THE GRADUATE EXPERIENCE OF MEXICAN INTERNATIONAL STUDENTS IN US DOCTORAL PROGRAMS

By

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ABSTRACT

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Although extensive research on the experience of international students in American higher education exists, little research has been done on international students from Latin America. Latin American students represent the second largest group of international students in the United States by world region after Asia (Institute of International Education, 2009). In addition, while international graduate students represent 41 % of all international students in the U.S., there is a lack of information about their experiences in American institutions. Most of the research discusses international students as one, single classification and does not differentiate between different nationalities (Kagan & Cohen, 1990; Poyrazli & Grahame, 2007). However, the country of origin likely plays a key role in how international students adjust to life in the United States. Experiences of international students need to be examined based on their nationality and not region (Hanassab & Tidwell, 2002). This study aims to expand the little research on international graduate students from Latin America by looking at international doctoral students from Mexico. The research looks at the cultural adjustment of Mexican doctoral students in American institutions and focuses on how country of origin (and destination), gender, discipline and social class affect Mexican doctoral student's cultural adjustment. The following questions are addressed: What factors affect the acculturation of Mexican doctoral students? and Does the degree of acculturation differ by gender, academic discipline, destination, and social class?

For this study a model was constructed following Berry's model of acculturation (1997). The data was organized to include variables regarding the student's academic experience, cultural experience and personal experience. To measure acculturation, this model included seven outcomes and eleven predictors. This study used quantitative methodology to collect data utilizing a web-based survey. The target population for this study was Mexican doctoral students sponsored by the National Council of Science and Technology (CONACYT) in US institutions. 235 Mexican doctoral students in the U.S. responded, a response rate of 52%.

Among the findings in this research, I found similarities in the acculturation experience of international students and Mexican doctoral students. However, the findings also showed that there were experiences better examined through the student's nationality rather than a single group that included all international students. The findings from this study are meaningful for Mexican doctoral students in the United States, The CONACYT program, The Mexican government, The U.S. government, American institutions and post-secondary institutions around the world. On the one hand, Mexican doctoral students can gain insight into the challenges their colleagues have. The findings of this study can also increase the sense of belonging of Mexican doctoral students to a group that could enable them to share their experiences, network and enrich their participation as a Mexican doctoral student in the United States. On the other hand, international sponsorship programs, the Mexican government, the U.S. government, American institutions and other higher education institutions around the world can learn from the findings how they can better support this understudied population to help them succeed in their doctoral programs. There should be a shared responsibility not only to the doctoral students, but international sponsorship programs and American institutions to create the best environment for students to succeed.

Dedication

To my husband Paul E. Tanner, and to my daughters Maya Sofia and Ximena Paulette. Your lives have enlightened mine and given me the ability to finish this journey.

To my parents, Socorro Puente Ledesma and the late Roberto Borjas Rodriguez. All I am and what I accomplish I do it to honor you.

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A flight from Torreon, Mexico to Lansing, Michigan in December of 2005 was the beginning of my journey in the United States. Then, in the fall of 2007, I started my journey in the Higher, Adult and Lifelong Education doctoral program to learn about American and international education and also to understand better ways to serve international students. Michigan State University has given me so much. I was able to get professional experience through my job as the first Coordinator of Diversity Programming in James Madison College and valuable educational experience through the doctoral program at the MSU College of Education. Through my journey at Michigan State University, I was able to meet extraordinary people that helped me in my adaptation to the United States and the academic environment. These people continue to be role models today. During this journey I have moved from Michigan to Merida, Mexico, back to Michigan, then to Maryland, then on to Virginia.

First, I would like to acknowledge my dissertation chair, academic advisor and chair of my guidance committee, Professor Jim Fairweather. I am thankful for his advice, guidance and understanding. I could not have finished this dissertation without the support of professor Fairweather. I would also like to thank the rest of the members of my dissertation committee, Professor Reitu Mabokela, Professor Kriss Renn and Professor John Kerr. Thank you for your support and encouragement throughout my doctoral program.

Also, I would like to recognize the support of the Mexican doctoral students who participated in this study. Doctoral students have many responsibilities with school, work, family, research and the dissertation and very little time to dedicate to other things. I am very grateful to the students who took the time to answer my survey. I am particularly thankful for those participants who sent me emails of encouragement.

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CHAPTER ONE

INTRODUCTION

The twenty-first century has brought a changing global environment that offers opportunities as well as potential challenges to post-secondary education around the world (Duderstadt, 2000). The World Bank report entitled "*Constructing knowledge societies: New challenges for tertiary education"* (2002) states that the most important contemporary changes in the global environment are "the increasing importance of knowledge as a driver of growth in the context of the global economy, the information and communication revolution, the emergence of a worldwide labor market, and global sociopolitical transformations" (pp. 7). American higher education has also been impacted by the global environment of the twenty-first century, leading to the internationalization of the U.S. higher education (Leveille, 2006; Zusman, 2005). As we move to a more global community, the international competencies of higher education must become one of the first priorities for American institutions to prepare professionals with global knowledge (Duderstardt, 2000). Internationalization in the context of higher education is defined by Altbach and Knight (2007) as "the policies and practices undertaken by academic systems and institutions—and even individuals—to cope with the global academic environment" (pp.290). International students and study abroad comprise the dominant activities in internationalization in higher education (Knight, 1999). More specifically, the internationalization of American higher education has seen the economic, academic, and socio-cultural impact on American academia and society of international students attending US institutions (Institute of International Education, 2011; The National Academies, 2005). Given the importance of international students in the process of internationalizing American higher education, this study focuses on the current

status of an understudied part of this population in the United States, doctoral students from Mexico.

Landscape of International Students in the U.S.

Since World War II, the number of international students in US higher education has grown rapidly. As we move to a more global society this trend has accelerated. Today, the United States is the leading host country for international students, enrolling more than 720,000 students of which 41% are pursuing degrees in graduate school (Institute of International Education, 2011). Although male international students outnumber female international students, the participation of female international students in American institutions has increased substantially (Institute of International Education, 2000). In 1978, only 26% of international students were women; however, by the year 2000, females comprised 46.7% of all international undergraduate students and 37.8% of all international graduate students (Institute of International Education, 2000). 85.6% of international students in the U.S. hold an F-1 visa (Institute of International Education, 2000), which indicates full-time student status (U.S. Department of State, 2010).

International students in the US represent over 200 nationalities hosted by 3,000 American institutions in higher education (Institute of International Education, 2011). China is the leading place of origin for international students in the U.S. with 157,558 in 2010/11. India is in second place with 103,895. Meanwhile, South Korea is the third leading country with 73,351 and Canada is in fourth place with 27,546. Rounding out the top places of origin are Taiwan, Saudi Arabia, Japan, Vietnam and Mexico at fifth, sixth, seventh, eighth and ninth respectively (Institute of International Education, 2011).

Among the top ten most popular fields of study for international students in the U.S. in 2010/11 were Business and Management with 21.5% of total, Engineering with 18.7% and Mathematics and Computer Science with 8.9%. Physical and Life Sciences followed with 8.8%, Social Sciences with 8.8%, Fine & Applied Arts at 5.1%, Health Professions with 4.5%, Intensive English Language at 4.5%, Education 2.3%, and Humanities with 2.2% (Institute of International Education, 2011).

Contributions of international students

The contributions of international students in U.S. higher education have a positive impact not only academically, but economically, socially and culturally (Institute of International Education, 2011; The National Academies, 2005).

Economic Benefit

International students contributed $21 billion to the U.S. economy in 2011 through their tuition and living expenses (Institute of International Education, 2011). Higher education in the United States is becoming one of the largest service sectors of exportation as international students fuel the country and individual host states' economies with expenses in room and board, health services, family expenses and transportation (Institute of International Education, 2011). To give some examples of the economic impact in a single state, international students contributed $ 2,992 million in the State of California, $ 2,431.3 million in the state of New York, and $ 705.7 million in the State of Michigan (Institute of International Education, 2011).

International students vary in their source of financial support. About 69.2 % of all international students funding comes from sources outside of the United States; 63.4 % represents the students' family and personal resources and 5.8 % represents the students' country's government (Institute of International Education, 2011). American institutions have

benefited from international students' tuition. Thus, there is clearly a positive economic impact of the resources that international students bring to the United States through undergraduate and graduate education.

Socio-cultural impact

In addition to the economic contribution, there is a socio-cultural impact of international students in the U.S. and in their return to their home country. International students constitute a diverse population that helps to enrich the university culture and allows Americans to successfully function as multicultural agents (Hanassab & Tidwell, 2002). International students not only interact with faculty and students in the classroom leading to increased cross-cultural learning, they also engage in activities with the community outside the university. These relationships can lead to a better understanding of global issues in the community at large (The National Academies, 2005; Andrade, 2006).

Further, international students foster goodwill among nations and are crucial in maintaining positive international relations. One example of this regards students' experiences in American institutions. A number of prominent world leaders from other countries have participated in educational exchange programs in the U.S. such as former French president Jacques Chirac, former Mexican president Vicente Fox and former British Prime Minister Tony Blair (The National Academies, 2005). Former President Bush stated the importance of such exchange programs during International Education Week in 2001: "The relationships that are formed between individuals from different countries, as part of international education programs and exchanges, can also foster goodwill that develops into vibrant, mutually beneficial partnership among nations" (Bush, 2001). The socio-cultural impact of international students

continues after they return to their home countries and also leads to a better understanding of the American culture (Peterson, Briggs, Dreasher, Horner, & Nelson, 1999).

The presence of international students at American institutions contributes to a greater understanding of other cultures. Interaction with international students is one of the most effective strategies to improve American undergraduates' understanding of global issues (Bok, 2006). According to the National Agenda for Internationalizing Higher Education, American students increase their cross-cultural sensitivity and adaptability interacting with individuals with different background and culture and this cultural competence is becoming important in the United States and other countries as part of student's abilities (NASULGC, 2007).

Academic impact

International students have a positive impact on research and innovation in the academic setting. Some of these efforts generate economic growth through innovations in industry and business in the U.S. (The National Academies, 2005). Through high quality research and programs, the U.S. has been able to attract the brightest students in different disciplines from other countries to American universities. Talented international students in science and engineering have made significant contributions in high-technology firms, business, universities, laboratories and other sectors in society that otherwise could not be possible (Stephan & Levin, 2005). Research has shown differences in the performance level of international and domestic Science and Engineering graduate researchers in the United States, claiming that as a group international graduate researchers were constantly more productive than their domestic colleagues (The National Academies, 2005). In some fields such as science and engineering, international students constitute half of the population of graduate students and postdoctoral scholars. Many of these international scholars make an important contribution to research in the

United States (The National Academies, 2005). In addition, international students contribute to classroom instruction. International students teach many required courses in American institutions, especially in fields such as foreign languages, science and engineering (Peterson, Briggs, Dreasher, Horner, & Nelson, 1999). Finally, these benefits also accrue to the home countries of international students as they bring their talents and experiences with them (Johnson, 2002).

Problem statement

Although extensive research on the experience of international students in American higher education exists, little research has been done on international students from Latin America who represent the second largest group of international students in the United States by world region after Asia (Institute of International Education, 2009). In addition, although international graduate students represent 41 % of all international students in the U.S., there is a lack of information about their experience in American institutions. Most of the research discusses international students as a single classification and does not differentiate between different nationalities (Kagan & Cohen, 1990; Poyrazli & Grahame, 2007). However, the country of origin likely plays a key role in how international students adjust to life in the United States. Experience of international students needs to be examined based on their nationality and not region (Hanassab & Tidwell, 2002). Furthermore, even though the number of female international students in the United States has also increased (Institute of International Education, 2000), little research on international students has been done to recognize distinctions of educational experiences between male and female international students pursuing doctoral programs in American institutions. More research needs to be done to look at the experience of graduate students from Latin America.

The study of international students in the U.S. draws from fields such as education, psychology, sociology and student affairs. Researchers on the topic of international students look at the term *international students* as "a group of individuals who temporarily reside in a country other than their country of citizenship in order to participate in international educational exchange as students" (Lin & Yi, 1997). Researchers also utilize the term *foreign students* to refer to international students.

One of the variables researched by the different disciplines is the cultural adjustment of international students in the U.S. The term c*ultural adjustment* of international students refers to the process of multiple factors distinguished by different behavioral, cognitive, affective and demographic attributes and by different levels, varying from cultural assimilation (Kagan and Cohen, 1990). Literature also uses the term acculturation to explain the cultural adjustment of international students. A*cculturation* is viewed as an individual process which depends on different personal, psychological and background factors (Nilsson & Doods, 2006). Both terms, cultural adjustment and acculturation, connect an individual process to multiple factors to explain the student's cultural adaptation to the dominant culture. For this study, the terms of cultural adjustment and acculturation will be used interchangeably.

A shortcoming on the research of the cultural adjustment of international students is that it only focuses primarily on undergraduates (Kagan & Cohen, 1990). Moreover, the few studies of graduate students do not differentiate between master's and doctoral students. For these reasons I have relied initially on the literature related to the experience of international undergraduate students to examine cultural adjustment.

International students face a difficult cultural adjustment as they have to adapt not only to the American higher education system, but also to the new language and social and educational culture (Sensyshyn, Warfortd, & Zhan, 2000). This adjustment may affect the student's academic

performance, psychological well-being, and retention (Poyrazli, & Grahame, 2007). Further, this topic has gained increased significance after the events of September eleventh, as the immigration laws changed and new adjustments and experiences appeared. After the event of 9/11, the U.S. government increased the scrutiny to foreigners with stricter visa rules to get into the country and computerized systems to monitor international student in the U.S. (Poyrazli & Grahame, 2007).

There are common cultural adjustments among all international students. Nevertheless, the research needs to distinguish adjustments not only by region of origin (and destination), but by country, by gender, by discipline and by social class. For example, a Mexican female student would have a radically different experience if she had studied at the University of Texas-El Paso than if she had studied at the University of Illinois since University of Texas-El Paso has a high percentage of Mexicans and Spanish speakers in its student body. Further, an international student from England studying in the US would have a different experience, and likely substantially less linguistic difficulties, than would a student from Jordan with limited exposure to the English language. Little research has been done in terms of country of origin. Countries such as China (Hsieh,2007; Wei et al, 2007) and Taiwan (Shih, & Brown, 2000; Dao, Donghyuck & Chang, 2007) represent the little research done to distinguish among different nationalities. Therefore, more research needs to be done to analyze the cultural experiences of international students from India, countries of the Middle East and Latin America.

Female international students face unique challenges in their cultural adjustment to the American academic and cultural setting because of their gender and their nationality. Research related to problems encountered by female students in the U.S. has found that females from developing countries face more problems than males when adapting to the U.S. (Lee, Abd-Ella,

& Burks, 1981). The experience of a female international student from a developing country would differ from an international student from a developed country since inequalities still persist in developing countries in term of gender differences. Female students from Mexico may have a unique experience in their native country, as often the role of a female in a male-dominated culture differs from one in a more equal society.

Context

International students from Mexico represent an important source of international students in the United States. Mexico is the seventh leading feeder country of origin of international students in the United States with a solid increasing numbers since the mid-1990s (Institute of International Education, 2009). In addition, Mexican international students are the largest group of international students from Latin America in the U.S. According to the Open Doors report, there were 14,850 international students from Mexico in the U.S. in 2009 (Institute of International Education, 2009). However, there is little research that addresses the experience of Mexican students in the United States.

Several factors promote the mobility of Mexican students to the United States. First, Mexico's geographic location allows students to attend American institutions because of the close proximity and the desire to pursue a high level of quality in American education. Large numbers of students who live in the border area cross the international boundary daily to attend classes, and some institutions, particularly in Texas, offer in-state tuition and fees to students commuting from nearby Mexico (Institute of International Education, 2009). Second, the NAFTA agreement created opportunities for exchange between Mexico and the United States (Institute of International Education, 2009). Third, the Mexican government, through a series of national competitions, regularly funds students to pursue graduate degrees in the United States

through the National Council of Science and Technology (CONACYT). Lastly, a number of Mexican students aspire to earn a degree in an American institution and this often leads to them staying in the U.S. (Aupetit & Gerard, 2009). Given this context, we can observe that Mexican students are an integral part of the student communities in many areas of the U.S.; therefore, it is critical to expand the research on the experience of international graduate students from Mexico in the US.

Mexican National Council of Science and Technology

The Mexican National Council of Science and Technology (CONACYT) is the Mexican organization in charge of promoting the development of Science and Technology in the country since 1970 (CONACYT, 2012). To do so, this entity has several functions. CONACYT grants scholarships for graduate studies (master's and doctoral) in Mexican universities that are recognized by CONACYT as quality programs and grants scholarships to Mexican students to pursue graduate studies in foreign countries. In addition, CONACYT administrates the National System of Researchers in Mexico (Sistema Nacional de Investigadores, SNI) and provides economic stimulus to the members based on their productivity. CONACYT also administrates 27 research centers in the country that funds Science and Technology. Lastly, CONACYT creates programs to encourage industry and businesses to get involved in Science and Technology through the National Registry of Institutions and Businesses in Science and Technology RENIECYT (CONACYT, 2012).

For this study, participants were selected from a database of current CONACYT recipients. This information had public access online. Therefore, participants in this study were sponsored CONACYT students in doctoral programs in the United States. This selection helped this research in two ways. First, participants in this study had a scholarship at the time of the

research and would have a more homogeneous financial situation. Second, this study aims to examine the acculturation experience of Mexican doctoral students across the United States, not only from one or two institutions as most of the research of international students has been done. It is worth notice that this study does not look to evaluate or assess the policies and procedures of CONACYT. The only role of CONACYT was a source to access potential participants for this study.

Purpose of the study

This study aims to expand the little research on international students from Latin America looking at international doctoral students from Mexico. This study looks at the cultural adjustment of Mexican doctoral students in American institutions. More specifically, the study focuses on how country of origin (and destination), gender, discipline and social class affect Mexican doctoral student's cultural adjustment. The different types of cultural adjustments are related to adaptation to the U.S. academic environment with differences in learning style, curriculum and classroom dynamics; adaptation to English as the language of instruction; and adaptation to the social environment. The study acknowledges that while all students in doctoral programs face a particular set of challenges and adjustments, the central hypothesis of this investigation will be that CONACYT-sponsored Mexican doctoral students may share some of those challenges while at the same time facing special adaptations relative to their own linguistic and cultural background and identity. By gaining an understanding of the experience of Mexican doctoral students, American institutions, along with administrators, staff and faculty can help this population navigate their doctoral program more effectively.

Research questions

This study will address the following questions:

What factors affect the acculturation of Mexican doctoral students?

Does the degree of acculturation differ by gender, academic discipline, destination, and social class?

