceived academic self-efficacy in turn raised the students' academic goals and their academic performance at the end of the year. Self-efficacy beliefs and personal goal setting accounted for 31percent of the variance in their final grades. In other related research in the academic domain, Schunk and his associates (1991) used path analysis to demonstrate that modeling treatments increased persistence and accuracy on mathematics division problems by raising children's self-efficacy, which had a direct effect on skill. In his 1984 study, Schunk found that mathematics self-efficacy influenced math performance both directly (beta = .46) and indirectly (beta = .30) through persistence.

A recent longitudinal study of First-year College student adjustment conducted by Chemers, Hu, & Garcia (2001) examined the effects of academic self-efficacy and optimism on students' academic performance, stress, health, and commitment to remain in school. Their study found that academic self-efficacy was significantly and directly related to academic expectations and academic performance. Students who enter college confident in their ability to perform well academically do perform significantly better than do less confident students. Furthermore, optimism also had a significant relationship, confident and optimistic students were more likely to see the university experience as a challenge rather than a threat and they were more likely to result in successful adjustment.

Mathematics Self-Efficacy

Pajares and Kranzler conducted various studies that included mathematics self-efficacy, general mental ability, math self-concept, math anxiety, self-efficacy for self-regulation, and previous grades in mathematics. In one study, they found that as predicted, students' self-efficacy beliefs were as predictive of their capability to solve mathematics problems as was their general mental ability (Pajares & Kranzler, 1994). The study revealed that the direct effect of self-efficacy on performance (beta = .349) was as strong as the effect of general mental ability (beta = .324).

In a similar study, Pajares and Miller (1995) assessed the mathematics self efficacy and problem-solving performance of middle school students using two forms of assessment, traditional multiple choice versus open-ended, fill in the

blank items. The purpose of their study was to determine if the different assessment formats would influence students' self-efficacy judgments or alter the relationship between self-efficacy and performance on traditional versus fill in the blank formats in mathematical problem solving. They found that no differences resulted from the two different forms of assessment. They hypothesized that the reason students were not affected by the different assessment formats was that it is possible students create a mind set that causes them to base their efficacy judgments on expectation that the task will be presented in a traditional and familiar format. They also found that students who took multiple-choice tests received higher scores; however, the varying assessment formats did not affect the prediction of mathematics performance nor did self-efficacy judgments vary across formats. The fill-in-the blank group did obtain lower scores, which was judged to be the result of poor calibration, that is, the degree to which students' judgments of their capability reflect their actual competence (Pajares & Miller, 1995).

Bandura (1997) asserts that people's appraisal of their efficacy is strongly influenced by social comparisons. Zimmerman (1997) notes that this is especially true in educational contexts where academic performances are subjected to a great deal of modeling and comparative evaluations. The success or failure of others can affect one's own efficacy and motivation through perceived similarity. In a study by Brown and Inouy (1978) on the role of perceived similarity in competence with a peer model, college students judged their self-efficacy for solving anagrams and then attempted to solve them. Participants were told they

performed better than, or the same as a model who was observed to fail at a task. Those participants who were told they performed better than the model maintained a high sense of efficacy after repeated failure when they observed a model failing at the task that they perceived to be of lower ability. Participants who were told they performed the same as the model had an adverse effect on self-efficacy and persistence after observing a model of comparable ability fail. The more their self-efficacy was undermined, the more readily they gave up when they encountered difficulty.

Cultural Influences

Biculturalism

Although cultures are highly complex and change occurs constantly as groups adapt to new challenges, the meaning that group members attribute to cultural experiences is relatively stable and represents mores and norms of definitions of what is right and, therefore, normal human behavior (Bowman, 1989). Cultural patterns of interaction guide the developing child, and they also become the basis for their identity - or who they are. Children become what they live, as a result there is a wide range of individual and cultural variation. For example, Oettingen (1977) notes that sources of self-efficacy in cultures may differ in three ways. First, some sources may be more prevalent than other like in societies where there is distinct segregation by gender, roles and mores. For example, some cultures strive for a distinction between men and women. Men are expected to be the professional, assertive, ambitious and women on the other hand are not expected to take on professional jobs but to be more community oriented

and to take care of children and the infirm. Second, sources of self-efficacy may take a different form, as in individualistic and collective systems. Collective systems are more socially oriented and give evaluation and feedback on the performance of the in-group as well as on individual performance. Individualistic cultures emphasize realizing one's individual potential and realizing one's personal goals. This self-striving continues even if the needs of the in-group are unsatisfied. Third, as a spin-off of the second way, sources of self-efficacy may differ in the value attributed to them by the systems. For example, in individualistic systems, individual accomplishments would be emphasized more where collective systems place a higher value on teaching their children to respect the needs of their in-group. Therefore, understanding how cultural influences affect everyday conduct in major social systems (i.e. school, family, workplace, and community) can help to clarify how a person's self-efficacy judgments vary across cultures.

Research shows that not all environments are conducive for children to thrive physically, emotionally, socially, and cognitively (Bowman, 1989). As we all know, many environments are characterized by poverty, abuse, and neglect. However, Bowman notes that social support systems, personal resiliency and the meaning that people attribute to the care and education they provide their children buffer negative environmental effects. In a recent study on Latino College students evaluating four theoretical constructs, academic self-efficacy, stress, family support, and social integration Torres and Solberg (2001) found that family support directly affected level of academic self-efficacy. Moreover, self-efficacy

mediated the influence of family support on social integration and stress. They propose that perceived family support offers a secure base throughout a person's life that provides a source of confidence and ability to complete academic goals. The findings of this study support the importance of family as providing the developmental framework from which confident learners emerge.

In his landmark work, *The Silent Language*, Hall (1973) observed that for the individual, it is a monumental task to learn his/her native culture. He defined enculturation as the learning of one's native culture. Ramirez (1983) defines biculturalism as an integration of the competencies and sensitivities associated with two cultures within a single person. The concept of biculturalism is closely related to acculturation. Olmedo & Padilla (1978) assert that there are three factors that directly affect the acculturation process, which refers to changes in cultural patterns toward those of the host society, which is often a matter of choice. The three factors include a) the developmental stage of the individual when the acculturation process begins, b) the age of the individual when the acculturation process begins, and c) the length of the exposure to the host.

Acculturation has been widely discussed as a unidimensional process model (Szapocznik, Kurtines & Fernandez, 1980; Buriel, 1993). These authors note that this conceptual model assumes that Hispanic and American cultures are on opposite ends of a single cultural continuum. In this model movement away from the Hispanic pole would necessarily bring one toward the American pole which result in the degree of integration with one culture being negatively related to the degree of integration with the other culture (Buriel, 1993). Buriel proposes

that *biculturalism arises from a two-directional model of acculturation that acknowledges the persistent dual cultural influences in the lives of many Mexican Americans* (p 532). A two-directional model of acculturation is not necessarily associated with a loss in the native culture. Szapocznik, et al. also assert that acculturation has become a more multidimensional process with the adaptation to a host culture no longer requiring rejection of the culture of origin.

According to Szapocznik et al. (1980), for those individuals living in bicultural worlds, effective adjustment requires an acceptance of both worlds as well as skills to interact with both Hispanic and American cultures. Buriel (1998) posits that bicultualism represents an optimum cultural adaptation strategy for Hispanics and other non-Western immigrant groups who must respond to the competing demands of two cultural worlds on a daily basis. A study done by Buriel (1993) on biculturalism among three generations of Hispanic and American school children found that both first and second generations expressed a stronger identity with their native culture than did the American children. Only the third generation did not differ from the American children in their identity with Mexican American culture. He hypothesized two reasons for the non-significant difference in the third generation. First, the 3rd generation children did not have any direct parental links with Mexico diminishing the probability that the ancestral culture will be reinforced at home. Second, the probability that some American children may receive parental support for learning about the Hispanic culture and the Spanish language, with the idea that this will benefit them both socially and economically in the future.

Language Brokering

Children who interpret for their immigrant parents are referred to as language brokers. In a study by Buriel, Perez, Ment, Chavez, and Moran, (1998) on the relationship of language brokering to academic performance, biculturalism and self-efficacy among Hispanic adolescents, results showed that language brokering was positively related to biculturalism, and in turn, both of these variables were positively related to academic performance. In addition, they found that the strongest predictor of academic performance was academic self-efficacy. Buriel et al. (1998) propose that the adult-like experiences of children who broker, or interpret for their parents regularly, suggests that these children's cognitive and socioemotional development may be accelerated as compared to those children who interpret infrequently or not at all.

Language brokering often entails transactions that involve adults, which means that language brokers must be able to comprehend, interpret, and translate messages using vocabulary and concepts that are very sophisticated for children their age (Buriel & De Ment, 1993). These cognitively demanding experiences may directly aid these children's academic performance as well as enhance their perceptions of academic self-efficacy. Lastly, in order to explain American culture and society to their parents, language brokers must develop and maintain sociocultural competencies in both their native culture and the American culture; therefore, language brokers' acculturation style in the United States society should be more reflective of a bicultural orientation (Buriel et.al., 1998).

Buriel et al. (1998) cite three theoretical perspectives that support the hypothesis that language brokers may develop cognitive skills that enhance their academic performance as compared to peers who are not involved in language brokering. First, Malakoff and Hakuta (1991) asserted that bilingual interpreters develop greater metalinguistic awareness and complex translation strategies than do monolingual speakers. Second, Krashen (1985) suggested that school-related vocabulary of language brokers is enriched as a result of prolonged involvement in language brokering in different situations. Lastly, Heath (1986) argued that children that acquire sufficient English competencies to translate for their parents are more likely to do well academically because they learn to master the genres (stories, accounts, event casts/roles), and language skills expected for school success.

Moreover, De Ment and Buriel (1999) note in their research entitled *Children as Language Brokers: Recollections of College Students* that college-age brokers recalled how, as children, they were motivated to learn English and master academic concepts quickly to help their parents adapt to life in the United States. They propose that sociolinguistic skills developed by language brokering coupled with the ability to mediate between adults of two distinct cultures may promote a sense of personal empowerment or self-efficacy in language brokers.

CHAPTER III

Method

Participants

Participants for this study consisted of 164 self-identified Hispanic undergraduates at a large public university in southernmost tip of Texas. Subjects were recruited from the psychology pool and from rehabilitation classes, which attract a demographically heterogeneous sample of students (i.e., gender and college major). Since this study is focused on the Hispanic population, data collected from participants who identified themselves on the demographic sheet as "White or Caucasian" (16 total) were deleted from the sample.

Eighty-five percent of the University's students are first generation college students (Del Angel & Lujan 1990). The university serves a four county area called the Lower Rio Grande Valley (LRGV) of Texas and is located in the southernmost part of Texas. The counties include Hidalgo, Cameron, Starr, and Willacy. The population of these counties is mostly of Mexican descent. For example in Hidalgo County 82% of the inhabitants are Hispanic and this is reflected in the student population at the university where this study was conducted.

Participation was voluntary and participants were told that they could withdraw from the study at anytime without any penalty. Most of the faculty that participated provided extra credit to students who chose to participate in the study. The surveys were conducted in a university room at certain dates and time

intervals. This method allowed for participates to come in on their own at a time that was convenient for them. None of the students were approached individually.

Demographic data such as gender, age, race, parental education, self-report grades, math grades, American College Testing (ACT) scores, Scholastic Aptitude Test (SAT) score, and Grade Point Average were obtained from each participant (see Appendix B and C). Thirty-eight percent reported ACT scores with a mean of 19.5. Only nineteen percent reported SAT scores (M = 938).

Participants consisted of 71.4 % females and 28.6% males. The race identified by participants was 89.4 % Hispanic, 8% Caucasian, .5% each African American, Asian, and Native American and 1.0% other. These racial statistics accurately reflects the population of the LRGV area. The mean age of participants was 24.9. On parental education, participants reported an elementary grade education for mother (25.9%), and for father (17.6), a 7 - 9th grade education for father (14.8%) and for mother (10.4%), a 10 - 12th grade education for mother (32.6%), and for father (28%), 1 -2 years of college for father (22%) and for mother (12.4%), a college degree for mother (11.4%) and for father (11%), and lastly graduate degree for mother (6.7%), and for father (6.6%).

Measures

All participants completed (a) Informed Consent Form (b) Demographic Questionnaire, (c) Self-Report Grade Form (d) Academic Self-Efficacy Scale, (e) Math Self-Efficacy Scale - Revised, (f) Language Brokering Scale, and (g) the Bicultural Involvement Questionnaire.

Academic Self-Efficacy Scale (Bandura, Barbaranelli, Caprara & Pastorelli, 1996) is an instrument utilized to analyze the network of psychosocial influences through which efficacy beliefs affect academic achievement. Research by Bandura et al., (1996) revealed a three factor structure including perceived academic self-efficacy, perceived social self-efficacy and perceived self-regulatory self-efficacy.

Specifically, these scales assess student's capability to structure environments conducive to learning, to use cognitive strategies to enhance understanding of course content, to get teachers and peers to help them when needed, and to motivate themselves to do their schoolwork (Bandura et al., 1996). The first factor, perceived self-efficacy, includes items of perceived capability to manage one's own learning, to master academic subjects, and to fulfill personal, parental, and teachers' academic expectations. Examples include "How well can you learn mathematics?" and "How well can you live up to what your teachers expect of you?" The second factor, perceived social self-efficacy, includes items of one's perceived capability for peer relationship, for self-assertiveness and for leisure-time activities. Representative samples include "How well can you get teachers to help you when you get stuck on schoolwork?" "How well can you learn sports skills" and "How well can you work in a group?" The third factor perceived self-regulatory efficacy, include items measuring one's perceived capability to resist peer pressure to engage in high-risk activities. Examples of this factor include "How well can you resist peer pressure to smoke marijuana?" and

"How well can you resist peer pressure to do things in school that can get you in trouble?"

The Academic Self-Efficacy Scale is composed of a 44-item questionnaire. Responses are evaluated using a 6 point Likert scale ranging from (1) "Not well at all." To (6) "Very well." Participant's scores can range from 0-264 with high scores indicating high academic self-efficacy. Reliability for these three factors was .87 for academic self-efficacy, .75 for social self-efficacy and .80 for self-regulatory self-efficacy. All three scores together constitute academic self-efficacy. In this study only the total score for academic self-efficacy was derived as the focus here was on academic self-efficacy on academic performance and not on one specific area. A reliability alpha coefficient of .89 was obtained for the Academic Self-Efficacy scale.

Mathematics Self-Efficacy -Revised. Hackett and Betz, (1989) defined math self-efficacy as " a situational or problem-specific assessment of an individual's confidence in his/her ability to successfully perform or accomplish a particular [mathematical] task or problem" (p. 262). Kranzler & Pajares (1977) note that the Mathematical Self-Efficacy Scale (MSES) was initially created by Betz and Hackett (1983) to assess college students' math self-efficacy with more specificity. The MSES has three subscales with a total of 52 items. These subscales include solution of math problems, completion of math tasks used in everyday life, and satisfactory performance of college courses that require mastery of mathematics.

Kranzler and Pajares note that since its creation, the MSES or one of its scales, original or revised has been used in a number of studies on academic performance. They cite Betz and Hackett (1983) who reported Cronbach's alphas for MSES of .92 for problems, .90 for math tasks, and .93 for courses. Similarly, Kranzler and Pajares, (1997) reported Cronbach's alphas revealed internal consistency of .94 for tasks, .91 or courses, and .91 for problem solving. In this study, reliability alpha coefficients of .91 for math tasks, .92 for math courses and total math self-efficacy .94 were obtained. In Kranzler and Pajares research *"An Exploratory Factor Analysis of the Mathematics Self-Efficacy Scale-Revised (MSES-R),* principal components analysis of MSES-R scale revealed that math tasks self-efficacy, one's confidence to accomplish various math-related tasks, emerged as Factor 1, with 17 of 18 items loading satisfactorily on this factor. The only item that did not load was the item asking students their confidence to successfully operate a scientific calculator, which was substituted for an item Kranzler and Pajares felt was outdated - use of a slide rule. However, this item did load on Factor 4 on confidence to succeed in science related courses. Items on course self-efficacy loaded on two factors. Factor 2 reflected courses that were mathematics specific and courses involving more science loaded on Factor 4. Factor 3 included items on the problems solving self-efficacy subscale. In this study only two scales were used. These scales were math tasks and college courses to focus on students' perceived capability to perform math tasks used in daily life and perceived capability to perform college courses that require mathematics.

The Language Brokering Scale. The language broker scale was developed by Tse (1995) and revised by Buriel, Perez, De Ment, Chavez, & Moran (1998). The revised scale measures four language brokering dimensions including (1) persons for whom one has brokered (persons), (2) places where one has brokered (places), (3) things (usually documents) translated (things), and (4) one's feelings about brokering (feelings) (Buriel, et. al., 1998).

The Language Brokering Scale is a 49-item measure (Buriel et al. 1998). The 10-item *persons* dimension asks participants to indicate on a 4-point scale how often they translate for their family members, friends, neighbors, teachers, and strangers. Responses range from 1 (never), 2 (a little bit), 3 (a lot), and 4 (always). Examples of these items are "How often do you translate for your parents?" and "How often do you translate for people who work in stores?" The *places* dimension asks participants to check "yes" or "no" to twelve places where they may have translated. Because translating may be considered to be more difficult in some places more than others, a "yes" response was weighted on a scale of 1 to 3 by the level of difficulty (i.e. home = 1, school = 2, doctor's office = 3). Examples of these items include "Have you translated at school?" and "Have you translated at a doctor's office?" The *things* dimension asks participants to check 12 things they have translated during brokering sessions. These also vary in the level of difficulty so a "yes" response was also weighted on a scale of 1 to 3 (i.e. door to door salespeople = 1, phone bill, credit cards = 2, insurance forms, rental contracts = 3). The *feelings* dimension included fifteen items that are scored on a 4-point likert scale ranging from 1 (always), 2 (a lot), 3 (a little bit),

and 4 (never). Examples of these items include "I like to translate." and "I feel nervous when I translate for others." A total brokering scale score includes the sum of scores for people, places and things items because these three dimensions involve behaviors in brokering. The feelings dimension was examined separately because it represents an attitudinal aspect of brokering rather than an actual behavior. In this study, reliability alpha coefficients of .86 for language brokering persons and places, .83 for language brokering things and .83 for language brokering feelings were obtained.

The Bicultural Involvement Questionnaire (BIQ), also known as the Biculturalism Scale, was developed by Szapocznik, Kurtines, & Fernandez (1980). The BIQ is a 33-item index that measures the degree of comfort when speaking English and Spanish independent of each other and the preferred level of involvement in American culture, Hispanic culture or both cultures. The two dimensions measured by the BIQ include (1) a dimension of biculturalism ranging from monoculturalism to biculturalism and (2) a dimension of cultural involvement ranging from cultural marginality to cultural involvement. Their study reported an alpha internal consistency of .93 for Hispanicism and .89 for Americanism. Similarly, this study obtained reliability alpha coefficients of .93 for Hispanicism, .89 for Americanism and .81 for Bicultural Involvement. The BIQ asks participants to indicate in a Likert scale ranging from (1) not at all to (5) very much comfort in speaking Spanish and/or English, enjoyment in Hispanic and/or American music, TV programs, dances, etc., and their preference for Hispanic and/or American food, language, radio programs, etc. The Hispanicism

score is added to the Americanism score to yield a total cultural involvement score. Higher cultural involvement scores indicate greater biculturalism and low scores indicate cultural marginality (i.e. lack of involvement in either culture). An alternative scoring method to obtain a biculturalism score involves subtracting the Americanism score from the Hispanicism scores, with scores close to zero indicating monoculturalism. A positive difference score indicates monoculturalism in the Hispanic direction and a negative difference score indicates monoculturalism in an American direction (Szapocznik et al., 1980). Buriel et al., (1998) concur with Szapocznik et al. that the latter scoring method risks confounding true biculturals with individuals who are marginally involved in both cultures, because both groups might have identical scores of zero. Therefore, since this study is extending the work of Buriel, Perez, De Ment, Chavez, & Moran (1998), who examined the relationship of language brokering to biculturalism, self-efficacy, and academic performance, the former scoring method of cultural involvement scores were used as a measure of biculturalism.