Significance of the study

As I pointed out previously, international graduate students make exceptional contributions not only academically through classrooms, research and laboratories as well as through tuition, fees and services. Further, international graduate students contribute to the society of the United States by fostering good will among nations. After their return to their home country, students from educational exchange programs can become leaders with a positive attitude towards the United States. Culturally, international students bring knowledge from their own culture that increases domestic students' understanding of global issues. With the current mobility of international students, there has been a significant increase of talented foreign students in the United States. The U.S. is still the leading country of destination for international students; however, other countries such as Australia and the United Kingdom have implemented national policies to attract international students to their own education systems. While the number of international students in the United States increased by 8.2% between 1995 and 1999, Australia experienced a growth of 30.1% and the United Kingdom of 11.7% in the same period of time (International Institute of Education, 2000). As other nations are creating policies to attract international students and competition for talented people is increasing, there is a need for the different key holders of American higher education: policy makers, educational administrators, faculty and staff to analyze the unique challenges and problems of international students at an individual level to better support and advise international students. While there are common adjustments faced by international students, knowledge of the unique challenges and

adjustment of international students from Latin America is needed to foster a positive experience for international students while studying in the U.S.

This study seeks to contribute to the understanding of the cultural adjustment of international sponsored graduate students from Mexico to provide potential Mexican international students who are considering pursuing their graduate degree in the United States with an understanding of the adjustments they may face in the American culture and academia. Also, this study looks to provide faculty, staff, policy makers and administrators a base of knowledge to help these international students succeed in their academic programs. Moreover, American institutions can adapt this knowledge to include the needs of international students from Latin America into the curriculum and the design of graduate programs.

Research design and overview of the methodology

This study utilizes an online survey to explain the factors that affect the acculturation of Mexican doctoral students in the United States. Further, this study looks at the degree of acculturation based on gender, academic discipline, destination, and social class. 235 surveys were completed by participants. A response rate of 52%. The data was analyzed to understand the difficult challenges of this population.

Dissertation structure

Chapter One described the focus of this study about the experience of Mexican doctoral students in the United States. Chapter Two follows with information regarding related literature review in with this study is based. The relevant literature includes acculturation, the acculturation model, international students' adjustment experience, factors associated to international students' academic performance and predictors of doctoral success. Chapter Three describes the methodology and research design used in this study. Chapter Four is dedicated to analyze the

results of this study by looking at descriptive information and by making multivariate analyses. Lastly, chapter Five summarizes the results and gives recommendations for future research regarding international doctoral students from Mexico in the United States.

CHAPTER TWO

LITERATURE REVIEW

The main areas explored in the existing literature to help explain the factors that affect the cultural adjustment of doctoral students from Mexico in the United States are the following: The concept of acculturation, the acculturation model, international students' adjustment experience, factors associated to international students' academic performance and predictors of doctoral success.

The concept of acculturation

Acculturation is a phenomenon studied by a wide range of professionals such as anthropologists, psychologists, sociologists and educators because it involves a process of change at the individual level as a result of the interaction of people (Berry, 2005). One of the early definitions of acculturation provided a foundation for further discussions. "Acculturation comprehends those phenomena which result when groups of individuals having different cultures come into continuous first-hand contact, with subsequent changes in the original cultural patterns of either or both groups" (Redfield, Linton, & Herskovits, 1936, pp. 149-150). This concept looks at the nature of acculturation by distinguishing between culture change and assimilation. From there, other authors have emerged introducing changes and adding variables to the concept. For example, the concept of acculturative stress was introduced by the Social Science Research Council in 1954 (Social Science Research Council, 1954). Further, Graves (1967) introduced the concept of psychological acculturation to explain cross-cultural psychology.

Acculturation in the context of international students

Several authors have distinguished the acculturation of international students (Berry, 1997; Kagan & Cohen, 1990; Mendoza & Martinez, 1981; Mori, 2000; Nilsson & Doods, 2006;

Sodowsky & Plake, 1992). One of the wide accepted definitions of acculturation describing international students is the one by Berry. Acculturation is defined as "the dual process of cultural and psychological change that takes place as a result of contact between two or more cultural groups and their individual members" (Berry, 2005, p. 2). In this context, Berry (2005) looks at acculturation at the individual level. Further, Oppedal (2006) argues that acculturation is the "process towards gaining competence within two distinct cultural domains in order to have a sense of belonging and be able to participate successfully in both" (p. 97). Based on the author's definition of acculturation, some models have been developed to explain the experience of international students and they are explained below.

The acculturation model

The acculturation model has been used to study the adaptation of individuals coming to the United States (Magana et al, 1996; Padilla & Perez, 2003). The study of acculturation since the twentieth century looks at the results of the interaction of people from different cultures and languages. According to Park's model, the "contact between people from different cultures forces them to seek ways to accommodate each other to minimize conflict" (Padilla & Perez, 2003, p.36). Three main acculturation models have been used to study the adjustment of international students: The inclusive model of acculturation, by Mendoza and Martinez (1981), the acculturation framework, by John W. Berry (1997), and the interactive acculturation model (1997) by Bourhis, Moise, Perreault & Senecal.

Inclusive Model of Acculturation

The inclusive model of acculturation (Mendoza & Martinez, 1981) has been adapted to study the adjustment of international students (Kagan & Cohen, 1990). Kagan and Cohen's surveyed a total of 159 students. Their findings suggest a host association model of cultural

adjustment. However, the inclusive model of acculturation has not been used to study graduate students from Latin American countries in U.S. higher education institutions. Mendoza and Martinez (1981) look at the adaptation of newcomers of Mexican descent in the American culture utilizing the inclusive model of acculturation. Mendoza and Martinez (1981) argue that their model assesses acculturation and can be applied to both qualitative and quantitative research.

The authors recognize three forms of adaptation: affective, cognitive and behavioral. Further, this model "distinguishes between **degree of assimilation** of dominant cultural practices and **degree of extinction** of native cultural customs" (Mendoza & Martinez, 1981, p.74). Mendoza and Martinez established four profiles to show the different degrees of assimilation and extinction. They are:

1. Cultural resistance: Active or passive resistance to the dominant culture as depicted by lack of assimilation.
2. Cultural shift: Substitution of one set of practices with alternate cultural characteristics as exhibited by simultaneous assimilation and extinction.
3. Cultural incorporation: Adaptation of patterns that are representative of both cultural groups as demonstrated by assimilation without extinction.
4. Cultural transmutation: Alteration of certain elements of both cultures to create a third and somewhat unique subcultural entity (Mendoza & Martinez, 1981, p.74).

To illustrate the model better, the authors created the following figure:

Figure 2.1
The inclusive acculturation model

Dimension I
(Modalities)

Dimension II
(Types)

	Cognitive	Affective	Behavioral
Dominant Cultural Assimilation			
Natural Cultural Extinction			
Cultural Resistance			
Cultural Shift			
Cultural Incorporation			
Cultural Transmutation			

The last four levels of dimension two represent composite acculturation types derived from the levels of assimilation and extinction

Source (Mendoza & Martinez, 1980, p. 75)

Mendoza and Martinez's model (1981) observes multicultural acculturation profiles across the two dimensions: the dimension of modalities and the dimension of types. For example, the authors explain that an individual may be cognitively bicultural with both languages English and Spanish; however, the individual may display affective and behavioral cultural shift with attitudes that reflect only sentiments and behaviors of the dominant culture.

A shortcoming on the inclusive model of acculturation is that it does not distinguish acculturation between different groups such as immigrants, guest workers, refugees and international students and their length of permanence. Much of this literature is written about individuals who plan to return to their native country, though this is not always the case with international students. Most international students intend to stay in the host country for a specific period of time while they study to obtain their degree. Therefore, I believe it makes the acculturation process more complex.

Berry's acculturation framework

John W. Berry (1997) makes distinctions among groups who have entered into the acculturation process. The distinctions are related to three factors: voluntariness, mobility and permanence. The first factor shows that some groups enter the acculturation process voluntarily (immigrant), while others are forced to experience acculturation (refugees). The second factor relates to mobility. Some groups experience acculturation because they have moved to a new location (immigrant) while others have had the new culture bought to them (indigenous people). The third factor related to permanence distinguishes the groups who have migrated to settle permanently (immigrants) and the groups where the acculturation is temporary (international students and guest workers). Berry (1997) states that the different groups have a common process of adaptation. However, it is important to distinguish in the process the level of difficulty and the eventual outcome of acculturation (Berry, 1997).

Berry (1997) proposes the acculturation framework to understand how individuals from a cultural group deal with how to acculturate. Berry states that there are two principles when individuals encounter with each other. The first principle is **cultural maintenance** which refers to the extent individuals value and wish to maintain their cultural identity. The second principle is **contact participation** which refers to the extent individuals become involved in other cultural groups or remain primarily among themselves (Berry, 1997). Barry considered the two principles simultaneously and based on a yes or no answer to these questions generated four acculturation strategies: assimilation, separation, marginalization and integration.

Assimilation occurs when individuals are completely absorbed into the dominant culture, losing their previous cultural identity (Berry, 1997). Although assimilation strategies have positively affects the individual's acculturation process, assimilation for international students

has shown a negative impact on psychological adaptation (Kagan & Cohen, 1990). For international students, separation happens when individuals hold their original culture and avoid interaction with other groups (Berry, 1997).

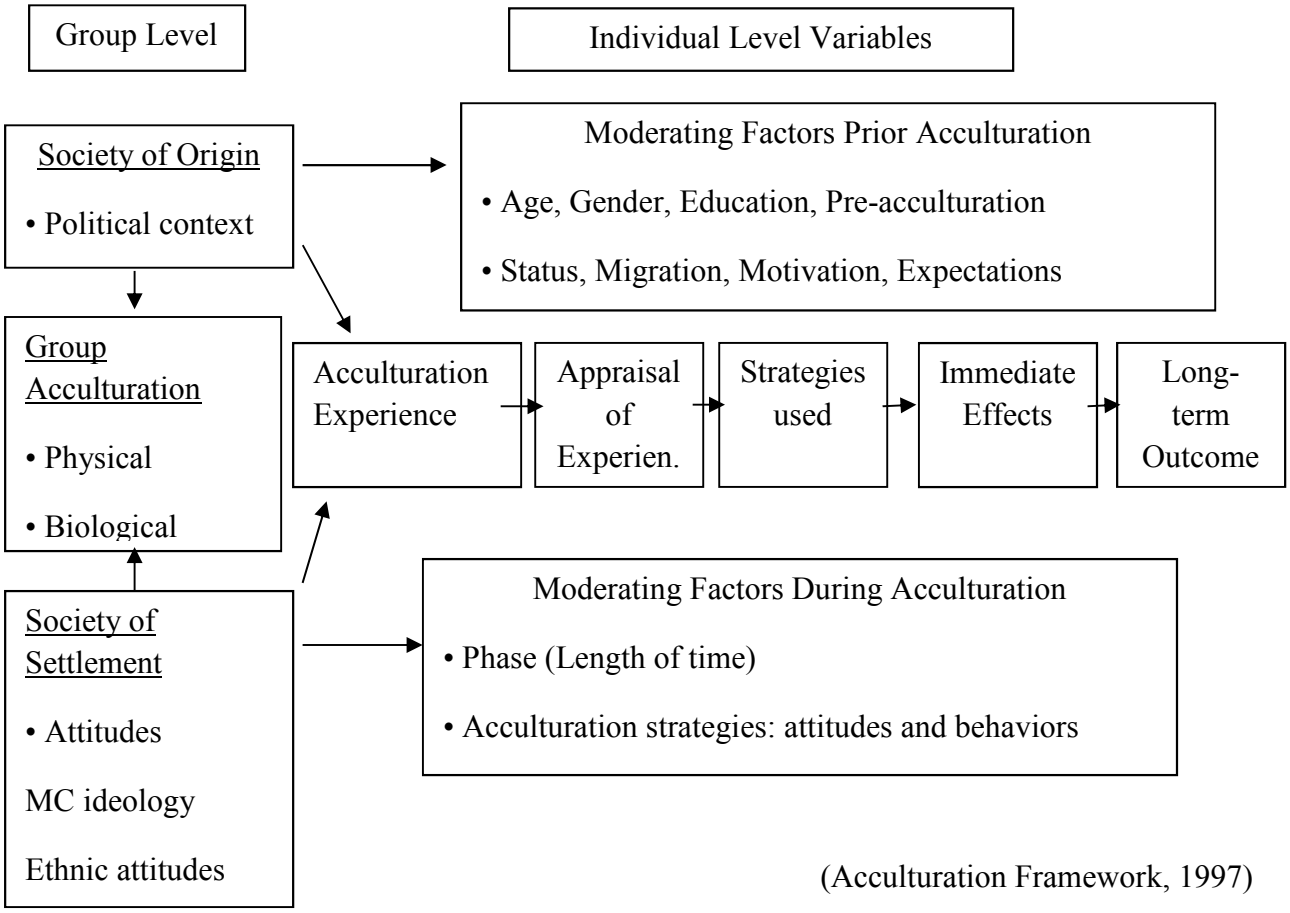
International students who follow the separation strategy may have social support by other international students from the same home country; however, isolation from the dominant culture may negatively affect their academic performance. The lack of English proficiency and the lack of interaction with professors can also cause anxiety and depression (Olivas & Li, 2006).

Marginalization indicates lack of interest in the individual's own culture and the rest of the society. This strategy happens when the individual experiences exclusion or discrimination (Berry, 1997). International students who assume marginalization may face high levels of acculturative and psychological stress (Wei, Heppner, Mallen, Ku, Liao & Wu, 2007).

Integration occurs when individuals have an interest of maintaining one's original culture and at the same time seeking to participate as an integral part of the larger society (Berry, 1997). Berry recommends the strategy of integration as the option to reduce the risk of stress and increase the level of adaptation. However, Berry also recognizes that the integration strategy can exists in multicultural societies. A multicultural society, according to Berry, is one that values cultural diversity, has low levels of prejudice and positive attitudes among different cultural groups (Berry, 1997).

Berry presented the following acculturation framework to illustrate the main factors that affect an individual's adaptation.

Figure 2.2
Berry's acculturation framework



(Acculturation Framework, 1997)

The main point of Berry's model is to show the variables that need to be considered when studying acculturation (Berry, 1997). On the left are the variables of the group level acculturation phenomena which are situational variables. On the right are the variables of individual acculturation phenomena which are personal variables. At the top of the figure are features that exist prior to acculturation. At the bottom, we find those that appear during the acculturation process. The middle of the framework shows the main group and psychological acculturation phenomena going from left to right. The middle left of the figure starts with the cultural groups and their collective features, then moves to an individual level the framework shows the possible psychological experiences and changes in the individual's adaptation (Berry 1997).

Berry's model of acculturation shows that the acculturation process takes place over time because it combines structural and process characteristics. The process flows from group acculturation to individual acculturation. However, the flow is greatly variable depending on the group level and the individual's moderating factors prior and during acculturation (Berry, 1997).

The interactive acculturation model

Bourhis, Moise, Perreault & Senecal (1997) propose "that relational outcomes are the product of the acculturation orientations of both the host majority and immigrant groups as influenced by state integration policies" (p. 369). The goal of this model is to "present a non-determinist, more dynamic account of immigrant and host country acculturation in multicultural settings" (Bourhuis et al, 1997, p. 369). This model emphasizes not only the adaptation of the immigrants, but adds the attitudes by the host community. An interesting feature of this model is that distinguishes the government immigration policies as strong influence to the immigrant and host acculturation attitudes. Based on Berry's (1997) model acculturation scale and the immigrants and host community orientations, the relational outcomes for this model are consensual, problematical or conflictual. The table below shows how a single framework can show a combination of host community and immigrant acculturation.

Table 2.1
Relational outcomes of host community and immigrant acculturation orientations: the Interactive Acculturation Model (IAM).

Host community	Immigrant community low, medium vitality groups				
Low-Medium High vitality group	Integration	Assimilation	Separation	Anomie	Individualism
Integration	Consensual	Problematic	Conflictual	Problematic	Problematic
Assimilation	Problematic	Consensual	Conflictual	Problematic	Problematic
Segregation	Conflictual	Conflictual	Conflictual	Conflictual	Conflictual
Exclusion	Conflictual	Conflictual	Conflictual	Conflictual	Conflictual
Individualism	Problematic	Problematic	Problematic	Problematic	Consensual

(Bourhis et al, 1997, p.382)

The group vitality of an immigrant group is "that which makes the group likely to act as a distinctive and collective entity within the host society" (Bourhuis et al, 1997, p.382). The status variable (low, medium, high) refers to the immigrant group "social prestige, its socio-historical status and the prestige of its language and culture locally and internationally" (p. 383). For example, the stronger the vitality for an immigrant group is, the more likely they would adapt orientations related to their culture than those determined by the host community.

Concordance is the relational outcome that emerges when the immigrant group and the host community share the same form of acculturation orientations. The relational outcome of *discordance* emerges when the host community and the immigrant group acculturation orientations match very little or not at all. According to Bourhis et al (1997), the most consensual relational outcome is when the immigrant group and the host community share the integration, assimilation or individual acculturation orientations. Under these circumstances, this model predicts positive relational outcomes, low acculturative stress, low intergroup tension and no discrimination between the immigrant group and the host community. Problematic relational outcomes emerge when the immigrant group and the host community partially agree or partially disagree regarding their acculturation orientations. The authors predict that this situation is most likely to happen in 10 cells of the model. Under these circumstances, this model predicts negative intergroup stereotypes and discriminatory behaviors. Lastly, conflictual relational outcomes emerge in 12 cells of this model. For example, when the immigrant group endorse the strategy of separation, they are more likely to experience negative relational outcomes with the host community. Further, host community members who endorse segregation and exclusion are most likely to embrace conflictual relational outcomes with the immigrant group.

In sum, although the interactive acculturation model contributes to the body of knowledge regarding the acculturation of immigrants by looking at the relationship between the host community and immigrant group as they evolve in the changing multicultural settings, more research is needed to test the basic premises of this model specially with international students in the United States.

International students' adjustment experience

Much research about international students in American higher education has been conducted. In the 1950s, the Committee on Cross-Cultural Education of the Social Science Research Council was formed to research foreign students' adjustment because of the increase in enrollment of international students in the United States after World War II (Morris, 1960). This research represents the beginning of projects related to international students. Further, this topic gained increased significance after the events of September 11th, when international students faced increased scrutiny by both the U.S. Government and the population at large (Poyrazli & Grahame, 2007). Nowadays, international students constitute 12% of total graduate enrollment in the US (Institute of International Education, 2000). However, very little research has addressed the experience of international graduate students and does not distinguish between the experience of international master's students and international doctoral students (Wan, Chapman, & Biggs, 1992). Therefore, more than ever, the challenges that international graduate students face while studying in the U.S. should be better understood by US universities. The present study looks at the cultural adjustment of international doctoral students from Mexico. This research plans to fill the gaps distinguishing the level of education and the country of origin of international graduate students.

The research done on adjustment of international students tends to treat them as being a single, homogenous group rather than the very diverse group depicted in the aforementioned statistics. Previous research does not adequately address how national original impacts student adjustment. Previous research also has focused on the cultural adjustments of international students from a handful of countries such as Taiwan (Dao, Donghyuck, & Chang, 2007), and China (Wei, Heppner, Mallen, Ku, Liao, & Wu, 2007). Furthermore, previous research does not differentiate between education levels such as undergraduate population and graduate students or gender. Nevertheless, common adjustments exist for international students as a result of being a foreign student.