Self-Report Grade Form. Self-reported grades, math grades, and SAT/ACT scores, and Grade Point Average were used to measure students' academic achievement rather than actual grades due to school policies that prohibit the reporting of grades. The response categories for school grades for last school year included (9) mostly As, (8) mostly As and Bs, (7) mostly Bs, (6) mostly Bs and Cs, (5) mostly Cs, (4) mostly Cs and Ds, (3) mostly Ds, (2) mostly Ds and Fs, and (1) mostly Fs. Participants responded to inquiry of "What kind of

grades do you usually get in math?" "What was your SAT or ACT score?" and "Current Grade Point Average."

Demographic Questionnaire. Participant attributes were measured along a three-item measure based on age, gender, and ethnicity. Other information obtained included parental marital status, occupation and education.

Design of the Study

A hierarchical regression strategy was used to explain the relationship of the independent variables on the dependent variable. A forward multiple regression analysis was conducted to examine the relationship of academic self-efficacy, math self-efficacy, biculturalism, and language brokering to academic performance, the criterion variable. Multiple regression analysis was used to explore the relationship of the cultural variables BIQ, LBS Behavioral, LBS Feelings to Academic Self-Efficacy as the dependent variable. Multiple regression analysis was also used to evaluate the relationship of the cultural variables BIQ, LBS Behavioral, LBS Feelings to Mathematics Self-Efficacy as the dependent variable.

Kachigan (1996) asserts that two key benefits derive from the application of multiple regression analysis. The first key benefit is the prediction of values on a criterion variable based on knowledge of values on predictor variables, and the second is the assessment of the relative degree to which each predictor variable accounts for variance in the criterion variable.

CHAPTER IV

Results

This section focuses on the results relevant to the research questions. The first research question explored in this study looks at the relationship of a number of predictor variables to the dependent variable academic performance. Question one asked, "Does a linear combination of variables, math self-efficacy, academic self-efficacy, biculturalism, and language brokering predict academic performance?" Additionally, the relationship between students' math self-efficacy beliefs and cultural influences of biculturalism and language brokering is explored. Question two in this study asks, "Does biculturalism and language brokering predict math self-efficacy?" Finally, the third question in this study looks at the relationship of cultural influences on academic self-efficacy. It asks, "Does biculturalism and language brokering predict academic self-efficacy?" It was hypothesized that all of the predictor variables would be positively correlated to academic performance. All analyses in this study were conducted using the SPSS system, Version 10 (SPSS, Inc., 1999).

Data were analyzed in three steps. The first section addresses the issue of reliability of the scales used in the study. Second, correlations were computed between all variables in the study to determine if the hypothesized relationships existed. Third, multiple regression analyses were performed to determine the relative contribution of the cultural variables (i.e. biculturalism and language brokering) and the efficacy variables (i.e. math self-efficacy and academic self-efficacy) to students' academic performance. A second set of multiple regression

analyses were conducted to determine is the cultural variables, language brokering behavioral, language brokering feelings, and biculturalism predict math self-efficacy and academic self-efficacy.

Reliability

Internal consistency of the following scales Math Self-Efficacy-Revised, Academic Self-Efficacy, Bicultural Involvement Questionnaire, Language Brokering (i.e. places, persons, things) and Language Brokering feelings were assessed through the alpha coefficient. An alpha of .94 was obtained for the Math Self-Efficacy Revised scale with an alpha of .91 for Math Task Self-Efficacy and .92 for Math Course Self-Efficacy. An alpha coefficient of .89 was obtained for Academic Self-Efficacy scale. Results revealed high internal consistency (.80) for all of the scales with the lowest reliability .81 for Bicultural Involvement Questionnaire. Table 1 presents the alpha coefficients and Table 2 the presents the means and standard deviations for the variables in this study.

Correlations

Table 3 presents the correlations for the variables in the study. Inspection of Table 3 reveals that only two of the variables, Academic Self-Efficacy, Math Self-Efficacy are significantly correlated in the hypothesized direction. Contrary to the hypothesis for this study, Bicultural Involvement (i.e. Biculturalism) was negatively correlated to Language Brokering Feelings and Grade Point Average. There was no correlation of the Language Brokering Scale -Behavioral with the exception of ACT score, or Language Brokering Scale - Feelings with other variables in the study. The feelings dimension was examined separately because it

represents an attitudinal aspect of brokering rather than the actual behaviors involved in language brokering.

Table 1

Reliability Alpha Coefficients for All Scales

Scales	Coefficient Alpha
1. Mathematics Self-Efficacy-R	.94
2. Math Task Self-Efficacy	.91
3. Course Self-Efficacy	.92
4. Academic Self-Efficacy	.89
5. Bicultural Involvement Questionnaire	.81
6. BIQ Americanism Scale Score	.89
7. BIQ Hispanicism Scale Score	.93
8. Language Brokering Places/Persons	.86
9. Language Brokering Things	.83
10 Language Brokering Feelings	.83

Table 2

Means and Standard Deviations for all Variable

Scales	Means	Standard Deviation
1. Mathematics Self-Efficacy	144.9	27.1
2. Math Task Self-Efficacy	80.5	14.9
3. Math Course Self-Efficacy	64.0	15.7
4. Academic Self-Efficacy	209.6	21.9
5. Bicultural Involvement Questionnaire	157.8	12.8
6. BIQ Americanism	87.2	8.9
7. BIQ Hispanicism	70.6	14.3
8. Language Brokering places/Persons	47.7	6.6
9. Language Brokering Things	12.1	7.4
10. Language Brokering Feelings	40.3	7.3

Table 3

Correlations Between All Variables

Variable	1	2	3	4	5	6	7	8	9	10
1. ASE	1.0	.432*	.367**	-.076	-.117	.148	.250**	.021	.166	-.209
2. MSE		1.0	.131	-.091	-.091	.216**	.628**	.239**	.316**	.134
3. BIQ			1.0	-.056	-.444**	.140	-.039	-.156*	.014	-.197
4. LBS-B				1.0	.109	-.110	-.105	-.011	.249*	-.313
5. LBS-F					1.0	.022	.035	.091	.061	.054
6. SRG						1.0	.313**	.634**	.110	.390*
7. MG							1.0	.305**	.174	.390*
8. GPA								1.0	.222	.386*
9. ACT									1.0	----
10. SAT										1.0

Note: ASE = Academic Self-Efficacy, MSE = Math Self-Efficacy, BIQ = Bicultural Involvement Questionnaire (i.e. Biculturalism), LBS-B = Language Brokering Scale -Behavioral, LBS-F = Language Brokering Scale Feelings, SRG= Self-Report Grades, MG = Math Grades, GPA = Grade Point Average, ACT = American College Testing, SAT = Scholastic Aptitude Test

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

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

Multiple Regression Analyses

Forward multiple regression analyses were performed to examine the relationship of multiple predictor variables to academic performance. Academic performance was defined as self-report grades, math grades, grade point average, ACT scores and SAT scores. The predictor variables included biculturalism, language brokering behavioral (i.e. places, persons, things), language brokering feelings, mathematics self-efficacy, and academic self-efficacy. In this multiple regression procedure, the predictor variables were entered in the equation in two blocks, academic self-efficacy and math self-efficacy in block one and biculturalism and language brokering and language brokering feelings in the second block. Tables 4 through 8 provide the results of the multiple regression analyses. Contrary to our hypothesis, Language brokering behavioral and language brokering feelings did not enter any of the equations.

Multiple Regressions of Math Self-Efficacy (MSE) Academic Self-Efficacy (ASE), Bicultural Involvement Questionnaire (BIQ), Language Brokering Scale-Behavioral (i.e. persons, places, & things) (LBS-B) and Language Brokering Scale-Feelings (LBS-F) on Academic Performance were performed. Multiple regression was performed with Self-Report Grades (SRG) as the dependent variable and MSE, ASE, BIQ, LBS-B and LBS-F as independent variables (See Table 4). The analysis indicated that three variables in the combination had a significant linear relationship with SRG. The results of the multiple regression was significant, F (3, 157) = 7.504, $p < .0001$. Variables that meaningfully contributed to the amount of variance explained were MSE (β =

.206, t = 2.53, *p* <.*012),* ASE ((β = .201, t = 2.33, *p* <.*021),* and BIQ (β = -.223, t = -2.80, *p* <.*006).* This method was used for all of the multiple regression analyses in the study.

Results of Math Grades as the dependent variable and MSE, ASE, BIQ, LBS-B and LBS-F as independent variables were significant F (2, 161) = 59.29, p < .0001 (See Table 5). Only one variable meaningfully contributed to the amount of variance, MSE (β= .656, t = 10.09, *p* <.*0001).* These results reveal that math self-efficacy was the strongest predictor of academic performance.