Common adjustments to international students

The primary focus of research on international students in the U.S. since the 1950s has been on their adjustment to the U.S. academic climate, English proficiency, and institutional differences. International students face unique challenges as they have to adapt to a new culture in the host country. Not only do they experience problems with the English proficiency and the academic performance, they also suffer from the loss of social support from their native country.

Language barriers

Research done on international students' English proficiency shows that language barriers can have a negative effect on the students' adjustment, self- confidence, and self-esteem (Olivas & Li, 2006). Further, "English language proficiency is an important factor in predicting student's academic achievement" (Poyrazli & Grahame, 2007, p. 30). Differentiating international students by regions, Sodowsky & Plake (1992) found that Africans, Asians and South Americans face a bigger linguistic challenge than Europeans because of the lower use of English in their home country. Therefore, some claim Africans, Asians and South Americans were less acculturated

than Europeans. However, as stated earlier it must be recognized that there are many nations in these continents, and one must also consider the differences in national origin among these groups.

Academic stress

Previous work shows international students experience academic stress. Academic stress for international students results from differences in learning style, classroom instruction, curriculum, teaching procedures, and class discussion (Poyrazli & Grahame, 2007). Some of the academic stress that international students face is a result of acculturation. Hartnett, Romcke and Yap (2004) observe that there is a relationship between the international student's improvement in the level of acculturation and the improvement in academic performance. Academic stress can negatively affect students' academic performance (Wan, Chapman & Biggs, 1992). Students who perform lower academically than expected experience an increased association between acculturative stress and depression (Wei, Heppner, Mallen, Ku, Liao & Wu, 2007).

American educational system methods

Another adjustment that international students face is related to the differences in educational systems. Wan, Chapman and Biggs (1992) found that international graduate students' country of origin affect the level of student's adaptation to the American educational system. In their study, the authors state that students whose native country's educational system was perceived as more distant from the U.S. observed more stress in their academic experience than those students from countries whose educational system was more similar to the U.S.

International graduate students would benefit from an orientation that gives an overview of the American higher education as well as the policies of the graduate department, the graduate program and academic requirements. For example, in the case of Mexico, the educational system

is centralized and international Mexican students with no previous experience in American higher education may assume the US system is similar.

Differences in teaching and learning style

Many foreign educational systems rely on the lecture learning method with little interaction with faculty. In contrast, American graduate schools promote interaction between students and faculty. Therefore, international students who have experienced a lecture classroom dynamic may face difficulty adjusting to a learning style that requires more opinions, problem-solving and decision making (Ladd & Ruby, 1999). In their study Ladd and Ruby (1999) found that international students considered low English proficiency as their major learning problem. Timidity and passivity in the classroom were also related to international students' problems.

Factors associated to international graduate students' academic performance

Academic performance is frequently defined as how well the student meets the standards set out by the student's academic program and institution (Bell, 2012). Several factors have been associated with the academic performance of international students. They are related to English proficiency, learning and study strategies, interaction with faculty and peers, social interaction and previous students' academic performance (Stoynoff, 1997).

English proficiency

The Test of English as a Foreign Language (TOEFL) is a measure required by American institutions for international students whose first language is other than English. The TOEFL evaluates the level of English in four areas: 1) listening, 2) reading, 3) speaking and 4) writing (Gonzalez, 2004). Since the TOEFL is used as a standard criterion for admissions of graduate international students in American institutions, much research has been conducted to examine the predictability of TOEFL scores on the academic performance and academic success in U.S.

institutions (Stoynoff, 1997; Light, Xu & Mossop, 1987; Gonzalez, 2004; Wan, Chapman & Biggs, 1992).

Although some researchers found that the TOEFL exam is positively related to academic performance (Stoynoff, 1997), other authors find that the TOEFL is not a sufficient measure to predict academic success. In their research, Light, Xu and Mossop (1987) successfully distinguish between basic interpersonal communication skills and cognitive academic language proficiency. They found that international students may take 5-7 years to acquire the necessary communication skills for academic success in a second language (Light, Xu & Mossop, 1987). Further, Gonzalez (2004) states that TOEFL exam does not measure English academic proficiency in the area in a students' field of study, which is crucial to achieve success in graduate school. Wan, Chapman and Biggs (1992) argue that international students can have a satisfactory score on TOEFL and still have difficulty in their academic performance. The attention to functional language skills such as note taking, class discussion and interaction with faculty can help in the students' academic adjustment (Wan, Chapman & Biggs, 1992).

Interaction with faculty and peers

Positive relationships with an advisor is a predictor of international graduate students' success in their program (Rice et al., 2009). Bain, Fedynich and Knight (2011) found in their study that student and faculty interaction as well as access to a knowledgeable advisor are an essential factor for graduate student success. The authors also found that there is a strong need of student connectedness to the faculty, peers, department environment and the doctoral program in order for the graduate student to succeed.

Social interaction

One of the very few studies in the experience of international graduate students relates to the differences between undergraduate and graduate international students' social interaction. Among the differences in international students' social interaction Wan, Chapman and Biggs (1992) state that graduate international students' environment impede a positive social network. International graduate students usually live off campus and are focused on their area of specialization. According to the authors, some international graduate students may feel overwhelmed with the new educational environment and wrap themselves up in their academic struggles, which may affect the international graduate students' academic performance. More efforts on the institutions' behalf to reach out to international graduate students are suggested (Wan, Chapman and Biggs, 1992).

Attitudes towards learning and study strategies

Academic performance appears to be associated with international students' attitudes towards learning strategies (Abel, 2002). Abel (2002) distinguishes between active learners and passive learners. Active learners prove to develop their own learning strategies and adjust more successfully than passive learners.

The Learning and Study Strategies Inventory (LASSI) measures student-learning and test-taking strategies and has assessed the study learning strategies of international students (Stoynoff, 1997). In his study, Stoynoff found a relationship between motivation, study strategies and international students' academic performance.

> "More academically successful students better managed their study time, were better able to prepare for and take tests, were better at identifying the main ideas in spoken and written

discourse, made better use of social support systems (e.g. study groups, tutors, friends, etc.) and spent more time studying than less academically successful students" (p.60).

Stoynoff (1997) favors training in learning and study strategies because it may lead to lower anxiety, lower frustration and improve academic performance among international students.

Self-efficacy beliefs

Bandura (1986) defines self-efficacy as the "people's judgments of their capabilities to organize and execute courses of action required to attain designated types of performances" (p. 391). Maddux and Meier (as cited by Poyrazli et al., 2002) stated that a strong sense of self efficacy help students to deal with difficulties without feeling overwhelmed or anxious. "International students who have strong academic self-efficacy beliefs will tend to set academic goals and strive for a better adaptation to reach these goals" (Poyrazli et al, 2002, p. 363).

Previous academic performances

"Prior academic achievement is a key academic predictor of the students' further achievements at higher level of study" (Li et al., 2009, p.391). Further, previous academic performance plays a dominant role on predicting students' learning outcomes (Li et al, 2009). McKenzie and Grow (2004) studied first-year international students and found that first semester grades for international students were predictive of second semester grades.

Predictors of doctoral success

To complement the literature review for this study, it is important to look at the role of acculturation and factors related to degree success. Acculturation is important because if an international doctoral student gained acculturation to their program in the United States, it is

more likely to lead to student success. Following, I will discuss some factors related to doctoral student's success.

Mentorship

Every year many students start doctoral programs in the United States and yet, about half of them will not complete their doctoral degree (Lovittss, 2001). Lovittss suggests the lack of doctoral student's persistence in graduate school is due to the organizational environment of graduate school more than student characteristics. Furthermore, the author calls for an effort to improve faculty –student relationships , with an eye on decreasing attrition in doctoral education.

Mentoring is defined as "a nurturing process in which a more skilled or more experienced person, serving as a role model, teaches, sponsors, encourages, counsels and befriends a less skilled or less experienced person for the purpose of promoting the latter's professional and/or personal development" (Anderson and Shannon, 1988, p.40). According to Pagli, Green & Bauer (2006), positive mentorship experience has an impact on student's research productivity, career commitment and self-efficacy. In their longitudinal study, the authors found in their final data collection that after five and a half years, 50% of the participants graduated, 19% left with a master's degree and 30% were still enrolled in the doctoral program. In this study, the authors measured important dimensions of mentoring in graduate school. In addition, this outcome based study represents a significant contribution to the research in mentoring.

Mentorship is especially important at the dissertation stage. A positive relationship between advisor and student is crucial in the dissertation writing process. Research suggests that students who are not well advised or mentored during the dissertation stage take considerably longer for their degree completion. (Nerad and Cerny, 1993)

Student's involvement with the academic environment

"Student involvement in departmental, institutional, and professional activities contributes favorably to retention and completion" (Herzig, 2004, p. 175). Although the degree of involvement of students in the academic environment has been researched largely at the undergraduate level as a predictor of persistence and student's success (Astin, 1984; Lewin, 1935 & Tinto, 1975); a few studies have looked at student involvement theory with graduate students (Gardner & Barnes, 2007; Pontius & Harper, 2003). Student involvement has been defined as a multifaceted concept. "Involvement can encompass academic, social, and political dimensions, but greater involvement generally leads to greater academic success" (Gardner and Barnes, 2007, p. 369). In their study, Gardner and Barnes (2007) found that graduate student involvement is an essential part of the socialization process linked to the student's professional development. Along the same lines, Pontius and Harper (2006) address that graduate student engagement commits students in preparation for future roles. Moreover, Tinto (1993) argues that in doctoral education, intellectual integration and social integration are interrelated. The author states the following:

> "Social membership within one's program becomes part and parcel of academic membership, and social interaction with one's peers and faculty becomes closely linked not only to one's intellectual development, but also to the development of important skills required for doctoral completion" (Tinto, 1993, p. 232).

Financial support

A sufficient financial support for graduate students is essential to the students' retention. Graduate students may have different forms of support such as fellowships, research assistantships, teaching assistantships, employment and/or personal resources. According to

Girves and Wemmerus (1988), although fellowships are created to recruit talented graduate students, recipients may miss the benefits of an assistantship such as interaction with other faculty and the opportunity to learn in the academic profession. Furthermore, at the dissertation stage, financial support decreases (e.g., students who do not complete the dissertation in a timely manner often find themselves ineligible for assistantships due to institutional limitations in eligibility and availability). It may also increase the time to complete the degree (Wright, 1991). However, without the financial resources, graduate students are likely to drop out from their program. Jacks et al (1983) found that financial difficulties along with poor advising or committee relationships were the number one reason(s) for dropouts at the ABD stage.

Graduate student's relationship with members of the faculty

Herzig (2004) states that the graduate student's interaction with faculty members is critical for students to become integrated into the departmental communities.

> "Graduate student relations with members of the faculty are regarded by most graduate students as the most important aspect of the quality of their graduate experience; unfortunately, many also report that it is the single most disappointing aspect of their graduate experience" (Harnett & Katz, 1977, p.647).

The importance of the interaction between graduate students and faculty members is vital in every stage of their program. In the dissertation stage, the dissertation committee can determine whether or not the doctoral student graduates (Girves and Wemmerus, 1988). Skudlarek's (1992) findings suggest a significant relationship between support to students by the dissertation committee members and completion of the program. Moreover, Sorenson and Kagan (1987) concluded that student and advisor personalities must match to avoid conflict between doctoral candidates and dissertation chairs. The authors classified personalities from 1)

dependence versus independence, 2) nurturance versus distance, and 3) epistemological versus preference.

Summary of chapter

In summary, the literature review indicated that very little research has been done to examine the acculturation experiences of international doctoral students. Since little research has been done in this matter, this study draws somewhat from literature on international undergraduate students. Relevant literature for this study included research on acculturation, the different acculturation models used to look at the experience of internationals students, common adjustment for international students and factors that affect international student's academic performance. Acculturation has been studied by researchers to look at the adjustment of foreigners in a host country. Several authors have distinguished the acculturation of international students (Berry, 1997; Kagan & Cohen, 1990; Mendoza & Martinez, 1981; Mori, 2000; Nilsson & Doods, 2006; Sodowsky & Plake, 1992). Three examples of acculturation models were illustrated in this chapter that have been adapted to the acculturation of international students. The inclusive model of acculturation by Mendoza & Martinez (1981) recognizes three forms of adaptation which are affective, cognitive and behavioral. Further, Berry's (1997) model of acculturation proposes the acculturation framework to understand how individuals from a cultural group deal with how to acculturate considering four acculturation strategies: assimilation, separation, marginalization and integration. Then, the Interactive Acculturation Model (1997) by Bourhis et al. proposes relational outcomes as the product of different acculturation orientations between the immigrant group and the host community. Among the common adjustments mentioned in this chapter that international students face while studying in

the United States were language barriers, academic stress, American educational system methods and differences in teaching styles.

Following, this chapter examined the factors associated with international graduate students' academic performance. These factors were identified as coping resources to decrease acculturative stress. They were English proficiency, interaction with faculty and peers, social interaction, attitudes towards learning and study strategies, self-efficacy beliefs and previous academic performance. Lastly, this chapter explored the predictors in doctoral success such as mentorship, student's involvement in the academic environment, financial support and student's relationship with faculty members. In the following chapter, I examine the methodology as well as the research design.

CHAPTER THREE

RESEARCH METHODOLOGY

This chapter includes the research methods utilized in this study to explain the cultural adjustment of international doctoral students from Mexico in American academic programs. The main research questions for this study are: What factors affect the acculturation of Mexican doctoral students? and Does the degree of acculturation differ by gender, academic discipline, destination, and social class? This chapter also includes information about the participants of this study, the process of gathering contact information and the response rate. The following methodology is used to address the present study.

Conceptual Framework

The conceptual framework for this study is based on Berry's (1997) model of acculturation. According to Berry (1997) the process of acculturation flows from group acculturation with situational variables to individual acculturation with personal variables. Group variables are related to the society of origin and the society of settlement. Among the personal variables Berry included are factors of prior acculturation such as age, gender, education, status, migration, motivation, expectations, cultural distance (language, religion, etc.) and personality (locus of control, flexibility). The factors developed during acculturation included length of time, acculturation strategies, social support and societal attitudes. Berry found that individuals generate four acculturation strategies: assimilation, separation, marginalization and integration. Integration seems to be the ideal acculturation strategy for international doctoral students where they can maximize their adaptation and academic performance.

Dependent variables

This study has one dependent variable: acculturation.

Acculturation relates to the individual process, which depends on different personal, psychological and background factors (Nilsson & Dodds, 2006).

Independent variables

The independent variables are adopted from Berry's model of acculturation, demographics and factors associated with international students' academic performance. The independent variables from demographics include gender, age, marital status (Chapdaleine & Alexitch, 2004; Kagan & Cohen, 1990), geographical region of American institution, academic discipline (Trice, 2003), years living in the United States or other English speaking country (Chapdelaine & Alexitch, 2004), expected degree completion in years, first-year in current graduate program (Poyrazli et al, 2002). Other independent variables in this study consist of previous experience of living abroad, previous study or exposure to English, geographical origin in Mexico and parents' level of education, social support and perceived discrimination. The independent variables from international students' academic performance include self-reported Grade Point Average (GPA) (Light, Xu & Mossop, 1987), self-efficacy beliefs (Bandura, 1986; Poyrazli et al, 2002) and perceived English proficiency.

Building the construct of acculturation

For this study a model was constructed based on Berry's model of acculturation (1997). The data was organized to include variables regarding the student's academic experience, cultural experience and personal experience. To measure acculturation, this model included seven outcomes. The following table illustrates the variable outcomes, their meaning and their measurement.

Table 3.1
Outcomes

Variable	Meaning	Measurement
-Academic experience		
1. Academic satisfaction	It refers to the student's satisfaction in their academic experience	Six-point response scale ranged from 1 (totally disagree) to 6 (totally agree)
2. Attitudes	It refers to the student's self-confidence to overcome obstacles and finish their doctoral program	Six-point response scale ranged from 1 (totally disagree) to 6 (totally agree)
-Cultural experience		
3. Integration	It refers to the extent to which the student value the contact with the American culture	Six-point response scale ranged from 1 (totally disagree) to 6 (totally agree)
4. Strategies	It refers to the ability for participants to distinguish between Mexican values and American values.	Six-point response scale ranged from 1 (totally disagree) to 6 (totally agree)
-Personal experience		
5. Student's relationship with academic advisor	Description of the student's relationship with academic advisor	Four-point response scale ranged from 1 (bad) to 4 (excellent)
6. Student's relationship with professors	Description of student's relationship with professors	Four-point response scale ranged from 1 (bad) to 4 (excellent)
7. Student's relationship with American students	It refers to student's interaction with American students during his/her free time	Six-point response scale ranged from 1 (totally disagree) to 6 (totally agree)

In addition, this model included eleven predictors. Most of the predictors were demographic characteristics of the participants such as gender, age, perceived English proficiency and parental educational background. Other predictors were related to perceived discrimination, social support, self-reported doctoral GPA and type of institution. Following, Table 3.2 includes the predictor variables, their meaning and their measurement.

Table 3.2
Predictors

Variable	Meaning	Measurement
1.Gender	It refers to the student's gender	Male, female and transgender
2.Age	It refers to the student's age	Numeric
3.Length of time	It refers to the student doctoral program's academic year	Numeric fist year to seventh year
4.Self-reported doctoral GPA	It refers to the self- reported student's doctoral GPA	Numeric from 3.00 to 4.00
5. Academic discipline	It refers to the student's academic discipline	Biglan's classification of academic discipline
6. Mother's level of education	It refers to the student mother's level of education	Seven-point response scale ranged from 1 (Elementary) to 7 (Ph.D.)
7. Father's level of education	It refers to the student father's level of education	Seven-point response scale ranged from 1 (Elementary) to 7 (Ph.D.)
8. Type of institution	It refers to the American institution where the student pursues the doctoral program	Private and public institution
9. English proficiency	It refers to the student's perceived level of English	Six-point response scale ranged from 1 (totally disagree) to 6 (totally agree)
10. Discrimination	It refers to the student's perceived level of discrimination based on their race or nationality	Six-point response scale ranged from 1 (totally disagree) to 6 (totally agree)
11. Social support	It refers to the communication that students have with their family and friends back home	Six-point response scale ranged from 1 (totally disagree) to 6 (totally agree)

Research design

A quantitative methodology was suitable for this study for several reasons. This is the first time a national study has looked at the experience of international students in the United States and that utilizes a survey-based methodology. In addition, with this population, participants were very sensitive to their perception that this may have been an evaluation of some

kind, rather than a research project. Therefore, the survey is an effective anonymous method when members of a population feel their replies may lead to detrimental consequences. In this way, the survey seems to be a comfortable way for participants to respond, even though some advantages may have been gained by engaging in a qualitative research method. Most quantitative studies on international students' adjustment are surveys (Lee, Abd-Ella & Burks, 1981; Shin & Abell, 1999; Shih & Brown, 2000). Moreover, many of the quantitative studies were the result of English language surveys mailed to international students when they were in the U.S. (Kagan & Cohen, 1990; Perruccy & Hu, 1995). This study used a quantitative methodology to collect data utilizing a web-based survey. The web-based survey was developed using existing questionnaires as well as an analysis of the current literature to measure individual's acculturation.

Pre-test

The questionnaire was pre-tested before applying it to the larger sample. The questionnaire was sent to several Latin American doctoral students to answer and also was sent to members of the Latin community student organization at a Midwest university. The comments of the reviewers helped to improve the questionnaire before it was sent to the sample. The questionnaire for the interviews included questions to describe challenges and coping strategies as well as to explain their experience in US doctoral programs. The pre-test helped not only in the design of the survey, but also helped to find the best procedures to improve the response rate and to learn if it is more advantageous to the study to conduct the survey in Spanish or English.

The Sample

The target population for this study was Mexican doctoral students sponsored by the National Council of Science and Technology (CONACYT) in US institutions. The target

population included 450 doctoral CONACYT-sponsored Mexican students who were currently pursuing Ph.D.s in American institutions in the fall semester of 2012 (CONACYT, 2010). From those 450 participants, 235 Mexican doctoral students in the U.S. completed the online survey. The response rate was 52%. CONACYT is the main sponsoring governmental organization of Mexican graduates in the U.S. Mexican sponsored students from CONACYT represent a part of a particular population of international sponsored students that is worth considering.

Throughout the world, countries have invested in the development of knowledge through scholarships to fund educational exchange programs. Mexico supports graduate students financially to pursue graduate education abroad through CONACYT. Although financial support for the students is essential, this single support does not guarantee the student's success, persistence or graduation. Therefore, this research explored the experience of this understudied population by looking at doctoral students in American institutions sponsored by the Mexican National Council of Science and Technology (CONACYT).

Mexican students abroad sponsored by CONACYT

Data provided by the National Council of Science and Technology, CONACYT, shows that there were 2,348 Mexican graduate students abroad sponsored by this organization in September of 2010 in 30 different countries (CONACYT, 2010). CONACYT-sponsored graduate students abroad in 2010 include 1,954 Mexicans pursuing doctoral degrees, 420 Mexicans pursuing master's degrees and 64 Mexicans pursuing advanced specializations. The gender composition of these Mexican graduate students abroad shows that 1,427 students were males and 1,011 students were females.

Among the top destination countries for CONACYT-sponsored students for 2010 are: The United States with 649 students, where 409 were males and 240 were females; The United

Kingdom hosts 553 Mexican students, where 314 were males and 239 were females; and Spain hosts 429 Mexican CONACYT students, comprising of 218 males and 211 females (CONACYT, 2010).

Of the 649 CONACYT-sponsored Mexican students in American institutions, 496 were doctoral students. 313 of these students were males, while 183 were females. Regarding the geographical area, CONACYT-sponsored Mexican students were hosted by American institutions across the country; however, Arizona, Texas and California are the top U.S. states hosting Mexican doctoral students in 2010 (CONACYT, 2010).

Previous research done on international students looks at the experience of participants from a single American institution (Constantine et al, 2005; Hernandez-Castaneda, 2008; Perrucci & Hu, 1995). However, this study will include graduate Mexican CONACYT-sponsored doctoral students from different disciplines and from different institutions in the U.S. to ensure representation of participants in various categories such as discipline (i.e. social science, natural science, physical science), geographical area, (i.e. southwest, southeast, east, northeast, west, Midwest, northwest) and type of institution (i.e. public and private).

Instrument

The instrument used to collect data was a web-based survey. The online survey was developed based on existing questionnaires to measure individual's cultural adjustment (Brislin, Lonner, & Thorndike, 1973) and also on the analysis of the literature. The questionnaire looked at the individual's acculturation in different stages and environment. Among other environments, the study looked at the individual's acculturation as a member of a community, as a member of the university, and as a member of the college's department. The online survey was conducted in Spanish, the native language of the participants, to increase the response rate and to break the

language barrier. The time to answer the online survey was between 15 and 20 minutes. Participants were shown inform consent form in the first page of the online survey indicating that their participation in this research study was confidential and voluntary. The online survey consisted of thirty-six multiple questions divided in four sections and five open ended questions. The online survey included a space for comments in the multiple questions. This space was intended to write additional information that was not reflected in the questions and it was optional. Overall, the comment section was well used. Almost all the comments were written in Spanish as well. In addition, the survey included eighteen questions related to demographic information such as gender, age, marital status, academic discipline, previous study, years living in the United States or other English speaking country, first year in current graduate program, previous experience of living abroad, and geographical origin in Mexico. Issues such as social class were identified by proxies such as parent education and other data.

Data Collection

CONACYT sponsored doctoral students who were studying in the United States were contacted by email to inform them about this study and to ask for their participation in this project. Through the email, participants were told that the purpose of this research was to learn about the students' cultural adjustment to the U.S. Then, the web-based questionnaire was sent as a link to students by e-mail. I utilized the software of Survey Monkey to create the questionnaire. To maximize the questionnaire response rate, students had the opportunity to enter a drawing for a gift certificate. There were three reminders sent to participants throughout the semester of August to December of 2012 to answer the online survey. Reminders were sent only to those participants who did not answer the online survey before.

Process of gathering contact information from Mexican CONACYT-sponsored doctoral students in the United States

One of the challenges I faced during this study was to get the participants' e-mails. CONACYT publishes a list of all Mexican CONACYT-sponsored students which include students pursuing master's degrees, doctoral degrees and advanced specializations. The information from each student included complete name, start date and end of scholarship, degree of study, country of study, institution of study, and discipline; however, the student's e-mail is not provided.

I started working with these data by converting the pdf file of 165 pages into an excel sheet. After, I sorted the list by country of study. I added a column to include gender going one by one based on the participants' name. Then, I selected CONACYT-sponsored doctoral students in the United States. I created a new excel sheet with only this population. I sorted the list by degree and separated Mexican CONACYT-sponsored doctoral students from the master's students and students pursuing advanced specializations. My list was reduced to 496 participants.

I needed the students' email to be able to contact them and send them the online survey. I contacted the staff from CONACYT and asked for their help. They denied my request, claiming student confidentiality issues. My next strategy was to search for each of the 496 students' emails. I sorted the list by institution of study. Then, I went to each institution's website and looked for the student's email through people finder. Sometimes it was more useful to look based on the student's field of study, as I could sometimes find the e-mail addresses on the department's website, which sometimes displays a list of graduate students. Some institutions have this information available for the public, but other institutions have the student's information only available to those who belong to the university. I also looked at other websites

and social media such as Google and Facebook. In the end, I was able to locate the emails of 450 of the 496 Mexican CONACYT-sponsored doctoral students in the United States.

Survey response rates

As the information technology increases, the use of different ways of collecting data has expanded. According to Nulty (2008), "Online surveys are much less likely to achieve response rates as high as surveys administrated on paper" (p. 302). Nevertheless, how much less are we talking about? And does the author consider differences in type of populations for the response rates? Considering research done on online surveys' response rates for participants that belong to the university community, Fricker and Schonlau (2002) examined response rates for online surveys. They found five examples of online surveys with response rates ranging from 8% to 44%. In their study, the authors concluded that the online surveys that have had higher response rate than conventional surveys targeted university based population. Further, Nulty (2008) looked at response rates of online surveys done in five universities and they ranged from 20% to 47%. Therefore, considering the previous literature, where the response rates ranged from 8% to 47% and the similarity in the population, the response rate for this research study of 52% seems like an acceptable response rate. Lastly, to boost online surveys response rates, research suggests sending repeat reminders to non-respondents (students) and to offer incentives to student participants in the form of prizes through a drawing (Nulty, 2008; Porter & Whitcomb, 2003).

Data Analysis

The first part of the data analysis was the sample demographics. I compared data in terms of gender, age, marital status, parental status, length of stay, academic doctoral GPA, academic discipline and parental educational level. In addition, regarding the type of institution, I compared the data by looking at public and private institutional control, the Carnegie

classification and geographic distribution. When data was available, I compared the sample to the population. The results allowed me to confirm that there was no bias on key demographic variables.

To answer the research questions for this study, means and standard deviations of the outcomes were analyzed through the SPSS software. Further, a Pearson product-moment correlation analysis was conducted to look at the relationship among the different outcomes. After examining the outcomes, I followed by doing the analysis of the predictors and their relationship with the outcomes. T-tests analyses were computed to compare the predictor variables that were dichotomous such as gender (male and female), type of institution (public and private) and perceived English proficiency (fluent and very fluent). After that, an analysis of variance was conducted for the predictors that were categorical variables: father's level of education, discrimination and social support. Lastly, I used multiple regression techniques to examine the relative importance of the predictors for each of the outcomes in this study. The results of the analysis demonstrated the most relevant predictors of all eleven variables included in this model to predict the acculturation of Mexican doctoral students in the United States.

CHAPTER FOUR

RESULTS

The primary purpose of this study is to look at the experiences of Mexican doctoral students in American institutions and examine the degree of acculturation of Mexican doctoral students enrolled in U.S. universities by gender, academic discipline, destination, and social class. This chapter describes the sample demographics and where possible compares the sample to the population. To answer the research questions this chapter first looks at descriptive information and makes bivariate comparisons between study outcomes and predictors. The chapter then examines more complex multivariate analyses.

Description of the sample

An online survey was sent to 450 recipients of grants from CONACYT to complete their doctoral studies in the U.S. who were enrolled during the Fall semester of 2012. Up to three reminders were sent to the recipients, and 235 Mexican doctoral students in the U.S. responded, a response rate of 52%. When the population information was available, the sample and population were compared to check for bias.

Of the 235 Mexican doctoral students, about 61% (n = 144) were male and about 38% were female (n = 91). Table 4 shows the frequency of participants by gender.

Table 4.1
Frequency table of gender

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Female	91	38.7	38.7	38.7
	Male	144	61.3	61.3	100.0
	Total	235	100.0	100.0	

The distribution of Mexican doctoral students by gender who responded to the online survey was representative of the total population. Comparing gender to the total population of

450 potential respondents, 286 were male (63.55%) and 164 were female (36.44 %). A Chi-square analysis was done to compare the sample to the population in terms of gender to check for bias. Results of the Chi-square test showed a p value= .468 > .05. The difference between the observed value and the expected value was not statistically significant; therefore there was no evidence of a bias sample in terms of gender. The following table shows the chi-square results:

Table 4.2
Chi-square analysis for gender

Gender	Observed N	Expected N	Residual
Female	91	85.6	5.4
Male	144	149.4	-5.4
Total	235		

The average age of participants was 31.27 years, ranging from 23 to 50 years old. The age standard deviation was 4.832. The following table shows the frequency of Mexican doctoral students by age.

Table 4.3
Frequency table of age

	Frequency	Percent	Cumulative Percent
Age Groupings			
20-25	10	4.48	4.48
26-30	103	46.18	50.66
31-35	82	36.77	87.43
36-40	14	6.27	93.7
41-45	9	4.03	97.73
46-50	5	2.27	100.0
Total	223	100	

Since the participants for this study are exclusively doctoral students, I would have expected to have an older sample. This is due to an assumption that students likely already had a master's degree and some professional experience. A similar study regarding international doctoral students had a sample of 254 participants and an average age of 36.8 (Strang, 2009). In

contrast, in this study, 87% of the participants were 35 years old or younger. Clearly, we can see that the sample for this investigation has younger participants.

About 43% were single and about 40% were married. Given the age of the participants, and the Mexican demographical phenomenon of marrying at a relatively early age, I expected more respondents who were married. Below, the table shows the summary.

Table 4.4
Frequency table of marital status

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Single	101	43.0	45.3	45.3
	Married	96	40.9	43.0	88.3
	Divorced	6	2.6	2.7	91.0
	With a partner	20	8.5	9.0	100.0
	Total	223	94.9	100.0	

About only 25% of the participants indicated that they were parents with children and about 75% indicated that they did not have children.

Table 4.5
Frequency table of participants' parental status

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Yes	58	24.7	26.0	26.0
	No	165	70.2	74.0	100.0
	Total	223	94.9	100.0	

The average participant's length of stay in the United States was about 3 years, ranging from one year to seven years. The standard deviation was 1.478. Following, the table 4.6 includes the summary of the participant's length of stay in the United States.

Table 4.6
Frequency table of years in the United States

	Frequency	Percent	Valid Percent	Cumulative Percent
1 year	27	11.5	12.1	12.1
2 years	56	23.8	25.0	37.1
3 years	48	20.4	21.4	58.5
4 years	49	20.9	21.9	80.4
5 years	28	11.9	12.5	92.9
6 years	12	5.1	5.4	98.2
7 years	4	1.7	1.8	100.0
Total	224	95.3	100.0	

About one-half of the participants were in their third or fourth academic year of graduate study (51.3%). The following table shows the frequency of the participant academic year in their doctoral program.

Table 4.7
Participants' academic year

Academic Year	Response Percent	Response Count
First year	0.4%	1
Second year	22.3%	50
Third year	25.9%	58
Forth year	25.4%	57
Fifth year	17.0%	38
Sixth year	8.6%	19
Seventh year	0.4%	1
Total	100%	224

I anticipated a potential bias toward doctoral students who are in the middle of their program. I suspected that these students would be more likely to participate in an online survey. First- year doctoral students may be too stressed about their program and students at the end of their doctoral program may be too busy trying to finish. Therefore, the result is more or less what I expected with most of participants in their third and fourth academic year.

This study was designed to look at the cultural adaptation of Mexican doctoral students across the United States. Participants who completed the online survey were pursuing a doctoral

degree from 89 different institutions across the country. Following, the tables show the breakdown of institutions by Carnegie type, by public/private, and by geographic distribution. The table with breakdown for specific institutions and number of participants from each institution is located in the appendix.

Table 4.8
Participants' institution by Carnegie classification

	Frequency	Percent Valid	Percent	Cumulative Percent
RU/VH (Very high research activity)	197	83.8	83.8	83.8
RU/ H (High research activity)	29	12.3	12.3	96.2
DRU (Doctoral/research universities)	9	3.8	3.8	100.0
Total	235	100.0	100.0	

Based on the Carnegie Classification, slightly more than three-quarters of participants studied in American institutions with very high research activity. The basic Carnegie classification for doctorate-granting universities is: RU/VH (very high research activity), RU/H (high research activity) and DRU (Doctoral/research universities). This basic classification includes "institutions that awarded at least 20 research doctoral degrees during the update year (excluding JD, MD, PharmD and DPT)" (Carnegie, 2013). According to the Carnegie classification (2013), there are currently 108 American institutions classified as RU/VH, 99 American institutions classified as RU/H, and 90 American institutions classified as DRU.

It is worth noting that CONACYT only grants scholarships to Mexican students pursuing doctoral degrees in high quality programs in American institutions, which need to have an agreement of collaboration with CONACYT (CONACYT, 2012). Therefore, I expected to have a high percentage of American institutions with very high research activity.

A chi-square analysis compared the sample to the population in terms of institution's Carnegie classification to check for bias. With a p value = .855 > .05, there was no significant difference between the observed value and the expected value; therefore, there was no evidence of bias in the sample in terms of Carnegie classification. Following the table shows the chi-square analysis.

Table 4.9
Chi-square analysis for Carnegie classification

Carnegie Classification	Observed N	Expected N	Residual
Very high research	197	193.7	3.3
High research	29	31.3	-2.3
Doctoral/ research	9	9.9	-.9
Total	235		

Regarding the classification of public and private institution, more than one-half of participants studied in public institutions in the United States (71.5%).

Table 4.10
Participants' institution by public and private

	Frequency	Percent Valid	Percent	Cumulative Percent
Public	168	71.5	71.5	71.5
Private	67	28.5	28.5	100
Total	235	100.0	100.0	

A chi-square analysis compared the sample to the population on public/private institution. Results of the chi-square analysis showed a p value=.229>.05; therefore there is no significant difference between the observed value and the expected value and there is no bias in terms of public/private institution. Below the table shows the summary of the chi-square results:

Table 4.11
Chi-square analysis for public/private institution

Institution	Observed N	Expected N	Residual
Public	168	176	-8.0
Private	67	59	8.0
Total	235		

Regarding the geographical distribution, more than one-half of the participants studied in American institutions in the West and South region (60.9%). California and Arizona were states included in the West region and Texas was a state included in the South region. This distribution reflects the states where most of Mexican students study in the United States because of the geographic location and the opportunities to study at border U.S. institutions (Institute of International Education, 2012).

Table 4.12
Participants' institution by geographic distribution

	Frequency	Percent Valid	Percent	Cumulative Percent
West region	89	37.9	37.9	37.9
South region	54	23.0	23.0	60.9
Northeast region	52	22.1	22.1	83.0
Midwest region	40	17.0	17.0	100
Total	235	100.0	100.0	

A chi-square analysis compared the sample to the population on geographic distribution. A p value=.585 >.05 showed no significant difference between the observed value and expected value; therefore there is no bias in terms of institution by geographic distribution. Below, the table for chi-square is shown.

Table 4.13
Chi-square analysis for institution by geographic distribution

Geographic distribution	Observed N	Expected N	Residual
West region	89	79.9	9.1
South region	54	61.1	-7.1
Northeast region	52	52.2	-.2
Midwest region	40	41.8	-1.8
Total	235		

For this study, the academic disciplines were categorized based on the Biglan's classification. Biglan (1973) classified academic disciplines in eight categories, which I

condensed to four because of the study sample size. The categories are: Hard-pure, Soft-pure, Hard-applied, and Soft-applied. Hard-pure classification includes academic disciplines such as Biology, Biochemistry, Mathematics, Geology, and Astronomy. Soft-pure classification includes Sociology, Anthropology, Political Sciences, Literature, and Economics. Academic disciplines in the Hard-applied category include Agriculture, Medicine, and Engineering. Finally, the Soft-applied academic disciplines include Education, Finance, Accounting, Counseling, Marketing among others.

218 participants answered the question about academic discipline on the online survey. 74 participants were in Hard-pure academic disciplines. 53 Mexican doctoral students were in Soft-pure academic disciplines. 63 Mexican doctoral students were pursuing doctoral programs in Hard-applied academic disciplines, and 28 Mexican doctoral students where in Soft-applied academic disciplines. Following, the table shows the distribution by academic discipline.

Table 4.14
Frequency table of participant's academic discipline

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Hard-pure	74	31.5	33.9	33.9
	Soft-pure	53	22.6	24.3	58.3
	Hard-applied	63	26.8	28.9	87.2
	Soft-applied	28	11.9	12.8	100.0
	Total	218	92.8	100.0	

Regarding participants experience studying abroad, almost 60% of the respondents did not have any previous experience studying abroad. About 40% had previous experience studying outside of Mexico. This is an interesting finding because I expected more participants to have some experience studying abroad.

Below, the table illustrates the frequency.

Table 4.15
Participants' experience studying abroad

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Previous experience	92	39.1	41.3	41.3
	No previous experience	131	55.7	58.7	100.0
	Total	223	94.9	100.0	

If more than one-half of the participants did not have previous experience studying abroad, it would be worth doing further research of the reasons why participants decided to study their doctoral program abroad and how they selected the United States and their institution.