Analysis of Grade Point Average (GPA) as the dependent variable and MSE, ASE, BIQ, LBS-B and LBS-F as independent variables indicated that two variables in the combination had a significant linear relationship with GPA (See Table 6). The results of the multiple regression was significant, F (3, 160) = 5.09, p < .002. Variables that meaningfully contributed to the amount of variance explained were MSE (β = .239, t = 2.91, *p* <.*004)* and BIQ (β = -.191, t = -2.38, *p* <.*018).*

Analysis of American College Testing (ACT) as the dependent variable and MSE, ASE, BIQ, LBS-B and LBS-F as independent variables indicated that only two variables in the combination had a significant linear relationship with ACT (See Table 7). The results of the multiple regression was significant, F (2, 63) = 3.52, p < .035. Variables that meaningfully contributed to the amount of variance explained were a combination of MSE and ASE total (β = .311, t = 2.46, *p* <.*016).*

Analysis of Scholastic Aptitude Test (SAT) as the dependent variable and MSE, ASE, BIQ, LBS-B and LBS-F as independent variables indicated that only two variables in the combination had a significant linear relationship with SAT (See Table 8). The results of the multiple regression was significant, F (2, 31) = 3.84, $p < .032$. Variables that meaningfully contributed to the amount of variance explained were ASE ($\beta = -.454$, t = 2.60, $p < .014$) and a combination of MSE and ASE total ($\beta = .327$, t = 1.87, $p < .070$ was not significant.

Table 4

Multiple Regression Analysis Predicting Students' Academic Performance for Self-Report Grades

Predictor Variable	R	Rsq	F(eqn)	RsqCh	F(Ch)	r
Block 1						
MSE,	.286	.082	7.011**	.082	7.011**	.263
ASE						.207
Block 2						
MSE,	.354	.125	7.504***	.044	7.880***	.263
ASE,						.207
BIQ						-.133

Note: MSE = Math Self-Efficacy; ASE = Academic Self-Efficacy; BIQ = Bicultural Involvement Questionnaire (i. e. Biculturalism), * $p < .05$, ** $p < .001$, *** $p < .0001$

Table 5

Forward Multiple Regression Analysis Predicting Students' Academic Performance for Math Grades

Predictor Variable	R	Rsq	F(eqn)	RsqCh	F(Ch)	r
MSE,	.651	.424	59.292***	.424	59.292***	.651
ASE						.244

Note: MSE = Math Self-Efficacy; ASE = Academic Self-Efficacy.
*$p < .05$, **$p < .001$, ***$p < .0001$

Table 6

Forward Multiple Regression Analysis Predicting Students' Academic Performance for Grade Point Average

Predictor Variable	R	Rsq	F(eqn)	RsqCh	F(Ch)	r
Block 1						
MSE,	.234	.055	4.669*	.055	4.669*	.232
ASE						.061
Block 2						
MSE,	.295	.087	5.091*	.032	5.666*	.232
ASE,						.061
BIQ						-.155

Note: MSE = Math Self-Efficacy; ASE = Academic Self-Efficacy; BIQ = Bicultural Involvement Questionnaire (i. e. Biculturalism), * $p < .05$, ** $p < .001$, *** $p < .0001$

Table 7

Forward Multiple Regression Analysis Predicting Students' Academic Performance for ACT Scores

Predictor Variable	R	Rsq	F(eqn)	RsqCh	F(Ch)	r
MSE,	.317	.101	3.525*	.424	3.525*	.317
ASE						.117

Note: MSE = Math Self-Efficacy; ASE = Academic Self-Efficacy.
*$p < .05$, **$p < .001$, ***$p < .0001$

Table 8

Forward Multiple Regression Analysis Predicting Students' Academic Performance for SAT Scores

Predictor Variable	R	Rsq	F(eqn)	RsqCh	F(Ch)	r
MSE,	.446	.199	3.843*	.199	3.843*	.153
ASE						-.328

Note: MSE = Math Self-Efficacy; ASE = Academic Self-Efficacy.
p< .05, *p < .01, **p < 001, ***p < .0001

Like Buriel, (1998) in order to explore further the potential differential relationship of the four dimensions of language brokering to academic performance another set of multiple regression analyses was performed. In this forward regression analysis, language brokering behavioral was divided into its three behavioral dimensions - persons, places, and things - and each entered separately along with language brokering feelings and the other variables included in the previous analysis. The results were consistent, language brokering persons, places, things, and feelings were all excluded from the equations. Table 9 provides the results this analysis. As the previous analyses revealed, only three variables MSE, BIQ, and ASE entered the equations. Again, language brokering with its' three dimensions and language brokering feelings did not enter any of the equations.

In examining Language Brokering Scale, feelings, Students' reported that they felt very nervous when asked to translate in school or work places because they did not feel that they knew the translation in Spanish as well as they knew it in English. Their response suggests that this cohort of young students has become more Americanized, adopting the English language to a greater degree than the Spanish language. Buriel (1987) proposes that Hispanics often achieve a bicultural adaptation that uniquely combines aspects of American and Hispanic cultures, leading to behaviors that are not entirely characteristic of either culture. Buriel cites Ramirez (1983) that the diversity inherent in Hispanic heritage has provided the group with a world perspective that values integration and synthesis of new cultural experiences rather than complete assimilation.

All of these responses are include in the range of answers obtained from students for this study. In this present study, language brokering behavioral and language brokering feelings were negatively correlated to biculturalism. This negative relationship perhaps reflects the de-emphasis on bicultural involvement and language brokering functions in this area due to the majority of the population (89%) being Hispanic. Another reason is the proximity of the LRGV to Mexico, which adds to the constant flow of trade and interaction of citizens from the U. S. and Mexico who share a common language as well as common cultural traditions. Another possible explanation for the negative correlation between the two cultural variables could possibly be that the students surveyed involves a young cohort of college students (i.e. 82.9% were between the ages of 18 and 30). As adolescents and young adults in a college setting they identify more with main stream America than their Hispanic ancestors whom they may have very little contact or no contact at all to carry the traditions of their culture.

To further explore the cultural variables, language brokering behavioral, language brokering feelings and biculturalism as predictors of math self-efficacy and academic self-efficacy multiple regression analyses were performed with math self-efficacy and academic self-efficacy as criterion variables. Analysis of Math Self-Efficacy as the dependent variable and BIQ, LBS-B (i.e. persons, places and things) and LBS-F as independent variables indicated that none of the variables had a significant relationship with MSE (See Table 10). Only bicultural involvement entered the equation; however results were nonsignificant.

Therefore, for question two in this study, research failed to support the research hypothesis.

Analysis of Academic Self-Efficacy (ASE) as the dependent variable and BIQ, LBS-B (i.e. persons, places and things) and LBS-F as independent variables indicated that only BIQ had a significant relationship with ASE (See Table 11). The results of the multiple regression was significant, F (1, 166) = 21.88, $p <$ .0001. These results indicated that BIQ (i.e. biculturalism) was a strong predictor of ASE ($\beta = .341$, $t = 4.67$, $p < .0001$) in the hypothesized direction accounting for 11.6% of the variance. Therefore, for question three, data reveals that of the cultural variables in this study, only BIQ (i.e. biculturalism) predicts academic self-efficacy. Again, as in the previous analyses, language brokering behavior and language brokering feelings did not enter the equation.

Table 9

Forward Multiple Regression Analyses Predicting Students' Academic Performance for Self-report Grades, Math Grades, GPA, and ACT.

Predictor Variable	R	Rsq	F(eqn)	RsqCh	F(Ch)	r
MSE	.263	.069	11.783**	.069	11.783**	.263
BIQ	.308	.095	8.302***	.026	4.559*	-.133
ASE	.354.	.125	7.504***	.030	5.441*	.207
MSE	.651	.424	119.264***	.424	119.264***	.651
MSE	.232	.054	9.214*	.054	9.214*	.232
BIQ	.294	.086	7.608*	.033	5.733*	-.155
MSE	.317	.100	7.136*	.100	7.136*	.317

Note: MSE = Math Self-Efficacy; ASE = Academic Self-Efficacy; BIQ = Bicultural Involvement Questionnaire (i. e. Biculturalism), * $p < .05$, ** $p < .001$, *** $p < .0001$

Table 10

Multiple Regression Analyses Predicting Students' Math Self-Efficacy for Language Brokering Behavioral, Language Brokering Feelings, and Biculturalism

Predictor Variable	R	Rsq	F(eqn)	RsqCh	F(Ch)	r
BIQ	.119	.014	2.445	.014	2.445	.119

Note: MSE = Math Self-Efficacy; p< .05, *p < .01, **p < 001, ***p < .0001

Table 11

Multiple Regression Analyses Predicting Students' Academic Self-Efficacy for Language Brokering Behavioral. Language Brokering Feelings and Biculturalism

Predictor Variable	R	Rsq	F(eqn)	RsqCh	F(Ch)	r
BIQ	.341	.116	21.883***	.116	21.883***	.341

Note: BIQ = Bicultural Involvement Questionnaire (i.e. Biculturalism)
p< .05, *p < .01, **p < 001, ***p < .0001

CHAPTER V

Discussion

This study examined the relationship of cultural variables and self-efficacy variables to academic performance among Hispanic College students at a prominent university in South Texas. In particular cultural variables included biculturalism (i.e. bicultural involvement), language brokering (i.e. persons, places and things), and language brokering feelings. The self-efficacy variables included mathematics self-efficacy and academic self-efficacy. These finding indicate that as a linear combination, math self-efficacy, academic self-efficacy and biculturalism are significant predictors of academic performance.

The first research question explored the relationship of a set of predictor variables to the criterion variable, academic performance, as well as examine the correlation that exists among the predictor variables themselves. Academic performance was defined as self-report grades, math grades, GPA, ACT scores and SAT scores. The second research question examined at the relationship of the cultural variables, biculturalism and language brokering behavioral and language brokering feelings to math self-efficacy as the dependent variable. Finally, the third question examined at the relationship of the cultural variables biculturalism, language brokering behavioral and language brokering feelings to academic self-efficacy as the dependent variable.

The findings for the correlational analyses revealed that only two of the predictor variables, Mathematics Self-Efficacy and Academic Self-Efficacy, were significantly correlated in the hypothesized direction with academic performance.