The average of the participants' doctoral program GPA was 3.715 ranging from 3.00 to 4.00 with a standard deviation of 0.2309. About half of the participants had a GPA above 3.76 (54.52%). The following table shows the GPA distribution.

Table 4.16
Frequency table of participants' doctoral program GPA

GPA	Frequency	Percent	Cumulative Percent
3.00 - 3.25	9	4.26	4.26
3.26 - 3.50	39	18.48	22.74
3.51 - 3.75	48	22.74	45.78
3.76 - 4.00	115	54.52	100.00
Total	211	100.00	

It is worth noting that CONACYT requires that students maintain a minimum graduate program GPA of 3.0 on a 4.0 scale for continued funding of graduate study. Therefore, I would expect participants' GPA to be higher than 3.0.

220 participants answered the question about mother's level of education. The options ranged from elementary school to Ph.D. degree. About 55% had a mother with at least a college education.

The table below shows the frequency.

Table 4.17
Frequency table for participants' mother educational level

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Elementary school	19	8.1	8.6	8.6
	Middle school	15	6.4	6.8	15.5
	Technical school	33	14.0	15.0	30.5
	High school	22	9.4	10.0	40.5
	College	75	31.9	34.1	74.5
	Master's	34	14.5	15.5	90.0
	Ph.D.	22	9.4	10.0	100.0
	Total	220	93.6	100.0	

On average the father's educational attainment was higher: About 70% of respondents indicated their father attained at least a college-level of education. This result does not reflect that the actual average educational attainment is relatively low in Mexico when compared to other countries. The average Mexican student goes no further than 8.6 years of school (INEGI, 2012), though educational attainment varies widely among social classes.

The following table explains this data.

Table 4.18
Frequency table of participants' fathers educational level

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Elementary school	13	5.5	6.0	6.0
	Middle school	11	4.7	5.1	11.1
	Technical school	10	4.3	4.6	15.7
	High school	16	6.8	7.4	23.1
	College	93	39.6	43.1	66.2
	Master's	42	17.9	19.4	85.6
	Ph.D.	31	13.2	14.4	100.0
	Total	216	91.9	100.0	

The results above show that parents' education is highly correlated with attending a doctoral program. This finding is consistent with other research regarding this matter. Mullen, Goyette and Soares (2003) state that "Family educational background affects enrollment in

postgraduate programs even after the receipt of the baccalaureate degree" (p. 159). In their article entitled *"Who goes to graduate school? Social and academic correlates of educational continuation after college*, the authors found that parents' education had a strong impact in the students' enrollment in a doctoral program.

224 participants responded to the question about parents' experience studying abroad. About two-thirds of the participants' parents did not have any experience studying abroad. From those participants whose parents had experience abroad, a higher percentage indicated the participant's father studying abroad than the participant's mother. Following, the table shows the frequency.

Table 4.19
Frequency table of participants' parents experience studying abroad

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	No	185	78.7	82.6	82.6
	Yes, both parents	13	5.5	5.8	88.4
	Yes, only my father	20	8.5	8.9	97.3
	Yes, only my mother	6	2.6	2.7	100.0
	Total	224	95.3	100.0	

Research questions

The data analysis for this study was examined to address the following research questions:

What factors affect the acculturation of Mexican doctoral students? and Does the degree of acculturation differ by gender, academic discipline, destination, and social class?

The construct of acculturation

To answer the first research question of *what factors affect the acculturation of Mexican doctoral students*?, I built the construct of acculturation based on Berry's model of acculturation

(1997), which includes academic experience, cultural experience and personal experience. I organized the data to include items in the three parts of the construct of acculturation. This model includes seven outcomes and eleven predictors.

The following table shows the classification along with the demographics that were utilized in the model.

Table 4.20
Operationalizing the Variables

Variable	Questionnaire Item
Outcomes	
- Academic experience	
Academic satisfaction	Question 1
Attitudes	Question 5
- Cultural Experience	
Integration	Question 12
Strategies	Question 15
- Personal Experience	
Related to professors	
Relationship with academic advisor	Question 32
Relationship with other professors	Question 33
Related to students	
Relationship with American students	Question 27
Predictors	
Gender	Question 42
Age	Question 43
Length of time	Question 45
Self-reported GPA	Question 50
Academic discipline	Question 46
Mother's level of education	Question 57
Father's level of education	Question 58
Institution	Information added
English proficiency	Question 10
Discrimination	Question 20
Social support	Question 25

After an initial selection of items, I looked at the relationship among the different outcomes to reduce the likelihood of collinearity (highly correlated).

Means and standard deviations of the outcomes

The means and standard deviation of the seven outcomes are shown in the following table.

Table 4.21
Means and standard deviation for the outcomes

	N	Minimum	Maximum	Mean	Std. Deviation
1.Academic satisfaction	235	1.00	6.00	5.2340	.92016
2.Attitudes	234	1.00	6.00	5.3248	.8547
3.Integration	234	1.00	6.00	5.0214	1.05816
4.Strategies	233	3.00	6.00	5.6009	.62243
5.Student's relationship with academic advisor	232	1.00	4.00	3.4698	.65064
6.Student's relationship with other professors	232	2.00	4.00	3.1983	.60617
7.Student's relationship with American students	232	1.00	6.00	3.0862	1.51225
Valid N (list wise)	230				

The outcomes of academic satisfaction, attitudes, integration, strategies, and student's relationship with American students had a six-point response scale range from 1 (totally disagree) to 6 (totally agree). Participants generally agreed to identify differences between the values of their country and the values of the American culture (strategies: M = 5.6009, SD = .62243). Participants also agreed to have the self-confidence to overcome obstacles and finish their doctoral program (attitudes: M = 5.3248, SD = .8547) and agreed to have a positive academic satisfaction (academic satisfaction: M = 5.2340, SD = .92016). Participants somewhat agreed regarding the value they placed on contact with the American culture (integration: M = 5.0214, SD = 1.05816). In contrast, participants felt less positive regarding their relationship with American students (relationship with American students: M = 2.0862, SD = 1.51225). The outcomes of student's relationship with their academic advisor and the student's relationship with other professors had a four-point response scale range from 1(bad) to 4 (excellent).

Participants generally agreed they have a positive relationship with their academic advisor (relationship with academic advisor: M = 3.4698, SD = .65064). Also, participants agreed that they have a positive relationship with other professors in their doctoral program (relationship with other professors: M = 3.1983, SD = .60617).

Relationship among the different outcomes

A Pearson product-moment correlation analysis showed modest positive correlations between outcome variables. Pairs of variables were correlated with highest value of .437. These relationships are not so high as to require forming some type of scale. The Pearson correlation coefficients are presented in the following table.

Table 4.22
Intercorrelation analysis of the seven outcome variables

	Mean	Std. Deviation	N	1	2	3	4	5	6	7
1.Academic satisfaction	5.2340	.92016	235	1						
2.Attitudes	5.3248	.85747	234	.437**	1					
3.Integration	5.0214	1.05816	234	.176**	.037	1				
4.Strategies	5.6009	.62243	233	.019	.170**	.163*	1			
5.Student's relationship with academic advisor	3.4698	.65064	232	.250**	.151*	.032	.064	1		
6.Student's relationship with other professors	3.1983	.60617	232	.142*	.164*	.035	.057	.432*	1	
7.Student's relationship with American students	3.0862	1.51225	232	.001	.005	.218**	.089	.091	.123	1

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

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

Below, I discuss the relationships that were correlated.

Academic satisfaction

Academic satisfaction had significant correlation with four of the outcomes. Academic satisfaction was positively correlated to attitudes ($r = .437$, $p < .01$). According to Cohen (1988), this is a medium size effect or correlation. This means that Mexican doctoral students who had relatively high academic satisfaction were more likely to have high levels of self-confidence to overcome obstacles and finishing their doctoral program. This result supports previous findings. Individuals from other countries with high self-efficacy are able to adapt to the host environment, interact with host nationals and work better than those with low self-efficacy (Harrison et al., 1996). Given such findings, it was expected that self-confidence would be positively related to academic satisfaction.

Academic satisfaction and integration had a small size effect or correlation (Cohen, 1988) ($r = .176$, $p < .01$). This means that Mexican doctoral students with relatively high academic satisfaction were likely to value the contact with the American culture. The literature suggests that international graduate students' interaction with American peers is related to important benefits. Among those, "contact with American students positively influences international students' academic experiences" (Trice, 2004, p.671). Therefore, it was expected that the outcome of integration was positively related to academic satisfaction.

Further, academic satisfaction and a student's relationship with academic advisor had a positive relationship ($r = .250$, $p < .01$). According to Cohen (1988) this relationship has a medium size effect or correlation. Mexican doctoral students who had relatively high academic satisfaction also agree that they had a positive relationship with their academic advisor. This finding supports research about academic advising and academic success. Rice et al. (2009) state

that the relationship between a graduate student and their advisor is one of the most important factors for graduate student success in the U.S. academic environment.

Lastly, academic satisfaction and student's relationship with other professors had a significant correlation ($r = .142$, $p < .05$). Mexican doctoral students who had a high level of academic satisfaction also had a positive relationship with other professors. According to Cohen (1988), this is a small size effect size.

Attitudes

The variable of attitude was significantly, positively correlated with three of the seven outcomes. Attitudes and strategies had a significant correlation ($r = .170$, $p < .01$). This correlation has a small size effect (Cohen, 1988). This result means that Mexican doctoral students who had the self-confidence to overcome obstacles and finish their doctoral program also were able to differentiate cultural values between their native country and the United States.

Attitudes and student's relationship with academic advisor had a significant though modest positive correlation ($r = .151$, $p < .05$). This finding means that Mexican doctoral students who had self-confidence to overcome obstacles and finish their program were more likely to have a positive relationship with their academic advisor, though the effect was small. In addition, Mexican doctoral students who had self-confidence were more likely to have a positive relationship with other professors in their program. ($r = .164$, $p < .05$).

Integration

Integration was significantly positively correlated with two of the seven outcomes. Since integration is one of the most relevant factors of Berry's model of acculturation (1997), I

expected these results have significant correlation with other outcomes in this model. Integration and strategies were significantly correlated ($r = .163$, $p < .05$). According to Cohen (1988) this is a small effect or correlation. Mexican doctoral students who value their contact with the American culture were more likely to differentiate cultural values from their native country and the United States. This correlation seems to make sense. In order to value contact with American students, Mexican doctoral students must be able to find differences and similarities between American culture and Mexican culture.

In addition, Mexican doctoral students who value their contact with the American culture were more likely to have a positive relationship with American students ($r = .218$, $p < .01$). This result is consistent with the literature where the frequency of international student's social interaction is related to a better adjusted experience abroad (Trice, 2004).

Student's relationship with academic advisor

The student's relationship with his or her academic advisor was significantly, positively correlated with one of the seven outcomes. A student's relationship with his/her academic advisor and a student's relationship with other professors were significantly correlated ($r = .432$, $p < .05$). According to Cohen (1988) this is a medium size effect. Mexican doctoral students who had a positive relationship with their academic advisor were more likely to have a positive relationship with other professors.

Summary

In summary, some outcome measures are modestly, positively correlated. It seems that several factors must take place for a Mexican doctoral student to have a positive acculturation experience. For example, a student who has more self-confidence to overcome obstacles, who

has a positive relationship with his/her academic advisor, and who values contact with American culture, is more likely to enjoy a high level of academic satisfaction. The more positive outcomes a participant has the better acculturation experience. Further, it is worth noticing that the seven outcomes are equally weighted in this study. Berry's model (1997) does not make any comments regarding the importance of each outcome. Further research should be done to examine Berry's model of acculturation (1997) and the impact of each outcome in the acculturation experience.

Comparisons of outcomes by demographics

After examining the relationship among the different outcomes, I looked at the predictors and their relationship with the outcomes to answer the research question *Does the degree of acculturation differ from gender, academic discipline, destination, and social class?*. First, I examined the predictors that were dichotomous such as gender (male and female), type of institution (public and private) and perceived English proficiency (fluent and very fluent). Then, I did an analysis of variance for the predictors that were categorical variables such as academic discipline, discrimination, father's level of education and social support. The following classification was used to illustrate the different significance of the p values in the tables: **** p < .001. ***p < .01. **p <.05. *p < .1. Below is the analysis.

Comparison of male and female Mexican doctoral students

A t-test analysis compared male and female Mexican doctoral students' outcomes. The analysis showed that some outcomes were significantly different based on gender. The table below shows that males were significantly different from females on academic satisfaction (p = .003), and attitudes (p = .000). Inspection of the two group means indicates significantly lower

scores for females than males on the outcomes of academic satisfaction and attitudes. Below the table shows the comparison of males and females and all seven outcomes.

Table 4.23
Comparison of male and female Mexican doctoral students

Variable	*M*	*SD*	*N*	*T*	*Df*	*P*
Academic satisfaction				-3.004	233	.003***
Females	5.0110	.96026	91			
Males	5.3750	.86804	144			
Attitudes				-3.959	232	.000****
Females	5.0549	.94707	91			
Males	5.4965	.74940	143			
Integration				387	232	.699
Females	5.0549	.93527	91			
Males	5.0000	1.13212	143			.718
Strategies				-.361	232	
Females	5.5824	.63361	91			
Males	5.6127	.61712	142			.953
Relationship with academic advisor				-.059	230	
Females	3.4667	.58444	90			
Males	3.4718	.69132	142			.075*
Relationship with other professors*				-1.788	202.021	
Females	3.1111	.56973	90			
Males	3.2535	.62384	142			.239
Relationship with American student				1.181	230	
Females	3.2333	1.59388	90			
Males	2.9930	1.45620	142			

*The t and df were adjusted because variances were not equal
**** p < .001. ***p < .01. **p <.05. *p < .1.

In other words, females had lower academic satisfaction than males. Females also had lower self-confidence to overcome obstacles to finish their doctoral program than males. Although there were only two outcomes with significant differences related to gender, they are important findings because academic satisfaction and self-confidence are predictors for student's success. Questions remain regarding the reasons why females scored lower than males in academic satisfaction and self-confidence to overcome obstacles to finish their doctoral program. An example to illustrate the differences in gender was stated by a participant's comment in the

online survey. In the survey, a student compared the role of gender in her cultural experience as a Mexican doctoral student in the US. She felt like she was treated differently not because of her nationality, but because of her gender.

Comparison of public institutions and private institutions

A t-test analysis compared differences between public and private institutions in the acculturation of Mexican doctoral students in the United States. The analysis showed that two outcomes were significantly different based on type of institution. Analysis of the two groups' means indicate significantly lower scores for Mexican doctoral students in private institutions than in public institution on the outcomes of integration (p= .000) and strategies (p=.023).

Table 4.24
Comparison of type of institutions on the acculturation of Mexican doctoral students

Variable	*M*	*SD*	*N*	*T*	*Df*	*P*
Integration*				3.693	92.042	.000****
Public	5.2036	.8861	167			
Private	4.5672	1.29362	67			
Strategies*				2.310	101.219	.023**
Public	5.6647	.57677	167			
Private	5.4394	.70446	66			
Academic satisfaction				1.207	233	.229
Public	5.2798	.90193	168			
Private	5.1194	.96173	67			
Attitudes				1.652	232	.100
Public	5.3832	.86245	167			
Private	5.1791	.83349	67			
Relationship with academic advisor				1.121	230	.264
Public	3.5000	.63006	166			
Private	3.3939	.69898	66			
Relationship with other professors				.740	230	.460
Public	3.2169	.60399	166			
Private	3.1515	.61375	66			
Relationship with American students				-.510	230	.610
Public	3.0542	1.52842	166			
Private	3.1667	1.45267	66			

*The *t* and *df* were adjusted because variances were not equal
**** p < .001. ***p < .01. **p <.05. *p < .1.

Mexican doctoral students who were in private institutions had lower scores on valuing the contact with the American culture than students in public universities. Further, Mexican doctoral students who were in private institutions had lower scores identifying differences in cultural values from their country and America than Mexican doctoral students from public institutions. Since most of the studies on the acculturation of internationals students in the U.S. have been done on single institutions, there is little research that compares the differences of acculturation in terms of type of institutions.

Comparison of English proficiency

The variable of English proficiency refers to the participants' perception in their ability to express their ideas in English. This variable was not based on TOEFL scores or other standard tests that measure English proficiency.

For a better analysis, the variable of perceived English proficiency was used as a dichotomous variable of fluent and very fluent. Then, a t-test was used to compare the perceived English proficiency in Mexican doctoral students in the United States.

SPSS analysis showed that three variables had significant differences. Academic satisfaction ($p = .000$) and attitudes ($p = .000$) and relationship with other professors ($p=.001$).

Examination of the two groups showed lower mean scores in academic satisfaction, attitudes and relationship with other professors for Mexican doctoral students who perceive their English proficiency as fluent when compared with those who perceive their English proficiency as very fluent.

The following table shows the t-test summary.

Table 4.25
Comparison of English proficiency on the acculturation of Mexican doctoral students

Variable	*M*	*SD*	*N*	*T*	*Df*	*P*
Academic satisfaction				-4.348	231	.000****
Fluent	4.5938	1.29164	32			
Very fluent	5.3284	.80724	201			
Attitudes				-7.476	230	.000****
Fluent	4.3750	1.18458	32			
Very fluent	5.4650	.68683	200			
Integration				-.074	230	.941
Fluent	5.0000	1.04727	32			
Very fluent	5.0150	1.06322	200			
Strategies				-1.258	229	.210
Fluent	5.4688	.67127	32			
Very fluent	5.6181	.61535	199			
Relationship with academic advisor				-1.811	228	.072*
Fluent	3.2813	.68318	32			
Very fluent	3.5051	.64318	198			
Relationship with other professor				-3.293	228	.001***
Fluent	2.8750	.60907	32			
Very fluent	3.2475	.59128	198			
Relationship with American students				-.787	228	.432
Fluent	2.8750	1.47561	32			
Very fluent	3.1010	1.51134	198			

**** p < .001. ***p < .01. **p <.05. *p < .1.

In other words, participants with very fluent perceived English proficiency had higher academic satisfaction than those participants with fluent perceived English proficiency. Further, participants who perceived their English skills as very fluent had more self-confidence to overcome obstacles and finish their program than those with fluent perceived English skills. These findings are consistent with the literature of the many impacts of the student's level of English proficiency. It has been found that perceived English proficiency is the most important predictor for the perceived level of academic difficulty (Xu, 1991).

In addition, although some participants had advanced in their program, they felt disadvantaged compared to the native English speakers. A participant commented the following:

> To know English is not only to know the grammar; but also to know how to communicate. Students who apply to doctoral programs in the United States should have some type of training in their English abilities such an online program to improve the English communication skills (reading, writing, listening and speaking).

One student made a distinction of the cultural adaptation and the English barrier regarding the academic discipline. "It has been difficult to be able to express my ideas in writing. Above all, the students in the area of Humanities are challenged by the volume of vocabulary needed to succeed and that American students already have".

English proficiency may also affect the use of support services in the U.S. institutions. A participant for this study pointed out in the online survey that "although there were a lot of programs in place to help international students in their adaptation such as an international center, a psychology center, and different sport groups; the inability to speak English prevented people from utilizing the programs".

Analysis of variance

An analysis of variances was carried out for the rest of the predictors to understand the relationship with the outcomes.

Academic discipline

Surprisingly**,** a one-way ANOVA test found no statistical difference among the different academic disciplines and the outcomes. Although the variable of strategies was statistically different, it did not pass Levene's test.

Table 4.26
One-way ANOVA summary for academic discipline

	Sum of squares	Df	Mean Square	F	Sig
Academic satisfaction					
Between groups	.201	3	.067	.516	.672
Within groups	27.802	214	.130		
Total	28.005	217			
Attitudes					
Between groups	.739	3	.246	2.030	.111
Within groups	25.833	213	.121		
Total	26.571	216			
Integration					
Between groups	.401	3	.134	.657	.580
Within groups	43.531	214	.203		
Total	43.931	217			
Strategies					
Between groups	.498	3	.166	4.908	.003***
Within groups	7.207	213	.034		
Total	7.705	216			
Student's relationship with American students					
Between groups	.315	3	.105	.739	.530
Within groups	30.405	214	.142		
Total	30.720	217			
Student's relationship with academic advisor					
Between groups	1.023	3	.341	1.382	.249
Within groups	52.816	214	.247		
Total	53.839	217			
Student's relationship with other professors					
Between groups	.684	3	.228	1.086	.359
Within groups	44.935	214	.210		
Total	45.619	217			

**** p < .001. ***p < .01. **p <.05. *p < .1.

Discrimination

There was a statistical difference found among the levels of perceived discrimination on academic satisfaction F (5,226) 3.144, p = .009, and attitudes F (5,225) 3.068, p=.011. Levene's test supported the assumption of equal variances of two dependent groups on the dependent variable. Although the variables of student's relationship with American students and student's

relationship with other professors were statistically different; they did not pass Levene's test. A Tukey post-hoc test revealed that students who perceived discrimination as totally disagreed (5.4875) and highly agreed (4.7273) differed in their academic satisfaction. Likewise, students who perceived discrimination as highly agreed (4.9091) and totally disagreed (5.5696) have differences in self-confidence to overcome obstacles. Below is the summary table.

Table 4.27
One-way analysis of variance summary table comparing discrimination

	Sum of squares	Df	Mean Square	F	Sig
Academic satisfaction					
Between groups	12.769	5	2.554	3.144	.009***
Within groups	183.576	226	.812		
Total	196.345	231			
Attitudes					
Between groups	10.847	5	2.169	3.068	.011**
Within groups	159.084	225	.707		
Total	169.931	230			
Integration					
Between groups	10.645	5	2.129	1.938	.089*
Within groups	248.317	226	1.099		
Total	258.961	231			
Strategies					
Between groups	1.583	5	.317	.810	.544
Within groups	87.975	225	.391		
Total	89.558	230			
Student's relationship with American students					
Between groups	44.752	5	8.950	4.229	.001***
Within groups	474.135	224	2.117		
Total	518.887	229			
Student's relationship with academic advisor					
Between groups	2.954	5	.591	1.403	.224
Within groups	94.333	224			
Total	97.287	229			
Student's relationship with other professors					
Between groups	4.479	5	.896	2.517	.031**
Within groups	79.717	224			
Total	84.196				

**** p < .001. ***p < .01. **p <.05. *p < .1.

These findings support the research related to perceived discrimination and acculturation in international students (Poyrazli & Lopez, 2007). Therefore, it was expected to find differences in the levels of discrimination and outcomes such as academic satisfaction.

Father's level of education

There was only a statistical difference in the father's level of education and integration (F (2,213) 4.125, p = .017). The following table shows the summary.

Table 4.28
One way analysis of variance comparing father's level of education

	Sum of squares	Df	Mean Square	F	Sig
Integration					
Between groups	9.396	2	4.698	4.125	.017**
Within groups	242.604	213	1.139		
Total	252.000	215			
Academic satisfaction					
Between groups	3.189	2	1.594	1.884	.155
Within groups	180.293	213	.846		
Total	183.481	215			
Attitudes					
Between groups	1.209	2	.604	.794	.453
Within groups	161.284	212	.761		
Total	162.493	214			
Strategies					
Between groups	2.117	2	1.059	2.824	.062*
Within groups	79.483	212	.375		
Total	81.600	214			
Relationship with academic advisor					
Between groups	.741	2	.371	.868	.421
Within groups	90.963	213	.427		
Total	91.704	215			
Relationship with other professors					
Between groups	1.716	2	.858	2.340	.099*
Within groups	78.117	213	.367		
Total	79.833	215			
Relationship with American students					
Between groups	7.110	2	3.555	1.563	.212
Within groups	484.552	213	2.275		
Total	491.662	215			

**** p < .001. ***p < .01. **p <.05. *p < .1.

This finding is important because based on the literature first-generation students face more difficulties to successfully complete their program (Hahs-Vaughn, 2004). However, I expected to find greater differences in the father's level of education and other outcomes such as academic satisfaction or attitudes. Questions remain about how fathers' level of education impact the outcome of integration.

Social support

There was a statistical difference among the levels of social support on strategies F (4,226) 5.366, p = .000 and student's relationship with academic advisor F (4,227) 4.224, p = .003. A post hoc test was unable to be performed because at least one group has fewer than two cases. Following, the table shows the results.

Table 4.29
One way analysis of variances comparing social support

	Sum of squares	Df	Mean Square	F	Sig
Academic satisfaction					
Between groups	2.480	4	.620	.729	.573
Within groups	192.951	227	.850		
Total	195.431	231			
Attitudes					
Between groups	6.081	4	1.520	2.092	.083*
Within groups	164.213	226	.727		
Total	170.294	230			
Integration					
Between groups	10.372	4	2.593	2.359	.054*
Within groups	249.559	227	1.099		
Total	259.931	231			
Strategies					
Between groups	7.751	4	1.938	5.366	.000****
Within groups	81.608	226	.361		
Total	89.359	230			
Student's relationship with academic advisor					
Between groups	6.774	4	1.693	4.224	.003***
Within groups	91.015	227	.401		
Total	97.789	231			
Student's relationship with other					

Table 4.29 (cont'd)

Professors					
Between groups	2.235	4	.559	1.535	.193
Within groups	82.645	227	.364		
Total	84.879	231			
Student's relationship with other professors					
Between groups	9.511	4	2.378	1.040	.387
Within groups	518.765	227	2.285		
Total.	528.276	231			

**** p < .001. ***p < .01. **p <.05. *p < .1.

In summary, regarding the research question *Does the degree of acculturation differ from gender, academic discipline, destination and social class?* we observe in this study that the degree of acculturation differs from gender in terms of academic satisfaction and attitudes. The level of acculturation differs from destination in terms of integration and strategies. Finally, the degree of acculturation differs from social class with a proxy of father's level of education in terms of integration.

The relative importance of the predictors for each of the outcomes

To continue answering the second research question *Does the degree of acculturation differ by gender, academic discipline, destination, and social class?,* multiple regressions were conducted to investigate the best predictors for the seven different outcomes. Regressions were made considering all predictors as continuous variables. Because of the exploratory nature of this research, for this study I considered the different significance of the predictors by the following classification: **** p < .001. ***p < .01. **p <.05. *p < .1.

Academic satisfaction

A significant regression equation was found on academic satisfaction. F (11,182) = 4.505, p = < .001 and had an adjusted R^2 value of .167. This indicates that 16.7% of the variance in

academic satisfaction was explained by the model. According to Cohen (1988), this is a medium effect. Results of the regression analysis showed that the type of institution and perceived English proficiency significantly predict academic satisfaction when all eleven variables were included. The regression model demonstrated that the variables of type of institution (β =-.151, p=.030) and perceived English proficiency (β = .351, p=.000) were positive predictors of academic satisfaction. Below the table illustrates the results.

Table 4.30
Simultaneous multiple regression analysis summary predicting academic satisfaction (N= 193).

Variable	Estimate	Std Err	Std Coeff	T	p-val
Gender	.221	.138	.113	1.602	.111
Age	.004	.014	.022	.301	.764
Length of stay	.001	.051	.001	.020	.984
Self-reported GPA	-.157	.274	-.039	-.572	.568
Academic discipline	.039	.063	.042	.618	.538
Mother's level of education	-.050	.098	-.039	-.507	.613
Father's level of education	.151	.108	.109	1.400	.163
Institution	-.321	.147	-.151	-2.186	.030**
English proficiency	.367	.076	.351	4.813	.000****
Discrimination	-.045	.045	-.072	-1.009	.315
Social support	.073	.077	.065	.947	.345

**** p < .001. ***p < .01. **p <.05. *p < .1.

This finding is consistent with the t-test analysis done previously where English proficiency was found with significant difference regarding academic satisfaction. Clearly, this variable also predicts academic satisfaction when all the eleven predictors are included. Further, this finding is consistent with research related to English proficiency and academic performance. As English proficiency is one of the most challenging difficulties for international students, a lack of English skills is likely to affect the students' academic performance (Mori, 2000). Further, Lee et al. (1981) found that the English proficiency was related to academic satisfaction. In contrast, unlike the t-test results source of institutional control (public/private) was not

statistically significantly related to academic satisfaction. Aside from the statistical significance of the predictors of English proficiency and type of institutions, there are several patterns worth noticing regarding gender. Surprisingly, the variable of gender did not appear to predict academic satisfaction. This finding is consistent to the results in the study of Perrucci and Hu (1995), where gender of international graduate students does not affect satisfaction; however, the t-test of gender shown previously found that there was statistical difference regarding the academic satisfaction between males and females when gender was considered as a single variable. Females showed lower scores for academic satisfaction than males.

Attitudes

A significant regression equation was found in the outcome of attitudes. F (11, 180) = 9.314, $p < .001$. The adjusted R^2 value for this variable was .324. This indicates that 32.4% of the variance in attitude was explained by the model. According to Cohen (1988), this is a large effect. Below is the summary table.

Table 4.31
Simultaneous multiple regression analysis summary predicting attitudes (N = 192)

Variable	Estimate	Std. Err	Std. Coeff	T	p-val
Gender	.288	.112	.163	2.559	.011**
Age	-.007	.012	-.039	-.603	.548
Length of stay	.016	.042	.024	.388	.698
Self-reported GPA	.298	.225	.108	1.771	.078*
Academic discipline	.008	.052	.010	.158	.875
Mother's level of education	.010	.081	.009	.123	.902
Father's level of education	-.157	.089	-.125	-1.765	.079*
Institution	-.172	.120	-.090	-1.435	.153
English proficiency	.504	.062	.533	8.079	.000****
Discrimination	.003	.037	.004	.069	.945
Social support	.088	.063	.087	1.397	.164

**** $p < .001$. ***$p < .01$. **$p < .05$. *$p < .1$.

The regression model demonstrated that gender (β = .163, p= .011) and perceived English proficiency (β = .533, p=.000) significantly predict attitudes when all eleven variables. Self-reported GPA was significant predictor as well (β =.108, p=.078 < .10). The significance of the variable of gender is consistent with the t-test done previously on gender regarding attitudes. Female participants scored lower than male participants concerning their self-confidence in overcoming obstacles to finish the doctoral program. Further research is needed to determine how gender predicts attitudes when the eleven variables are included. Again, perceived English proficiency was found to be significant when predicting student's self-confidence to overcome obstacles to finish their doctoral program. This finding reflects Barratt and Huba (1994) findings that international student's English proficiency positively increased self-esteem.

Integration

The significant regression equation for this model is F (11, 18) = 2.865, p = < .005. The Adjusted R^2 value for integration was .097. This indicates that 9.7% of the variance in integration was explained by this model. This is a small effect.

From this model, type of institution (β = -.179, p= .014) and discrimination (β = -.223, p=.003) significantly predict integration when all eleven variables are included. Another significant predictor in this model was age (β = .144, p= .058). The significance in the relationship between type of institution and integration was also found in the t-test done previously when type of institution was considered as a single variable. This finding suggests further research is needed to determine how the type of institution predicts the outcome of strategies. Below is the summary table for this regression.

Table 4.32
Simultaneous multiple regression analysis summary predicting integration (N =193)

Variable	Estimate	Std Err	Std Coeff	T	p-val
Gender	-.072	.157	-.034	-.461	.645
Age	.031	.016	.144	1.909	.058*
Length of stay	.079	.058	.096	1.359	.176
Self-reported GPA	-.367	.313	-.083	-1.174	.242
Academic discipline	.017	.072	.017	.234	.815
Mother's level of education	.106	.112	.077	.947	.345
Father's level of education	-.194	.123	-.129	-1.581	.116
Institution	-.417	.167	-.179	-2.494	.014**
English proficiency	-.030	.087	-.027	-.349	.727
Discrimination	-.153	.051	-.223	-2.977	.003**
Social	.061	.088	.050	.695	.488

**** p < .001. ***p < .01. **p <.05. *p < .1.

Discrimination and integration may be opposite related. The more the participant perceived discrimination in terms of race or nationality, the less integrated he or she is with the host community. In contrast, the less the participant perceived discrimination in terms of race or nationality, the more contact he or she will have with the host community and the more integrated the participant may be to the American culture. Age was also found to be a significant predictor of the outcome of integration in this study. However, very little research has been done regarding age and integration of international students. Maybe older participants can be more mature and are able to interact with American students than younger participants.

Strategies

The significant strategies outcome regression equation found was F (11,180) = 2.913, p = < .005. The Adjusted R^2 value for this outcome was .099. Thus, 9.9 % of the variance in strategies was explained by this model. This is a small effect. Academic discipline (β = .039, p=.039), father's level of education (β = -.223, p=.007) and social support (β = .188, p= .009) significantly predict the outcome of strategies in this regression model when all eleven variables

are included. Another significant predictor in this model was the variable of self-reported GPA (-.123, p=.084). Below is the summary table.

Table 4.33
Simultaneous multiple regression analysis summary predicting strategies (N = 192)

Variable	Estimate	Std Err	Std Coeff	T	p-val
Gender	.011	.095	.008	.113	.910
Age	-.011	.010	-.087	-1.156	.249
Length of stay	-.017	.035	-.035	-.495	.621
Self-reported GPA	-.331	.191	-.123	-1.737	.084*
Academic discipline	-.090	.043	-.148	-2.083	.039**
Mother's level of education	.072	.068	.086	1.058	.291
Father's level of education	-.203	.074	-.223	-2.746	.007***
Institution	-.188	.101	-.134	-1.866	.064*
English proficiency	.069	.052	.100	1.313	.191
Discrimination	-.014	.031	-.033	-.439	.661
Social support	.139	.053	.188	2.622	.009**

**** p < .001. ***p < .01. **p <.05. *p < .1.

The finding of significance in the variable of academic discipline is consistent with some other published research regarding disciplinary differences and international students. Although it is only observed the difference in the outcome of strategies based on academic disciplines in this study, further research should look at the nature of the difference. Trice and Yoo (2007) distinguish the experience of international students between those who are in the hard fields and those who are in the soft disciplines. The authors state that "international students in soft fields may be encouraged more often by their professors to think divergently and to view subject knowledge through their own cultural lens" (p. 45). Therefore, according to Trice and Yoo, international students in the soft academic disciplines would have higher levels of positive experience than those in the hard academic disciplines.

Student's relationship with American students

The regression equation for the outcome of student's relationship with American students was not significant. F (11, 181) = 1.977, p = .033 (no significant). The Adjusted R^2 value for the student's relationship with American students was .053. A small 5.3 % of the variance in student's relationship with American students is explained by this model. Discrimination (β = -194, p= .012) significantly predicts student's relationship with American students in this regression model when all eleven variables are included. Other significant predictors were gender (β= -.138, p= .070) and social support (β = -.128, p = .082). The following table shows the results.

Table 4.34
Simultaneous multiple regression analysis summary predicting student's relationship with American students (N = 193)

Variable	Estimate	Std Err	Std Coeff	T	p-val
Gender	-.420	.230	-.138	-1.825	.070*
Age	-.039	.024	-.128	-1.654	.100
Length of stay	.057	.085	.049	.668	.505
Self-reported GPA	.376	.458	.059	-821	.413
Academic discipline	-.123	.105	-.086	-1.173	.242
Mother's level of education	-.045	.164	-.023	-.277	.782
Father's level of education	-.129	.180	-.060	-.718	.473
Institution	.328	.245	.098	1.336	.183
English proficiency	.085	.127	.052	.671	.503
Discrimination	-.190	.075	-.194	-2.533	.012**
Social support	-.225	.129	-.128	-1.748	.082*

**** p < .001. ***p < .01. **p <.05. *p < .1.

Although the model for the student's relationship with American students was found to be insignificant, there are several findings worth noticing regarding the predictors. I expected discrimination to be a predictor of the relationship with American students and this finding is consistent to research done by Perrucci and Hu (1995). The authors found that international students who perceived little discrimination appeared to better facilitate social contact with the

host community. Therefore, the less perceived discrimination, the better interaction with American students. Moreover, regarding discrimination, some students mentioned in the survey how racial attitudes were often a result of the racial composition of the state where they were studying. This made some feel it was more difficult for international students to interact with American students. Social support was found to be a predictor of the student's relationship with American students as well.

The social support variable relates to the communication international students had with family and friends back in their home country. Thus, further research needs to be done to determine the nature of the relationship. One could think that the relationship may be opposite. Maybe international students who have high communication with their family and friends back home have low interaction with American students and participants who had low communication with people from their home country had more interaction with American students.

Student's relationship with academic advisor

The regression equation was not significant for the outcome of the student's relationship with academic advisor. $F (11, 181) = 1.011$, $p = .438$ (no significant). The only significant predictor in this model was social support ($\beta = .138$, $p = .068$). Below, the table shows the summary.

Table 4.35
Simultaneous multiple regression analysis summary predicting student's relationship with academic advisor (N = 193)

Variable	Estimate	Std Err	Std Coeff	T	P-val
Gender	-.006	.104	-.005	-.062	.951
Age	-.001	.011	-.005	-.061	.951
Length of stay	-.043	.039	-.082	-1.102	.272
Self-reported GPA	.252	.208	.090	1.214	.227
Academic discipline	-.040	.048	-.062	-.830	.408

Table 4.35 (cont'd)

Mother's level of education	.001	.074	.001	.017	.987
Father's level of education	.037	.082	.-38	.448	.655
Institution	-.122	.111	-.083	-1.100	.273
English proficiency	.029	.058	.040	.499	.618
Discrimination	-.030	.034	-.069	-.881	.380
Social support	.107	.058	.138	1.839	.068*

**** p < .001. ***p < .01. **p <.05. *p < .1.

Based on the previously discussed literature, I expected to find a stronger relationship between the academic advisor and student outcomes. I did not expect to find that within this subset of the American graduate student population, the student's relationship with academic advisor would be insignificant, since much of the research finds the academic advisor's relationship to be a big factor on the acculturation of international students (Charles & Steward, 1991; Trice & Yoo, 2007). This may result from the academic advisor being the one who guides the student to navigate in the doctoral program and advocates for the students.

Student's relationship with professors

The regression equation for student's relationship with professors was found not significant in this model. F (11, 181) = 2.013, p = .029 (no significant). The Adjusted R^2 value for this outcome was .055.