Also, academic self-efficacy was highly correlated with math self-efficacy and biculturalism. In addition, there was a significant correlation between academic self-efficacy and the dependent variables, self-report grades and math grades. Math self-efficacy was highly correlated with academic self-efficacy and four dependent variables, self-report grades, math grades, GPA and ACT scores. Biculturalism was positively correlated with academic self-efficacy and negatively correlated with language brokering feelings and the criterion variable GPA.

In separate multiple regression analyses in this study, data failed to support the research hypothesis that biculturalism and language brokering, were significant predictors for math self-efficacy. However, this study did find support for the hypothesis that some cultural variables do predict academic self-efficacy. Specifically, biculturalism was found to be a strong predictor of academic self-efficacy. Greater experience, competence and comfort in two cultures may provide bicultural students with more problem-solving strategies, interpersonal skills, and self-confidence for accessing academic resources in school and in their communities (Buriel et al., 1998). However, data revealed that of the cultural variables in this study, only biculturalism was an important predictor of academic self-efficacy. Neither language brokering behavior nor language-brokering feelings were found to predict self-efficacy. These findings are in contrast to previous research showing that the cognitive demanding experiences of language brokers may directly aid their academic performance (Buriel et al., 1998).

Mathematics Self-Efficacy

As previously mentioned, the construct of self-efficacy has unique characteristics that are implicit in its assessment. First, self-efficacy involves judgments of capabilities to perform activities. Second, self-efficacy beliefs are multidimensional and are linked to different domains of functioning. Third, self-efficacy measures are context dependent. And fourth is self-efficacy's dependence on a mastery criterion of performance rather than normative or other criteria (Zimmerman, 1997). Appropriate instruments were used to determine students' self perceptions of academic self-efficacy, confidence to solve math tasks used in daily life and perceived capability to perform college courses that require mathematics.

Results of the multiple regression analyses revealed that mathematics self-efficacy was the strongest predictor of academic performance, followed by academic self-efficacy. Mathematics self-efficacy and academic self-efficacy support the hypothesized direct relationship to academic performance. These analyses offer further support to previous research that mathematics self-efficacy and academic self-efficacy are strong predictors of academic performance. Results suggest that among this Hispanic College cohort in the LRGV, mathematics self-efficacy was the strongest predictor of academic performance (i.e. self-report grades, math grades, and GPA). This is an important finding in that educators can incorporate more mathematics and mathematics related courses in students' curriculum and encourage all them to incorporate more mathematics in their studies.

Academic Self-Efficacy

Defined as personal judgments of one's capabilities to organize and execute courses of action to attain designated types of educational performance (Bandura, 1997, Zimmerman, 1997), this self-efficacy belief affects motivation by influencing the effort and persistence students expend on academic tasks. Moreover, they influence academic outcomes, in part, because the confidence students have of their capabilities helps determine what they do with those knowledge and skills they posses (Pajares and Miller 1995). Findings of this research study strengthen Bandura's (1986) argument that self-efficacy beliefs play an instrumental role in human agency as well as support previous research asserting positive associations between self-efficacy beliefs and related academic outcomes.

Biculturalism

Biculturalism (i.e. bicultural involvement) had paradoxical effects. First it supported the hypothesis that biculturalism was a strong predictor of academic self-efficacy in the hypothesized direction. However, it did not support the hypothesized direct relationship with academic performance, indicating a negative relationship with the criterion variables self-report grades and GPA. The Biculturalism scale was initially created for Cubans; thus the word "Cuban" was in written in the form. Students were asked to substitute the word "Hispanic" for Cuban. However, this too might have made a difference in student responses. The negative relationship perhaps reflects the de-emphasis on bicultural involvement and language brokering functions to academic performance in this region that may, in part, be due to the homogeneity of the population (89% Hispanic). Due to

the proximity of the Lower Rio Grande Valley to its southern neighbor, Mexico, there is a constant flow of trade and interaction of citizens from both countries who share a common language, Spanish, as well as common cultural traditions. However, it is possible that Hispanics who perceive themselves to be more Americanized and who are probably the third, fourth or fifth generation do not have that connection with their Hispanic ancestors. Furthermore, a certain negativism associated with the border cities between the U. S. and Mexico has been observed. There is a great deal of poverty on both sides of the border, as well as a constant flow of Mexican citizens immigrating into the U.S. both legally and illegally. Maril (1989) argues that,

> "The Mexican Americans of the Rio Grande Valley of Texas are among the poorest people in the United States. By almost every quantifiable measure which describes poverty or correlates of poverty, the Valley Mexican American are much poorer than those who live in other cities and regions of this country" (p.4).

It is possible that Hispanics who have resided in the U.S. for generations perceive bicultural involvement as a negative influence (i.e. poverty, language barrier, and illegal immigration) on academic performance and might feel a need to disassociate themselves from these factors. Another alternative explanation could be that the students surveyed for this study involved a young cohort of college students (82.9% were between the ages of 18 to 30). As adolescents and young adults in a college setting they may identify more with mainstream America than with their Hispanic ancestors whom they may have very little contact or no contact at all to carry on the traditions of their culture. In contrast,

Hispanics at either early or later developmental stages may have closer links with their cultural traditions due to other demands (e.g., raising a family).

Language Brokering

Results revealed that language brokering is not a significant predictor of academic performance, math self-efficacy and academic self-efficacy. It is possible that for students at the college level, language brokering has become a routine action and/or they no longer have a need to translate for their parents. Or it could be that at their level of acculturation, possibly 3rd, 4th and 5th generations they do not have to translate anymore, as their parents are also English speaking. Continued research in this area on language brokering is needed with elementary, middle school and high school students to examine its effects as a function of their level of acculturation.

Additionally, the significant negative correlations observed between biculturalism (i.e. bicultural Involvement) to language brokering feelings suggests that, in part, this population of college students experience adverse effects when translating from Spanish to English or visa versa. This study supports previous research (De Ment & Buriel, 1999; McQuillan and Tse, 1995; Tse, 1995) that reports a range of feelings (i.e. frustration, anger, embarrassment, pride, enjoyment) experienced by language brokers. Some students in this study felt that they were caught in a position to interpret by virtue of their ethnicity. Some reported that they felt very nervous when asked to translate in school or work places because they did not feel they were as competent in the Spanish language as they were in the English language. Buriel proposes that similar to the construct

of biculturalism, language brokering also implies competencies in two cultural settings which provide language brokers with greater social and cognitive resources; however, language brokering carries an added responsibility of serving as a linguistic intermediary between adults of different cultural backgrounds. The stresses that are involved in interpreting are likely to be greater than any other stresses that are associated with being bicultural (Buriel et al. 1998). This study suggests that the added stress experienced, in part, may demonstrate adverse effects of language brokering to biculturalism.

Theoretical Implications

According to social cognitive theory, people's judgments of their own capabilities to accomplish specific tasks strongly influence human motivation and behavior (Bandura, 1986). Efficacy beliefs influence how people think, feel, motivate themselves and act (Bandura, 1995). Pajares and Kranzler, (1995) note that, in part, self-efficacy judgments are said to mediate the influence of other predictors of behavior on a particular performance. For example, in academic settings, the confidence that students have in their own capabilities helps determine what they do with the skills and knowledge they posses; consequently, what students actually believe they can accomplish, in part, influences their actual ability or academic performance. Judgments of personal efficacy influence the choices people make, the effort they expend, the persistence and perseverance they exert in the face of adversity (Pajares and Johnson, 1996).

This study brings forth some clear implications that need to be addressed. Pajares (2002) has asserted that *"The beliefs that students create and develop and*

hold to be true about themselves are vital forces in their success or failure in school" (p.5). Researchers and school administrators need to be looking at students' beliefs about their academic capabilities as important predictors of academic performance and efforts should be made to identify and nurture these beliefs, for they are important components of motivation and behavior (Britner and Pajares, 2001). As Bandura (1996) argued,

> "Educational practices should be gauged not only by the skills and knowledge they impart for present use but also by what they do to children's beliefs about their capabilities, which affect how they approach the future. Students who develop a strong sense of self-efficacy are well equipped to educate themselves when they have to rely on their own initiative." (p. 417)

Bandura, (1993) asserts that "*a major goal of formal education should be to equip students with the intellectual tools, self-beliefs, and self-regulatory capabilities to educate themselves through their lifetime*" (p.136). Caution should be undertaken when using interventions to enhance academic self-beliefs. Because mastery experience is the most influential source of self-efficacy information, social cognitive theorists focus on the critical task of raising competence and confidence through authentic master experiences (Pajares and Schunk, 1999). These authors cite Erikson (1959/1980) who argued that,

> "Children cannot be fooled by empty praise and condescending encouragement. They may have to accept artificial bolstering of their self-esteem in lieu of something better, but what I call accruing ego identity gains real strength only from wholehearted and consistent recognition of real accomplishment, that is, achievement that has meaning in their culture." (p. 95)

With this in mind, a major task needs to be undertaken by all of society - parents, community organizations (i.e. local libraries, Boys & Girls clubs) school

administrators and educators, and government officials, to enable students to master the criteria for various domains and tasks. Further, in this particular geographical area of South Texas where the majority of students are Hispanic, emphasis needs to be placed on enabling Spanish-speaking students to master the English language in the educational setting to enable them to better master criteria for various domains (i.e., reading, science)

It is well known that children learn from the actions of models. Pajares & Schunk, (1999) note that social cognitive theorists recommend that teachers engage in effective modeling practices and that they select peer or classroom models so as to ensure that students view themselves as comparable in learning ability as the models. Modeling is a powerful tool that research has shown can increase persistence and accuracy by raising children's self-efficacy beliefs. All students would benefit from modeling in the educational setting, and social environments where children learn.

Implications for Counseling Psychology Practice with Hispanics

It is well documented in the literature that Hispanics in the United States are confronted with numerous problems including language barrier problems, poverty, and discrimination in education and employment. The negative impact of these life circumstances has made Hispanics susceptible to numerous mental health issues (Santiago-Rivera, 1995). Thus, it is important for mental health professionals to develop culturally sensitive therapeutic approaches for Hispanics. They must not only consider an individual's values, beliefs, and customs but also understand the role of language in the expression of these factors (Santiago-

Rivera, 1995). Biculturalism and language brokering are important variables that can help the counselor determine the extent to which maladaptive behaviors are associated with the conflict experienced by many Hispanics who are unable to cope effectively with the acculturation process.

The impact of various psychosocial stressors created by the acculturation process needs to be considered. Specifically, language differences, socioeconomic conditions, immigration status, changing value structure, and experiences with discrimination and racism have been found to be very stressful among minorities (Cervantes, Padilla, & Salgado de Snyder, 1991). In reviewing the literature on mental health services rendered to Hispanics, Santiago-Rivera (1995) found that, in general, Spanish-speaking clients tend to underutilize services because of unfamiliarity with the overall functioning of the mental health system, the insensitivity and lack of understanding on the part of the mental health professionals and the language barrier issue.

Generally, the basis for developing an effective treatment plan is the assessment of mental and physical status that includes observation of client behaviors, a psychosocial history and background information derived from various assessment instruments. Thus much of the information obtained comes from what the client communicates and how it is expressed (Santiago-Rivera & Altarriba, 2002). Assessing a client's acculturation level would add an understanding of the client's world and would challenge mental health professionals to be more sensitive to cultural characteristics of the client and reduce subjective biases and assumptions (Smart & Smart, 1992).

In addition, understanding the level of acculturation and biculturalism that includes language spoken by the client can help match counselor with clients. Smart and Smart (1992) note that research suggests that not all Hispanic clients prefer to work with an ethnically similar counselor; therefore, an acculturation assessment would be helpful to allocate limited resources of bilingual mental health professionals. Furthermore, it is important to arrange for well-trained bilingual interpreters who can be effective in bridging the gap between an English-speaking counselor and a Spanish-dominant client. It is important to note that when language brokering is used in therapeutic settings by children, adolescents and adults who themselves may be the clients, it may be counter productive by adding to the level of stress and anxiety experienced by the client.

Since assessment is often an integral part of diagnosis and outcome evaluations, results of the client's level of acculturation would indicate the degree of validity of assessment instruments used in psychological and educational evaluations (Cuellar and Arnold, 1988). Obtaining an acculturation level would help mental health professionals decide which assessment measures would be more appropriate from each individual client allowing for more accurate diagnosis and treatment interventions.

Finally, mental health professionals would do well to make the client aware that adjustment to the U. S. culture is not a matter of choosing between the culture of origin and the majority culture. That is, the individual can retain his original culture while mastering the majority culture; cultural incorporation is a viable option (Canales, 2000).

Summary

"There is much truth in the analogy that water is to fish as culture is to a person for it provides people a means of communication, a sense of belonging, meaningful belief systems, and views of self and others." (Cuellar, 2000, p. 46). Moreover, Marsella posits that "Culture is the lens or template we use in constructing, defining, and interpreting reality" (Marsella & Yamada, 2000, p. 12). Changes in culture and people result as cultures come into contact with one another. Thus, biculturalism arises from an acculturation process that acknowledges dual cultural influences in the lives of many individuals. Language, an integral part of all cultures, is the method by which knowledge, beliefs, and traditions are transmitted and is closely related to the individual's history and culture (Santiago-Rivera, 1995). These are important variables to consider as we attempt to understand their effects on Hispanic educational outcomes.

It is projected that Hispanic Americans will become the nation's largest minority group by the year 2020 (U. S. Bureau of the Census, 1997). Hispanics have less education, lower family incomes, and higher poverty rates than non-Hispanics. A possible explanation for low educational attainment could be that Hispanics did not have the same educational opportunities as other groups; additionally it is noted that some education specialists see the conflict between Hispanic student's background and the culture promoted in school as the root of Hispanic underachievement (Raajpoot 2000).

This study found some paradoxical findings that attest to the complexity of the education of Hispanic students in this border region of South Texas. Results revealed that biculturalism was positively correlated and was a strong predictor of academic self-efficacy. Results also indicated that biculturalism had a negative correlation with academic performance. Biculturalism is defined as the integration of the competencies and sensitivities associated with two cultures (Ramirez 1983). Being bicultural involves learning communication and negotiation skills in two different cultural contexts, each with a separate set of rules (Szapocznik, et al. 1980). As Hall (1973) observed, it is a monumental task for the individual to learn his or her native culture. Adjusting and adapting to another culture adds to the complexity of this task. These complex processes are what Hispanics encounter as they interact with the dominant culture in their day to day lives.

Results of the current study support previous research by Buriel et al. (1998) that biculturalism is positively correlated to academic self-efficacy. It appears that biculturalism does enhance student's confidence to face academic tasks, to organize and execute courses of action to attain greater academic performance. Greater confidence, competence in two cultures provides bicultural students with more problem-solving strategies, interpersonal skills, and self-confidence for accessing academic resources at school and in their communities. Individuals who are bicultural can maintain or develop an involvement in either culture without giving up the other (Buriel, 1993, Szapocznik et al., 1980). It is recommended that in an effort to move toward biculturalism group sessions in

ethnic value clarification are helpful in educational and community settings. In these sessions, students can learn about ethnic value differences, positive and negative, of both Hispanic and White values. They can also explore those aspects of culture that arouse feelings of pride and attraction or embarrassment and rejection (Szapocznik et al., 1980).

Findings in this study brought to light a paradoxical effect of biculturalism. They revealed the negative relationship of biculturalism to academic performance and a negative association between biculturalism and language brokering. As previously mentioned there are numerous reasons for these negative correlations. Although previous research has shown a positive relationship of biculturalism to academic performance, in this study, for this geographical region, the opposite was found. It is possible that the instrument used might not have been suitable for this population of college students in South Texas. Szapocznik et al. (1980) found the notions of biculturalism as they proposed in their study described the phenomena of biculturalism among Cuban-Americans better than non-Cuban Hispanics. They reported that in Dade County, Florida, where their study was conducted, the lack of validity for non-Cuban Hispanics appeared to be due to the way in which the measure of biculturalism interacted with the community. In Dade County there were cultural activities available for Cubans and Americans leaving the non-Cuban Hispanics without a distinct community with which to identify.

Hispanics often achieve a bicultural adaptation that uniquely combines aspects of mainstream American and Hispanic cultures, leading to behaviors that

are not entirely characteristic of either culture (Buriel, 1987). The LRGV is an example because this region is known for its own unique culture, which is a mixture of Mexican and American cultures with its own "Mex-Tex" Spanish/English language in which a mixture of English and Spanish are used interchangeably. The negative correlation between biculturalism and academic performance was perplexing; however, it may perhaps reflect the de-emphasis on bicultural involvement and language brokering functions in this geographical area that may in part be due to 89% of the population being Hispanic. That is biculturalism may not be a relevant factor in understanding academic performance in this region. The uniqueness of this area seems to be more of a hybrid of two cultures rather than a truly bicultural community. Moreover, the proximity of the LRGV to Mexico, only minutes away, adds to the constant flow of trade and interaction of citizens from the U. S. and Mexico who share a common language and cultural traditions. On the other hand, it could be that with each generation, Hispanics lose awareness of their ancestral culture resulting in cultural distancing.

This study's paradoxical findings revealed that for some students, biculturalism might enhance academic self-efficacy in providing greater experience, competence and comfort in two cultures as well as provide them with more problem-solving strategies, interpersonal skills, and self-confidence. Moreover, bicultural students may be better adapted to their dual cultural environments, thereby minimizing detrimental effects of acculturation, such as psychosocial and behavioral disorders that can negatively effect academic performance (Buriel et al., 1998; Szapocznik et al., 1980).

On the other hand, for some Hispanic students in this geographical region, biculturalism may impact academic performance negatively. This effect may result from its association with negative aspects (i.e. poverty, language barrier problems, and illegal immigration) of this region that may undermine student's academic self-efficacy. The findings in this study were perplexing and require much more research in this area to examine the effects of biculturalism on academic performance and academic self-efficacy.

On language brokering, Buriel et al. (1998) note that research by McQuillan and Tse (1995) found that adult respondents who served as language brokers believed that language brokering did not have any effects on academic performance, with the exception of improving their language skills. This may explain why in this current study language brokering was not correlated with academic self-efficacy or academic performance. Buriel et al. (1998) hypothesized that it is possible that the cognitive demands inherent in language brokering initially contribute to academic performance in elementary school, which is the development period when most children begin to broker. However, by the time these children reach high school and college their language brokering responsibilities may have become so routine that they attribute their academic performance to other things such as ability and motivation. It appears that in this study, this cohort of college students may have similar perceptions of language brokering not being a contributing factor to academic performance as previous research has found.

In the current study, the affective dimension of the brokering construct (feelings about brokering) students reported strong feelings about language brokering that ranged from liking and enjoying translating to anger, embarrassment, stress and feelings of nervousness/anxiousness. Some students reported that they felt very nervous when asked to translate in school or work places because they did not feel that they know the translation in Spanish as well as they knew it in English. Their response suggests that this cohort of college students has adjusted more to the U. S. culture, adopting the English language to a greater degree than the Spanish language. To reduce the stress level some student's experience when translating, it is recommended that a request is made to the person and that he or she is given a choice to translate or not.

In light of these perplexing findings, more research with this specific population needs to be conducted to examine biculturalism as an adaptive strategy with Hispanic individuals whose families have been in the U. S. for generations. Specifically, studies need to focus on examining biculturalism's negative impact on academic performance in this region. More research on language brokering with elementary students, and adolescents in middle school, high school and college students will help us understand the effects of this factor on student's academic self-efficacy and academic performance.