This indicates that only 5.5 % of the variance on the student's relationship with professors was explained by this model. According to Cohen (1988), this is a small effect. Only self-reported GPA (β = .205, p= .005) significantly predicts student's relationship with professors when all eleven variables are included.

The table below shows the results including all the predictors from this investigation.

Table 4.36
Simultaneous multiple regression analysis summary predicting student's relationship with professors (N = 193)

Variable	Estimate	Std Err	Std Coeff	T	p-val
Gender	.116	.092	.094	1.251	.213
Age	.001	.010	.005	.067	.947
Length of stay	-.054	.034	-.114	-1.568	.119
Self-reported GPA	.524	.184	.205	2.844	.005**
Academic discipline	.048	.042	.082	1.124	.262
Mother's level of education	.030	.066	.038	.462	.645
Father's level of education	.064	.072	.074	.887	.376
Institution	-.059	.099	-.044	-.597	.551
English proficiency	.070	.051	.106	1.364	.174
Discrimination	-.023	.030	-.059	-.773	.441
Social support	.016	.052	.022	.302	.763

**** p < .001. ***p < .01. **p <.05. *p < .1.

I also did not expect to have student's relationship with other professors to be not significant. Further research should be done to determine how self-reported GPA predicts student's relationship with professors in their program. Perhaps, students with a better doctoral GPA have more self-confidence have a more positive relationship with professors than students who have low GPA.

Summary of the relative importance of predictors

There is not a single variable that predicts all the outcomes. Since the outcomes have equal weight in the model, I looked at the frequency of the predictors. The variables of perceived English proficiency, discrimination and type of institution were predictors for two outcomes with p value < .05. I also looked at the variables that were significant at p value <.1 since the nature of this study is exploratory.

To illustrate the summary of the relative importance of predictors and the outcomes, below there is a table.

Table 4.37
Predictors and outcomes

Outcome	Significant predictors with p value <.05			Significant predictors with p value < .1
Academic satisfaction	Institution	English Proficiency		
Attitudes	Gender	English Proficiency		
Integration	Institution	Discrimination		Age
Strategies	Academic discipline	Father's level of Education	Social support	Self-reported GPA
Student relationship with American students	Discrimination			Gender and Social support
Student relationship with other professors	Self-reported GPA			
Student relationship with academic advisor				Social support

Interestingly, a pattern seen in this study is the relative unimportance of some predictors. Gender only showed to predict one outcome in this model and as near significant predictor for student's relationship with American students. As expected, discrimination predicted the student's relationship with American students and integration. Social support only predicted the outcome of strategies and student's relationship with American students and student's relationship with academic advisor. Self-reported GPA also predicted only one outcome related to the student's relationship with other professors.

It is clear from the data in this study that the acculturation of Mexican doctoral students in the United States is shaped by their perceived English proficiency, gender, discrimination and type of institution. Nevertheless, perceived English skills can facilitate interaction with American countries and degrees perceived discrimination. Further, the level of perceived English proficiency can facilitate participation in programs in place to support international doctoral students and can facilitate the utilization of other resources that help cultural adjustment of

international doctoral students. Lastly, perceived English proficiency can help students to integrate not only to the university, but the local community and to deal with day to day problems.

Other factors in the findings

Cultural influence from other countries

Although this study looked at acculturation as the cultural adjustment to the United States, an interesting finding was related to the influence of students' learning experience from other cultures. A participant stated the following in the online survey:

> Besides the American culture, I have had the opportunity to learn about the culture of other countries because of my colleagues and friends from Colombia, Turkey, Argentina, Germany, Kuwait, Egypt, Chile and Saudi Arabia. I am happy to share with them culture, customs and everyday worries. I feel more influenced by them than by the American culture". Further, a student commented that he/she had close friendship with colleges from China, South Korea, Turkey and India.

Another student pointed out that "More than the contact with the American culture, I value the contact with the multicultural environment at Silicon Valley". In addition, one Mexican doctoral student said "In my experience, it has been valuable the contact with other international students in the U.S. That is a great advantage because the ethnic and cultural diversity that international students bring".

Complexity of the relationship with academic advisor

The online survey showed that most of the respondents had a positive relationship with their academic advisor. 232 participants answered this question. 55.2% (118 participants) of the total rated their relationship with their academic advisor as excellent. 37.1% (86 participants) of

the total rated their relationship as good. 7.3% (17 participants) rated their relationship as regular and only 0.4% (1 participant) rated his/her relationship as bad.

The relationship with the academic advisor is a strong component of how international students succeed academically. The advisor – student relationship is not limited to the meetings a doctoral student may have. It is true that probably the more often the student meets with the academic advisor, the better interaction and the better understanding of the problems and challenges an international doctoral student has. However, the relationship is more complex. Following, there is an example of a positive relationship with an academic advisor. The respondent illustrated the different ways where she felt understood and supported by her academic advisor:

> My academic advisor is bilingual and she is interested in doing research in Latin America. That has made the difference for me because if at some point I am not able to communicate, I simply speak Spanish. On the other hand, she understands my frustrations. I do not want to be an arrogant saying that I am an excellent student, but I believe that I have been able to manage the pressure to study in another language, to live far from home, to study, and to be a half-time research assistant. In addition, I am a volunteer in a Latin student organization and I am greatly achieving the academic requirements. I believe that all that makes me a good student".

To illustrate another example of the complexity of the relationship between student and academic advisor, a participant commented he/she had two academic advisors, one of them was out of the university and the communication is via e-mail and Skype. Although this may be difficult, the student perceived the relationship as excellent because he/she could contact them at any time when there is a question or concern. In addition, one of the respondents explained that

at the beginning there was difficult the relationship with his academic advisor. He had to change advisor twice to finally feel comfortable with the relationship and now the work between both of them is excellent.

Source of funding

Another interesting finding from this study was related to the students' source of funding. As was mentioned before, participants were sponsored CONACYT students. A question was asked in the online survey regarding the different sources of funding to support their doctoral program. Participants were asked to select all the options that applied to them. One of the options was the CONACYT scholarship. 219 participants selected this option. However, we know that the list was based on current sponsored students, including all of the 235 participants. Interestingly, a lot of participants had funding sources other than solely the CONACYT scholarship. 110 participants reported a research assistantship as a source of funding in addition to the CONACYT scholarship. 119 participants indicated a teaching assistantship was a source of funding in addition to the CONACYT scholarship. 68 participants reported that family funds were necessary in addition to the CONACYT scholarship. 49 selected work as an additional source of funding and 101 participants selected savings as an additional source of funding.

I expected most of the participants would have only a CONACYT scholarship. This findings illustrate the financial struggle international students have, even for international sponsored students, to meet the financial obligations that comes with studying in the United States.

Though an outsider may see such a funding package such as CONACYT as generous, the survey results clearly show that the scholarship alone is insufficient to meet the needs of most students.

Family

Part of the comments regarding relationships explained that some Mexican doctoral students had family (spouses and children); therefore, they tried to spend their free time with them. Regarding participants' parental status, 223 participants responded to this question. 74.0% (165 participants) did not have any children and only 26.0% (58 participants) indicated they had children. The question remains of how the process of acculturation might differ between those students with children and those students without any children; however, a participant commented on how being a mother affects her academic performance.

> My academic performance is good, but I believe it could be better if I did not have any children. It is difficult to take care of the kids and be a single mother. I am fortunate to have friends and neighbors that help me out. My family from Mexico visits me every year and they help me a lot too when they come.

Chapter summary

Based on Berry's model of acculturation (1997) a construct of acculturation was built to examine the acculturation of Mexican doctoral students in the United States. This study integrated Berry's framework to initiate the analysis of the complex process of looking at factors that affect Mexican doctoral student's acculturation. Seven outcomes and eleven predictors were selected to develop a model. The analysis of the data suggests there is some significant correlation among the seven outcomes. Further, results shows that different variables predict different outcomes and the importance of each outcome is hard to measure because all the outcomes in the model are equally weighted. Nevertheless, perceived English proficiency and gender were found to be important predictors of academic satisfaction and self-confidence to overcome obstacles and finish the doctoral program. Further, differences in gender were found in

student's acculturation. Other findings included the cultural influence from other countries, source of funding and the family status of the participants. In the next chapter, I will discuss the findings and explore the implications this has for policymakers, educators, and government officials.

CHAPTER FIVE

DISCUSSION AND IMPLICATIONS

In this final chapter, I review the purpose of the study, the research questions, and methodology used in the work. I then discuss the results, limitations and implications of the study. The chapter concludes with directions for future research as well as practical recommendations and conclusions.

Overview of the study

The current study investigated the acculturation experience of Mexican doctoral students in the United States. The data analysis for this study looked to answer the following research questions: What factors affect the acculturation of Mexican doctoral students? Does the degree of acculturation differ by gender, academic discipline, destination, and social class? For this research, an online survey was conducted from September to December of 2012 through survey monkey. Participants were Mexican doctoral students sponsored by the Mexican National Council of Science and Technology (CONACYT) in the United States to investigate the experiences of this understudied population. CONACYT is the Mexican institution that supports students abroad. The response rate for this study was 52%. Of the 450 Mexican-sponsored doctoral students that were contacted, 235 completed the online survey.

By and large, doctoral students from Mexico studying in the United States indicated they had a positive experience while studying in American institutions. About 92% indicated their experience was either good (119 participants) or excellent (95 participants). A bit less than 8% rated their experience as average; only one participant indicated his/her experience to be bad. According to Perucci & Ho (1995), "positive experiences of international graduate students are influenced by a number of individual and social resources" (p. 507). Following, I discuss

significant findings of this study regarding relevant factors that affect Mexican doctoral students' acculturation in American institutions. In addition, in this section I discuss the findings and their relationship with previous research.

Discussion of the results

1. Mexicans students faced similar challenges to other international students in the acculturation to their doctoral programs in the United States. Similar to other international graduate students, Mexican doctoral students face challenges by virtue of being foreigners. Among those, English proficiency, perceived discrimination and the lack of local social support were found to be some similar challenges to the acculturation of international students**.**

English proficiency

Despite the fact that only 10 % of Mexican doctoral students perceived their English proficiency as low, findings in this study suggests that English fluency was a challenge even for those participants who rated their English as good or excellent. This finding is consistent to previous research. Poyrazli and Kavanaugh's (2006) study on the international graduate students showed that mastering English skills was one of the major difficulties in their acculturation. Along the same lines, Trice (2004) found that communicating well in English was positive related to international student's acculturation. A possible explanation for the conflict between participants' perception and the findings of this study may be that participants' perception of their English is fluent in some aspects of English such as reading and writing and they may have not considered speaking in class or doing dissertation research. Another possibility could be that their perception of English was not accurate. A t-test analysis founded that self-perceived level of English was positively related to the self-confidence. Maybe, participants exaggerated about their perception of English proficiency due to their high level of self-confidence.

Discrimination

This study looked at self-perceived discrimination as a factor that affected Mexican doctoral student's acculturation. Students choose from a 6 item Likert Scale about their agreement or disagreement as to how they felt they were treated differently by other students based on their race and/or their nationality. Literature shows that perceived discrimination affects student's cultural adaptation and academic performance by increasing the level of acculturative stress (Wei, Heppner, Mallen, Ku, Liao& Wu, 2007). Further, Berry's (1997) model of acculturation included discrimination when the author illustrated one of the four dimensions of acculturation. In this model, a student who experienced discrimination would be placed in the dimension of marginalization. Here, the student would experience a lack of interest in the American culture.

Although 65.5% of participants disagreed at some level with the statement that they perceived themselves victims of discrimination, findings in this study showed that discrimination was a challenge faced by the participants. Discrimination determined the outcome of integration and student's relationship with American students. There may be several reasons for this conflict. First, participants may not want to show their true feelings about being discriminated against because it is perceived as a sign of weakness or a lack of success in their doctoral program. Second, most of the respondents were in their third and fourth year of their doctoral program. Perhaps students who were advanced in their program may have been able to learn how to navigate the American system and therefore, to understand better how to manage self-perceived discrimination. However, research shows that discrimination is not "easily removed" (Trice, 2004, p.685).

Social support

The variable of social support relates to the agreement or disagreement on the participants communication with family and friends back in their home country of Mexico. This study is consistent with other studies where contact with one's own culture (family and friends from home country and international students in American institution) was a factor in social support as a helpful way to decrease academic stressors (Misra, Crist, & Burant, 2003). Other studies have measured social support based on the number of people from their country (compatriots) to whom they can turn when they need help. Also, social support has been measured with questions related to how satisfied participants are with the support they received from their compatriots (Sarason, Sarason, Shearin, & Pierce, 1987). Berry (1997) stated that students who may experience isolation may have high levels of social support from international students from their same country. International students in the United States who just socialize with international students from their same country, speak their own language and do not socialize with American students are more likely to have poorer social adjustment (Poyrazli et al, 2004).

Similar to the experience of other international students, Mexican international students showed that they maintained a high level of social support. In this study, 96.6 % of Mexican doctoral students in the United State agreed that they communicated with family and friends back home on some level. However, international students must build a new social network in the United State to adjust to the new culture. The findings in this study showed that the participants did not have much interaction with American students, which according to Poyrazli et al. (2004), it can affect the student's cultural adjustment.

In this study social support was found to predict significantly the outcome of strategies (p=.000) and the outcome of student's relationship with their academic advisor (p=.003). In other words, students who communicate with family and friends back home frequently had a significant difference in identifying variations from values from their home country and American culture. Further, Mexican doctoral students who communicate with family and friends back home frequently had a significant difference in their relationship with their academic advisor.

2. Findings in this study showed that some participants' acculturation experiences are best examined through the student's nationality rather than a generic international student label. The sample had a unique characteristic regarding the participant's social class status. The level of parental education for recipients of CONACYT grants was much higher than the average educational attainment in Mexico. According to the Mexican National Institute of Statistics and Geography (INEGI), the average educational attainment in Mexico by 2010 was 8.6 years (INEGI, 2012). About 70% of participants in this study indicated their father attained at least a college-level education. Moreover, about 55% of the respondents indicated their mother with at least a college-level education. More research is needed to determine whether the same pattern holds true for CONACYT sponsored students studying doctoral programs in other countries and if data from previous cohorts of CONACYT scholars show a level of parents' education superior to the general population of Mexico. Such results raise a serious question about such academic support scholarships and who benefits from them. While my own case demonstrates that even lower-income Mexicans can successfully compete for these scholarships, the results may also suggest that there is a need to consider how to increase participation by lower-income groups. Nonetheless, in the last couple of years, the CONACYT program has established different

strategies in an effort to diversify participants. Now, when they announce their annual competition for the scholarships, CONACYT opens additional announcements for scholarships abroad for every Mexican state, instead of having only a single announcement. This new strategy ensures to have applicants from all the country. Another finding reflective of the Mexican culture in general is the underrepresentation of Mexican female doctoral students. More males than females participated in the online survey. This result is expected as this distribution is consistent with the total population contacted to participate in the survey. Simply put, for many segments of Mexican society, doctoral-level study is considered largely to be the domain of males. The Mexican culture influences the expected roles of females and males in the Mexican society. Males have higher levels of education than women, who are often expected to get married early and quit studying. According to the 2010 Mexican census (INEGI 2013), the percentage of Mexicans 15 years-old or older who quit school was higher for females than males. More research is needed on the role of the impact of Mexican culture on the underrepresentation of Mexican doctoral female students in the United States. Moreover, although participants from this study had a full scholarship from CONACYT, results showed that most of them had additional sources of funding to support their doctoral studies. This finding suggests that a single source of support may be insufficient for this particular population and that a scholarship does not guarantee the student's success, persistence or graduation. It is worth noting that CONACYT requires sponsored students to be enrolled as full-time students but does not prohibit them for taking other forms of funding or seeking outside employment. These results show that participants may be devoting more time in additional work to support themselves and their families financially. This is quite consistent with the experiences of many domestic students.. However, it could cause a conflict with CONACYT's view. It is possible that CONACYT would

expect Mexican sponsored doctoral students to commit themselves more to their doctoral program rather than spending their limited time in other activities. Furthermore, it is possible that the CONACYT sponsorship was the only way for Mexican participants to study a doctoral program in the United States because they had some kind of financial assurance for at least three years in their doctoral program, which it may be different for some domestic students who have assistantships on a semester or an annual basis. However, it also is relatively incomplete, as three years is not generally sufficient to complete a US doctoral program, Therefore, the experience of CONACYT students would likely vary from those who study on competitive endowed fellowships, such as some of those offered by Michigan State University's College of Education like the Erickson Research Fellowships, where recipients are guaranteed five years of funding that essentially covers the entire duration of their studies.

The main destinations of Mexican doctoral students were institutions in states in the south and west region of the United States. This preference is likely because of the proximity to Mexico, the opportunities offered by US border institution such as in-state tuition and the larger and more prolific populations of Hispanics in these states. In addition, it is easier for participants to travel and visit their family when they study in American states close to Mexico. Heavy immigration and large numbers of Spanish-speakers may make states such as California or New Mexico seem more appealing to the Mexican students. For example, for this study, The University of Arizona was the institution with the highest number of respondents with 13 participants, followed by Arizona State University with 10 respondents. There is a higher possibility to find a Mexican student in these institutions than in one from the northeast or the midwest region such as The University of Maine or The University of Michigan. Further research is needed to examine Mexican doctoral students' choice of the American institution,

especially the roles of institutional proximity versus the quality and relevance of the doctoral program. Was the institution chosen for the reasons above, or was the institution chosen for being the best match for their interest in the doctoral program?

Regarding the relationship with their academic advisor, participants expressed a preference for academic advisors who speak their language, who were interested in Latin American issues, and who were sensitive to other cultures. There may be a greater possibility of finding a faculty member who speaks Spanish and is used to interacting with Mexican students in American institutions in the south and west region with a larger Hispanic population than institutions in the northeast and midwest region. These findings validate the importance of examining international students'' experiences by specific country, in this case Mexico, when considering the acculturation of international students.

3. There were gender differences in the acculturation of Mexican doctoral students in the United States. Although the questions in the online survey were not designed to only detect gender differences, but to examine the overall acculturation experience of Mexican doctoral students, results in this study reveal gender differences in two of the most relevant outcomes in the acculturation of Mexican doctoral students in the United States. T-test results showed significant differences on academic satisfaction ($p = .003$) and attitudes ($p = .000$) by gender. Mexican female doctoral students had a lower score than Mexican male doctoral students on their academic satisfaction in American institutions. This finding is consistent with Perrucci and Ho (1995) and their previous study where males were more likely to be satisfied with their academic program. Along the same lines, other studies found female international students to have higher difficulties than males adjusting to the new cultural and academic environment in the host country (Manese, Sedlacek, and Leong, 1988; Fletcher and Stren, 1989).