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APPENDIX A

INFORMED CONSENT FORM

I, _____, have been informed by Josie De Los Santos, doctoral student at Oklahoma State University, that I am one of approximately 200 subjects that have been asked to volunteer for this survey study entitled, "The Relationship of Cultural Influences and Academic Self-Efficacy Beliefs on Academic Performance Among Hispanics." The purpose of this study is to gain a better understanding of the influences of cultural aspects, biculturalism and language brokering, on academic self-efficacy and their impact on students' academic performance. Collection of research data will be from February 25 to April 15, 2002. I understand that any information about me will be kept strictly confidential.

Subjects are instructed to put no names on the surveys and to complete the surveys to the very best of their ability. Upon completion of survey forms, please put them in the large envelope provided by the investigator (s) and place it in the office box that will be collected by the investigator (s). Participation in this survey is voluntary and you may withdraw at any time without penalty.

This research has been reviewed and approved by the Institutional Review Board-Human Subject's in Research at Oklahoma State University and at the University of Texas-Pan American. For research-related problems or questions regarding subject's rights, the Human Subject's Committee may be contacted through Dr. Bob Faraji, IRB Chair, UTPA at 381-2287. Or you may contact Dr. Marie Miville at Oklahoma State University, Director of the School of Applied Health and Educational Psychology at (405) 744-6040 or myself, Josie De Los Santos at (956) 585-3459.

I have read and understand the explanations provided to me and voluntarily agree to participate in this study.

Signature of Subject _____ Date ____/____/____

Signature of Witness _____Date ____/____/____

APPENDIX B

DEMOGRAPHIC QUESTIONNAIRE

1. Age: _____

Please circle the number next to the appropriate answer.

2 Gender F M
1 2

3. Race: Hispanic White African American Asian Native American Other (Please specify)
1 2 3 4 5 6

Please provide the following information as it pertains to your childhood years.

4. What was the marital status of the parents you lived with for the majority of your childhood years? _____

1) Single
2) Married
3) Divorced
4) Cohabitating
5) Widowed
6) Remarried with stepparent

5. Please give the approximate number of people living in your home during that time including yourself.

Number of Children _____ Number of Adults _____

6. What was your parent(s) or guardian's occupation at that time? (Be specific)

Mother/Stepmother _____
Father/Stepfather _____
Guardian _____

7. What was your parents or guardian's highest education at that time?

Mother/Stepmother _____ Father/Stepfather _____ Guardian _____

1	1 - 6 Grade School	5	College Degree
2	7 - 9 Middle School	6	Graduate Degree
3	10-12 High School		
4	1 - 2 Years of College		

APPENDIX C

SELF-REPORT GRADE FORM

Please provide the following information about yourself.

Please circle the grades that apply to you at end of school year 2001 or your last school semester.

Numerical Value	**Grade**
9	mostly As
8	mostly As and Bs
7	mostly Bs
6	mostly Bs and Cs
5	mostly Cs
4	mostly Cs and Ds
3	mostly Ds
2	mostly Ds and Fs
1	mostly Fs

What kind of grades do you usually get in math? _____

What was your SAT or ACT score? _____

Current Grade Point Average (GPA)	1.5-2.0	2.1-2.5	2.6-3.0	3.1-3.5	3.6-4.0
	1	2	3	4	5

APPENDIX D

ACADEMIC SELF-EFFICACY

Directions: Think about how you would answer each of the questions asked below. Using the scale from 1 (not well at all) to 6 (very well), circle the number that best describes how well you believe you can perform each of the following tasks.

1_____2_____3_____4_____5_____6
Not well at all Very well

1.	How well can you get teachers to help you when you get stuck on schoolwork?	1 2 3 4 5 6
2.	How well can you get another student to help you when you get stuck on schoolwork?	1 2 3 4 5 6
3.	How well can you get adults to help you when you have social problems?	1 2 3 4 5 6
4.	How well can you get a friend to help you when you have social problems?	1 2 3 4 5 6
5.	How well can you learn mathematics?	1 2 3 4 5 6
6.	How well can you learn algebra?	1 2 3 4 5 6
7.	How well can you learn science?	1 2 3 4 5 6
8.	How well can you learn biology?	1 2 3 4 5 6
9.	How well can you learn reading skills?	1 2 3 4 5 6
10.	How well can you learn writing skills?	1 2 3 4 5 6
11.	How well can you learn a foreign language?	1 2 3 4 5 6
12.	How well can you learn to use a computer?	1 2 3 4 5 6
13.	How well can you learn social studies?	1 2 3 4 5 6
14.	How well can you learn English grammar?	1 2 3 4 5 6
15.	How well can you learn sports skills?	1 2 3 4 5 6
16.	How well can you learn dance skills?	1 2 3 4 5 6
17.	How well can you learn music skills?	1 2 3 4 5 6
18.	How well can you do the kinds of things that are needed to work on the school newspaper?	1 2 3 4 5 6
19.	How well can you do the kinds of things needed to be a member of the student government?	1 2 3 4 5 6
20.	How well can you do the kinds of things needed to take part in school plays?	1 2 3 4 5 6
21.	How well can you do regular physical education activities?	1 2 3 4 5 6
22.	How well can you learn the skills needed for team sports (like basketball, volleyball, swimming, football, soccer)?	1 2 3 4 5 6
23.	How well can you resist peer pressure to do things in school that can get you into trouble?	1 2 3 4 5 6
24.	How well can you stop yourself from skipping school when you feel bored or upset?	1 2 3 4 5 6
25.	How well can you resist peer pressure to smoke cigarettes?	1 2 3 4 5 6
26.	How well can you resist peer pressure to drink beer, wine, or liquor?	1 2 3 4 5 6
27.	How well can you resist peer pressure to smoke marijuana?	1 2 3 4 5 6
28.	How well can you resist peer pressure to take drugs?	1 2 3 4 5 6
29.	How well can you resist peer pressure to have sexual intercourse?	1 2 3 4 5 6
30.	How well can you control your temper?	1 2 3 4 5 6
31.	How well can you live up to what your parents expect of you?	1 2 3 4 5 6
32.	How well can you live up to what your teachers expect of you?	1 2 3 4 5 6
33.	How well can you live up to what your friends expect of you?	1 2 3 4 5 6
34.	How well can you live up to what you expect of yourself?	1 2 3 4 5 6
35.	How well can you make and keep friends of the opposite sex?	1 2 3 4 5 6
36.	How well can you carry on a conversation?	1 2 3 4 5 6
37.	How well can you work in a group?	1 2 3 4 5 6
38.	How well can you express your opinions when classmates disagree with you?	1 2 3 4 5 6

Directions: Think about how you would answer each of the questions asked below. Using the scale from 1 (not well at all) to 6 (very well), circle the number that best describes how well you believe you can perform each of the following tasks.

1_____2_____3_____4_____5_____6
Not well at all Very well

39. How well can you stand up for yourself when you feel you are being treated unfairly?	1 2 3 4 5 6
40. How well can you deal with situations where others are annoying you or hurting your feelings?	1 2 3 4 5 6
41. How well can you stand firm to someone who is asking you to do something unreasonable or inconvenient?	1 2 3 4 5 6
42. How well can you get your parents to help you with a problem?	1 2 3 4 5 6
43. How well can you other family members to help you with a problem?	1 2 3 4 5 6
44. How well can you get your parents to take part in school activities?	1 2 3 4 5 6

APPENDIX E

Mathematics Self-Efficacy-Revised (MSES-R)

Directions: How much confidence do you have that you are able to successfully perform each of the following tasks?

1	2	3	4	5	6
Not confident At all					Completely Confident

1. Add two large numbers (e.g., 5739 + 62543) in your head	1 2 3 4 5 6
2. Determine the amount of sales tax on a clothing purchase.	1 2 3 4 5 6
3. Figure out how much material to buy in order to make curtains.	1 2 3 4 5 6
4. Determine how much interest you will end up paying on a $675 loan over 2 years at 14 3/4% interest.	1 2 3 4 5 6
5. Use a scientific calculator?	1 2 3 4 5 6
6. Compute your car's gas mileage.	1 2 3 4 5 6
7. Calculate recipe quantities for a dinner for 41 when the original recipe is for 12 people.	1 2 3 4 5 6
8. Balance your checkbook without a mistake.	1 2 3 4 5 6
9. Understand how much interest you will earn on your savings account in 6 months, and how that interest is computed.	1 2 3 4 5 6
10. Figure out how long it will take to travel from City A to City B driving 55 mph.	1 2 3 4 5 6
11. Set up a monthly budget for yourself.	1 2 3 4 5 6
12. Compute your income taxes for the year.	1 2 3 4 5 6
13. Understand a graph accompanying an article on business profits.	1 2 3 4 5 6
14. Figure out how much you would save if there is a 15% markdown on an item you wish to buy.	1 2 3 4 5 6
15. Estimate your grocery bill in your head as you pick up items.	1 2 3 4 5 6
16. Figure out which of two summer jobs is the better offer; one with a higher salary but no benefits, the other with a lower salary plus room, board, and travel expenses.	1 2 3 4 5 6
17. Figure out the tip on your part of a dinner bill split 8 ways.	1 2 3 4 5 6
18. Figure out how much lumber you need to by in order to build a set of bookshelves.	1 2 3 4 5 6

Directions: Please rate the following college courses according to how much confidence ***you*** have that you could complete the course with a *final grade* of "A" or "B." Circle the appropriate response on the 6-point scale according to the following guidelines.

Use the following scale:

1_____2_____3_____4_____5_____6

Not confident at all — Completely Confident

1.	Basic college math	1 2 3 4 5 6
2.	Economics	1 2 3 4 5 6
3.	Statistics	1 2 3 4 5 6
4.	Physiology	1 2 3 4 5 6
5.	Calculus	1 2 3 4 5 6
6.	Business administration	1 2 3 4 5 6
7.	Algebra II	1 2 3 4 5 6
8.	Philosophy	1 2 3 4 5 6
9.	Geometry	1 2 3 4 5 6
10.	Computer Science	1 2 3 4 5 6
11.	Accounting	1 2 3 4 5 6
12.	Zoology	1 2 3 4 5 6
13.	Algebra I	1 2 3 4 5 6
14.	Trigonometry	1 2 3 4 5 6
15.	Advance calculus	1 2 3 4 5 6
16.	Biochemistry	1 2 3 4 5 6

APPENDIX F

Language Brokering Scale

Places where you translate (circle one)

1.	Have you ever translated at home?	YES	NO
2.	Have you ever translated at school?	YES	NO
3.	Have you ever translated at the store?	YES	NO
4.	Have you ever translated at the post office?	YES	NO
5.	Have you ever translated at the hospital?	YES	NO
6.	Have you ever translated at the doctor's office?	YES	NO
7.	Have you ever translated at the bank?	YES	NO
8.	Have you ever translated where your parents work?	YES	NO
9.	Have you ever translated at a restaurant?	YES	NO
10.	Have you ever translated on the street?	YES	NO
11.	Have you ever translated at a government office? (Example: social security office, welfare office, city hall)	YES	NO
12.	Have you ever translated at a church?	YES	NO

Things you have translated

What kind of things have you had to translate? (circle the things you have translated)

Notes or letters from school	Telephone bills
Credit card bills	Job applications
Insurance forms	Rental contracts
Bank statements	Forms from the doctor's office
Immigration forms	Forms giving instruction for a new appliance or piece of equipment
When someone comes to your door at home	On the phone when the other person doesn't speak Spanish

How often would you say you feel this way about translating? (Circle one)

1. "I like to translate."
   Always A lot A little bit Never
2. "I feel good about myself when I translate for others."
   Always A lot A little bit Never
3. "I feel embarrassed when I translate for others."
   Always A lot A little bit Never
4. "I feel nervous when I translate for others."
   Always A lot A little bit Never
5. "I have to translate for others even if I don't want to."
   Always A lot A little bit Never
6. "I think translating has helped me learn English."
   Always A lot A little bit Never
7. "I think translating has helped me learn Spanish."
   Always A lot A little bit Never
8. "I think translating has helped me to better understand people who are not Mexican.
   Always A lot A little bit Never
9. "Translating for others makes me feel more grown-up."
   Always A lot A little bit Never
10. "I think translating has helped me to care more for my parents."
    Always A lot A little bit Never
11. "I think translating has helped me to understand my parents better."
    Always A lot A little bit Never
12. "I think my parents learned English faster because I translated for them."
    Always A lot A little bit Never
13. "I think my parents learned English slower because I translated for them."
    Always A lot A little bit Never
14. "I think my parents know more about Americans because I translated for them."
    Always A lot A little bit Never
15. "I think my parents know less about Americans because I translated for them."
    Always A lot A little bit Never

Your experience translating for others (circle one)

1. How often do you translate for your parents?
   Always A lot A little bit Never

2. How often do you translate for your brother and/or sisters?
   Always A lot A little bit Never

3. How often do you translate for other relatives (aunt, uncle, or grandparents)?
   Always A lot A little bit Never

4. How often do you translate for friends?
   Always A lot A little bit Never

5. How often do you translate for neighbors?
   Always A lot A little bit Never

6. How often do you translate for people who have come to your door?
   Always A lot A little bit Never

7. How often do you translate for teachers?
   Always A lot A little bit Never

8. How often do you translate for other people who work at school?
   Always A lot A little bit Never

9. How often do you translate for people who work in stores?
   Always A lot A little bit Never

10. How often do you translate for strangers?
    Always A lot A little bit Never

APPENDIX G

Appendix G

BICULTURALISM SCALE
(English)

Instructions: Sometimes life is not as we really want it. If you could have your way, what would you like the following aspects of your life to be like?

	I would wish this to be completely Cuban	I would wish this to be mostly Cuban	I would wish this to be both Cuban and American	I would wish this to be mostly American	I would wish this to be completely American
Food:					
Language:					
Music:					
T.V. Programs:					
Books/Magazines:					
Dances:					
Radio Programs:					
Way of celebrating birthdays:					
Way of celebrating weddings:					

INSTRUCTIONS: In the following questions please write the number that best describes your feelings.

A. How comfortable do you feel speaking SPANISH

	Not at all Comfortable				Very Comfortable
1. at HOME	1	2	3	4	5
2. in SCHOOL	1	2	3	4	5
3. at WORK	1	2	3	4	5
4. with FRIENDS	1	2	3	4	5
5. in GENERAL	1	2	3	4	5

B. How comfortable do you feel speaking ENGLISH:

	Not at all Comfortable				Very Comfortable
6. at HOME	1	2	3	4	5
7. in SCHOOL	1	2	3	4	5
8. at WORK	1	2	3	4	5
9. with FRIENDS	1	2	3	4	5
10. in GENERAL	1	2	3	4	5

C. How much do you enjoy:

	Not at all				Very Much
11. Hispanic music	1	2	3	4	5
12. Hispanic dances	1	2	3	4	5
13. Hispanic-oriented places	1	2	3	4	5
14. Hispanic type recreation	1	2	3	4	5
15. Hispanic T.V. programs	1	2	3	4	5
16. Hispanic radio station	1	2	3	4	5
17. Hispanic books and magazines	1	2	3	4	5

D. How much do you enjoy:

	Not at all				Very Much
18. American music	1	2	3	4	5
19. American dances	1	2	3	4	5
20. American-oriented places	1	2	3	4	5
21. American-type recreation	1	2	3	4	5
22. American T.V. programs	1	2	3	4	5
23. American radio stations	1	2	3	4	5
24. American books and magazines	1	2	3	4	5

APPENDIX H

Oklahoma State University
Institutional Review Board

Protocol Expires: 3/19/03

Date: Wednesday, March 20, 2002 IRB Application No ED00284

Proposal Title: THE RELATIONSHIP OF CULTURAL INFLUENCES AND ACADEMIC SELF-EFFICACY BELIEFS ON ACADEMIC PERFORMANCE AMONG HISPANICS

Principal Investigator(s):

Josephine De Los Santos
6710 E Golf Links
Tucson, AZ 85730

Marie L. Miville
401 Willard Hall
Stillwater, OK 74078

Reviewed and Processed as: Expedited

Approval Status Recommended by Reviewer(s): Approved

Dear PI :

Your IRB application referenced above has been approved for one calendar year. Please make note of the expiration date indicated above. It is the judgment of the reviewers that the rights and welfare of individuals who may be asked to participate in this study will be respected, and that the research will be conducted in a manner consistent with the IRB requirements as outlined in section 45 CFR 46.

As Principal Investigator, it is your responsibility to do the following:

1. Conduct this study exactly as it has been approved. Any modifications to the research protocol must be submitted with the appropriate signatures for IRB approval.
2. Submit a request for continuation if the study extends beyond the approval period of one calendar year. This continuation must receive IRB review and approval before the research can continue.
3. Report any adverse events to the IRB Chair promptly. Adverse events are those which are unanticipated and impact the subjects during the course of this research; and
4. Notify the IRB office in writing when your research project is complete.

Please note that approved projects are subject to monitoring by the IRB. If you have questions about the IRB procedures or need any assistance from the Board, please contact Sharon Bacher, the Executive Secretary to the IRB, in 203 Whitehurst (phone: 405-744-5700, sbacher@okstate.edu).

Sincerely,

Carol Olson, Chair
Institutional Review Board

INSTITUTIONAL REVIEW BOARD FOR HUMAN SUBJECTS IN RESEARCH

THE UNIVERSITY OF TEXAS - PAN AMERICAN

1201 West University Drive • Edinburg, Texas 78539-2999 • (956) 381-~~2880~~ Office • Fax (956) ~~381-3502~~
2287 318-5265

MEMORANDUM

To: Ms. Josephine De Los Santos , College of Education, Oklahoma State University, Dr. Marie Miville of OSU, Graduate Advisor

From: Dr. Bahram (Bob) Faraji, Chair, Institutional Review Board for Human Subjects in Research BF

Subject: Protocol for "Relationship of Cultural Influences and Academic Self-Efficacy Beliefs on Academic Performance Among Hispanics "

Date: March 4, 2002

The above referenced protocol has been:

____ Approved (committee review)
_X_ Approved (expedited review, IRB# 173)
____ Conditionally approved (see remarks below)
____ Tabled for future consideration-Re-submit with corrections
____ Disapproved (see remarks below)

by the Institutional Review Board Federal Wide Assurance Number (FWA 00000805).

As stipulated in the guidelines of the IRB, this protocol will be subject to annual review by the IRB and any deviations from the protocol or change in the title must be resubmitted to the Board.

For additional information you can contact the IRB University website at http://www.panam.edu/dept/sponprp/Policies/Policies.html

AT THE CONCLUSION OF THE STUDY, YOU MUST FILL OUT THE ENCLOSED REPORT FORM

cc: George Avellano, AVPAA/GP&R

VITA

Josephine De Los Santos 2

Candidate for the Degree of

Doctor of Philosophy

Thesis: THE RELATIONSHIP OF CULTURAL INFLUENCES AND ACADEMIC SELF-EFFICACY BELIEFS ON ACADEMIC PERFORMANCE AMONG HISPANICS

Major Field: Educational Psychology

Biographical:

Education: Received Bachelor of Science in Psychology from the University of Texas-Pan American, Edinburg, Texas in May 1993. Completed requirements for the Master of Education degree with an emphasis on Guidance and Counseling at the University of Texas-Pan American in May 1996. Completed requirements for the Doctor of Philosophy degree with a major in Counseling Psychology at Oklahoma State University in December 2002.

Experience: Currently employed as a resident clinician for a community behavioral health facility in Texas. Served as Interim director at Casa De Vida Stabilization Unit Residential Treatment center in Arizona. Completed a clinical internship with Southern Arizona Psychological Internship Consortium and provided outpatient services at a community behavioral health organization and adult inpatient services at La Frontera Center Psychiatric Health Facility.

Professional Memberships:

American Psychological Association and Arizona Psychological Association.