Regarding attitudes, Mexican female doctoral students showed lower scores in their self-confidence to overcome obstacles and finish their program than male doctoral students in the United States. There may be several reasons for the gender differences in self-confidence for Mexican doctoral students in the United States. First, the level of educational attainment in Mexico is higher for males than females and this may affect their confidence. For example, it was shown previously that there was an underrepresentation of female doctoral students in the United States. Second, power and authority in a machismo society such as Mexico comes usually from male figures and women are used to obeying and not giving an opinion. Growing up in this context may cause a lack of confidence in themselves and in other women. Third, although society has progressed in policies to create gender equality, the reality is that equality between male and women still does not exist.

4. There were other unique predictors in the design of this study such as type of institutions, familiar educational background and academic discipline to determine the acculturation of Mexican doctoral students in the United States.

Type of institution

Different from other studies, participants in this research were not just from one institution, but 98 different institutions of higher education across the United States. For the purpose of the analysis of this study, the institutions were classified as public and private. 168 participants were pursuing doctoral degrees in public institutions representing 71.5% of the total population. Further, 67 participants were in private institutions that represented 28.5% of the total population. Results from a t-test analysis showed that there were significant differences in the type of institution and the outcome of integration (p=.000) and strategies (p=.023). Mean differences showed lower scores for integration for students in private institutions. In addition,

Mexican doctoral students from private institutions showed lower mean scores identifying differences between values from their home country and the American culture. The findings in this study can add to the research regarding international students in the United States looking at differences among the destinations based on public and private American institutions.

Father's level of education

College was the father's highest level of education for 39.6% of the participants of this study, while 17.9% had a master's degree and 13.2% had a Ph.D. Overall, 70.7% of participants reported their father had at least a bachelor's degree. That is a large percentage that does not reflect the reality of Mexican society, where the average educational attainment is 8.6 years (INEGI, 2012). In addition, an analysis of variance was done for the variable of father's level of education. The results showed that there was a significant difference between father's level of education and the outcome of integration ($p = .017$). Further research should be done to determine how father's level of education impacts how the student values having contact with the American culture.

Mother's level of education

College was also the mothers' highest level of education for 31.9% of the participants of the study, while 14.5% of participants' mothers' had a master's degree. Technical school was the third highest level of education with 14.0%. In contrast to the father's level of education, only 9.4 % report mothers with Ph.D. degrees. More fathers of CONACYT doctoral scholarship recipients had attained Ph.D.s than had their mothers. The participants' educational background distribution relates to the gender roles expectations in Mexico. According to the National Association of Universities and Higher Education Institutions in Mexico ANUIES, 3,033

Mexicans received a doctoral degree in 2011. Of these students, 1,682 were males and 1,351 were females (ANUIES, 2011).

Academic discipline

For this study, the variable of academic discipline was selected as one of the predictors for Mexican doctoral students' acculturation. The variable was categorized based on the Biglan's classification (1973). Biglan (1973) classified academic disciplines in three dimensions. The hard/soft dimension, the applied/pure dimension and the life/nonlife dimension. For this investigation I condensed to four: Hard-pure, Soft-pure, Hard-applied, and Soft-applied. 218 participants answered the question about academic discipline on the online survey. 74 participants were in Hard-pure academic disciplines. 53 Mexican doctoral students were in Soft-pure academic disciplines. 63 Mexican doctoral students were pursuing doctoral programs in Hard-applied academic disciplines, while just 28 Mexican doctoral students where in Soft-applied academic disciplines. A one-way ANOVA found no statistical differences between the variable of academic discipline and the outcomes. I expected to find that academic discipline is a relevant factor in the acculturation of Mexican doctoral students. However, academic discipline was found to determine only the outcome of strategies in this research.

5. Berry's model of acculturation weighted acculturation outcomes equally. However, the findings suggest that this assumption may not be the case for this study. Based on Berry's (1997) model of acculturation, the model for this study included seven outcomes. The model for this study equally weighted acculturation outcomes. This is consistent with previous research on acculturation models delineating the key factors impacting on the acculturation process (Berry, 1997; Bourhis et al, 1997; Mendoza & Martinez, 1981; Rasmi, Sadfar & Lewis, 2009; Safdar, Lay and Strethers, 2003; Ward, Bochner and Funham, 2001). It is possible that some outcomes

carry more weight with Mexican international students than others, and that this result may vary by the nationality of the student. Given the equal weight for each outcome, further research should be done regarding the differences on key factors that affect the acculturation of international students. Following, I discuss findings on each of the outcomes.

Academic satisfaction

The data showed that academic satisfaction was highly relevant to Mexican doctoral students. Overall, participants indicated satisfaction with their academic experience (M= 5.2340). This finding is consistent with previous research about international students and academic satisfaction (Trice & Yoo, 2007; Perrucci & Hu, 1995). Perruccii and Hu (1995) stated that "students who express satisfaction with their academic experiences and their social life in the community have probably succeeded in overcoming the stress associated with new demands of being a student and sojourner" (p. 492).

Although participants agreed they had a generally positive academic experience, a t-test analysis showed that females enjoyed lower in academic satisfaction than male participants. This finding is consistent with the results of Perruci and Hu (1995), where male students were more likely to be satisfied with their academic program than females. This result is an important contribution to gender studies and to the research on the experiences of international students in the United States. More research should be done to determine the nature of the differences of academic satisfaction between female and male Mexican doctoral students.

In this study, academic satisfaction was predicted by **type of institution** and perceived **English proficiency**. This finding echoes previous research about the relationship between English proficiency and academic satisfaction. International students who achieved higher

English skills have been found to enjoy greater success in their academic program (Wang, Martin & Martin, 2002; Trice, 2004; Cowne & Addison, 1996). Regarding type of institution, most of the research on international students has used a single institution. Little research has focused on the impact of type of institution and academic satisfaction of international students in the United States. Contrary to this study, discrimination has been shown to determine academic satisfaction (Perruci and Hu, 1995). However, that was not the case in the acculturation of Mexican doctoral students in the United States. Moreover, I expected self-reported doctoral GPA to be significantly related to academic satisfaction. Although the participant's doctoral program GPA was not a significant predictor of academic satisfaction, there may be an indication where the increase in the participant's doctoral GPA boosts the participant's academic satisfaction. From the results of this study, on the one hand, the average of the participant's doctoral program GPA was 3.715. About half of the participants had a GPA above 3.76. On the other hand, the average for academic satisfaction was 5.2340 of 6.000. Maybe, if more participants had doctoral GPA closer to 4.0, they would have reported higher academic satisfaction, with an average closer to 6.0. The discrepancy between the results of this study and previous research regarding predictors of academic satisfaction may be associated to the selection of the acculturation model for this study.

Attitudes

Mostly, participants seemed to have the self-confidence to overcome obstacles and finish their doctoral program (attitudes: M = 5.3248, SD = .8547). Attitudes were positively related to three other outcomes: strategies, student's relationship with academic advisor and student's relationship with other professors. Gender and perceived English proficiency were significant predictors of attitudes. This finding is consistent to previous research. "Female international

students place a greater emphasis on their academic concerns (and) question their self-efficacy (more)… than do men" (Lee, Abd-ella, & Burks, 1981' Manese, et al., 1988, as cited in Andrews, Herman & Osit, 1999). Therefore, gender has been linked to self-confidence in previous studies. Again, perceived English proficiency played an important role in the acculturation of Mexican doctoral students in the United States. Perceived English proficiency was found to be a predictor for the outcome of attitudes (self-confidence). This finding is not entirely surprising and is consistent with literature regarding English proficiency and self-confidence. Andrews, Herman, & Osit, (1999) found that English skills were positively related to self-confidence to participate in classrooms and interact with faculty members. Further, Barratt and Huba (1994) and Trice (2004) linked English proficiency with the ability to build social relationship with American students.

Integration

Integration referred to the extent to which participants value the contact to the American culture. This outcome was particularly important since it is the ultimate measure of acculturation according to Berry (1997). I expected that participants who were totally integrated were going to reach the optimum stage of acculturation. In this study, participants generally agreed regarding the value they placed on having contact with the American culture (integration: M = 5.0214, SD = 1.05816). This result is not too low, but I expected this finding to be higher given the particular population for this study and the closer proximity of Mexico to the United States. There is a big influence of the American culture around the world but particularly in Mexico, the United States has an economic impact through jobs in Mexico and the relationship between dollars and pesos (the Mexican currency). Moreover, the cultural impact through music, sports, and entertainment is substantial. Thus, it is possible that participants may have been in the

United States before (vacation, work, business or shopping), that they may have had contacts with other Americans before, or that they may have worked for an American company before.

Integration was significantly correlated with the outcomes of strategies and the student's relationship with American students. Both of the outcomes are related to valuing the American culture in some way, so this relationship was expected. Regression analysis in this study demonstrated that type of institution (β = -.179, p= .014) and discrimination (β = -.223, p=.003) significantly predicted integration when all eleven variables were included. This finding is consistent with previous research. Trice (2004) stated that international students who perceive little discrimination have more interaction with American students. Further, the author mentions that discrimination as well as language and cultural barriers are not "easily removed" (p. 685).

Strategies

Strategies referred to the ability for participants to distinguish between Mexican values and American values. Overall, participants agreed to identify differences between the values of their country and the values of the American culture (strategies: M = 5.6009, SD = .62243). Pearson correlation analysis showed strategies were not significantly correlated with any other outcome. Academic discipline, father's level of education and social support combined to predict strategies. Self-reported doctoral program GPA was found to be a near significant predictor for strategies as well. Further research should be done to determine how academic discipline, father's level of education and social support impact the outcome of strategies.

Student's relationship with academic advisor

Participants in this study generally agreed they had a positive relationship with their academic advisor (relationship with academic advisor: M = 3.4698, SD = .65064). Literature

shows that relationship with the academic advisor is important for the student's success (Charles & Steward, 1991; Trice & Yoo, 2007). Surprisingly, in the regression analysis none of the predictors was significantly indicative of the student's relationship with his/her academic advisor. A possible explanation for these results may be the differences between previous research and this study. The advising relationship has been seen in the literature as a predictor for the adjustment and success of graduate students. Rice et al (2009) state that "the quality of the advising relationship is a key predictor of adjustment and success of graduate students (p.376). In contrast, based on Berry's model (1997), this study considered the student's relationship with the academic advisor as an outcome of acculturation. Thus, that may be the reason why the student's relationship with their academic advisor had no significant predictors.

Student's relationship with other professors

By and large, participants agreed that they had a positive relationship with other professors in their doctoral program (relationship with other professors: M = 3.1983, SD = .60617). None of the other outcomes was significantly correlated with this one. Self-reported doctoral program GPA significantly predicted student's relationship with professors when all eleven variables were included.

Student's relationship with American students

It was clear that participants in this study had mixed feelings regarding their relationship with American students (relationship with American students: M = 2.0862, SD = 1.51225). This finding is somewhat consistent with literature regarding international students' interaction with American students. In her study, Trice (2007) found that "Eastern Europe, South Asia, and Latin America had an average level of contact (compared to other international students who showed

higher level of contact) with American students and were moderately concerned about these interactions" (p. 681). This result shows that it is important to look at the interaction of international students with American students as well as the level of concern international students have regarding their interaction with American students. Furthermore, discrimination often dictated students' relationship with American students. Previous research has shown that higher levels of perceived discrimination can affect student's acculturation as well as their relationship with the host community (Poyrazli & Lopez, 2007). Gender and social support were other significant predictors for this outcome as well. How gender and social support predict student's relationship with American students warrants further investigation.

Summary of the findings

This study found that Mexican doctoral students faced similar challenges than other international students such as perceived English proficiency, discrimination and social support. Further, some of the findings in this study were related to the sample demographics. The sample showed an underrepresentation of female Mexican doctoral students in the United States. The preferred destinations for Mexican doctoral students were American institutions in the states closest to the border with Mexico. Surprisingly, participants had additional sources of funding besides their CONACYT scholarship, which suggests the struggles sponsored students have financially. I also observed that participants appreciated academic advisors with similar interests regarding Latin American issues and sensitivity to issues of culture and diversity. Another key finding in this study was related to gender differences. Mexican female doctoral students showed lower academic satisfaction and self-confidence than Mexican male doctoral students.

Moreover, I found that there was not a single variable that predicted the acculturation of Mexican doctoral students in the United States across the various outcome measures of

acculturation. Predictors were considered from a p-value of .05 or lower. In addition, other significant predictors were those with a p-value between .05 and 1. Academic satisfaction was determined by perceived English proficiency and type of institutions. Gender and perceived English proficiency predicted the outcome of attitudes. This would suggest that the level of perceived English is a relevant factor of acculturation for Mexican doctoral students. Integration was determined by type of institution and discrimination. Further, the outcome of strategies was determined by academic discipline, father's level of education and the variable of social support. The outcome of a student's relationship with their American counterparts was largely determined by discrimination. Finally, self-reported doctoral GPA predicted student's relationship with other professors besides their academic advisor. Interestingly, gender only was shown only to predict two outcomes in this. Furthermore, there were other significant predictors detected in the study with p-vale between .05 and 1. Age was a significant predictor for the outcome of integration. Self-reported doctoral GPA was a predictor for the outcome of strategies. Gender and social support were significant predictors for the student's relationship with American students. Lastly, social support was a significant predictor for the student's relationship with academic advisor. Since this investigation was an exploratory research, the significant predictors with p-value between .05 and 1can give more information about some potentially relevant factors that affect the acculturation of Mexican doctoral students in the United States.

In sum, the findings above show that the acculturation of Mexican doctoral students in the United States is shaped by their perceived English proficiency, gender, discrimination and type of institution. Contrary to what I expected, perceived English proficiency seems to be one of the most relevant factors for the outcomes in the acculturation of Mexican doctoral students in the United States. I expected other predictors to have more impact in the acculturation of

Mexican doctoral students such as gender, academic discipline, social class and destination. However, it makes sense the importance of perceived English proficiency in the acculturation of Mexican doctoral students in the United States. Perceived English skills can facilitate interaction with American students and decrease perceived discrimination. Further, the level of perceived English proficiency can facilitate participation in programs in place to support international doctoral students and can facilitate the utilization of other resources that help cultural adjustment of international doctoral students. Lastly, perceived proficiency can help students to integrate not only in the university, but the local community and to deal with day to day problems.

Limitations

There are several limitations to this study. First, the sample was not randomly selected. Participants in this study represent Mexican doctoral students in the United States who were sponsored by the Mexican National Council of Science and Technology in the fall semester of 2012. Mexican sponsored students from CONACYT represent a part of a particular population of international sponsored students that is worth considering. This research explored the experience of this understudied population. This study may or may not reflect the acculturation experience of other international doctoral students in the United States or other Mexican doctoral students in other countries.

Second, the instrument used self-reported information, which may introduce some bias in the answers. Since the students were CONACYT sponsored students, respondents expressed concern that their individual replies could be reported to CONACYT and that this may have repercussions on them or their scholarship. I assured them that the information was confidential and that this study was not in any way affiliated with or supported by CONACYT.

Third, the data was collected through an online survey. The instrument was selected due to the low cost, the easy of administering the survey efficiently to a variety of students that are scattered throughout the United States and the belief that participants would have access to internet because they were doctoral students. Also, the internet survey may be a way to answer the survey in a private manner in an environment in which most graduate students feel comfortable. Perhaps some potential participants would have preferred a different kind of instrument and decided not to answer an online survey. Further, answers from the respondents for this study may be different from those students who decided not to answer the survey.

Implications for this study

Implications for practice

I expect that the findings in this study could help faculty and administrators in American institutions that interact with Mexican doctoral students to develop an awareness of the challenges for this particular population. Given that positive relationship with their academic advisor contributes to the student's success and acculturation, I expect faculty members to understand the challenges and experiences of Mexican doctoral students and create opportunities for interaction with other students to encourage them to succeed and finish their doctoral program. American institutions and the Mexican National Council of Science and Technology, CONACYT, should actively engage in the acculturation of Mexican doctoral students through the creation of programs that help students improve their English skills. They should also encourage the development of, and student participation in, programs that support international students and foster interaction with faculty members and American students.

Implications for policy

Given that the many contributions of international students positively impact U.S. higher education not only academically, but economically, socially and culturally, policies aiming to help and support international students should be a priority in the American institutions' agenda. This study can inform policy in several ways. The data suggests that perceived English proficiency was a significant factor that predicted the acculturation of Mexican doctoral students in the United States. American institutions could intentionally create policies and invest resources to help strengthen the English skills of international students. American institutions could establish English as a Second Language programs and summer programs for Mexican doctoral students and their families. Further, not only could they establish the programs, but also, faculty members and administrators could encourage international doctoral students to participate. In addition, the perceived English proficiency may also warrant a more careful policy by the CONACYT program and American institutions in their selection process.

Further, American institutions could create policies to improve communications with and further their relationship with the Mexican National Council of Science and Technology. American institutions could have a particular staff member who is assigned the specific duties of being the liaison with the CONACYT and collaborate in the creation of more agreements to increase the participation of Mexican doctoral students in the United States, as well as to monitor the experience of the current Mexican students who are already studying in the U.S. American institutions should establish policies to create awareness of the challenges that this understudied population of sponsored international students face. Also, how the context of international students from Mexico impacts their academic experiences and achievements needs to be examined.

The National Council of Science and Technology, CONACYT, could create policies to support Mexican doctoral students while they are pursuing their program. Specially, CONACYT should establish programs to increase the participation of Mexican female in doctoral programs in the United States. In addition, there should be strategies to increase Mexican female self-confidence to overcome the obstacles and finish their doctoral program and improve their academic satisfaction. Finally, there is an implication for CONACYT to create policies to increase the interaction among the Mexican doctoral students in the United States and build a support network.

Future research

The findings in this study suggest areas for future investigation. This study could be extended by comparing the acculturation of Mexican doctoral students in the United States and other countries with similar characteristics of the American culture. Another possible further study could be regarding the construct of acculturation built based on Berry's model of acculturation (1997). A future study could explore the acculturation of Mexican doctoral students through another theoretical framework utilizing a different model. Finally, a future research could add predictors to the model such as marital status and parental status.

Given the gender roles in Mexico, this model could allow us to look at how the role of gender and being married and being a parent predicts acculturation in Mexican doctoral students in the United States. Although not included in the original study, a preliminary analysis suggests that these may be significant factors.

Recommendations

There are several recommendations based on the findings from this study. They are divided in recommendations addressing the research questions for this study and recommendations drawn from the literature.

Recommendations addressing the research questions

There could be new ways to measure English proficiency in future research regarding the acculturation experience of international doctoral students in the United States. The findings in this study showed conflict in how students perceived their English proficiency and the outcomes. Therefore, future research should look at different ways to measure English proficiency other than the student's self-perception.

There could be new models to look at factors that affect the acculturation of Mexican doctoral students in the United States that does not see the outcomes equally. Traditional acculturation models equally weight the different outcomes; however, a model that addresses the importance of each outcome could be a more effective way to look at the factors that affect the acculturation of international doctoral students. It is clear that acculturation is an important element for the student's success.

American institutions and the US government might improve and maintain their efforts in attracting talented Mexican international students to academic programs in this country. Although the US is the leading country for hosting international students, institutions and the US government could increase the recruitment of talented internationals students by providing scholarships, especially to qualified low-income international students. Institutions' admissions policies could ensure the enrollment of a diverse student body, including international doctoral students from Mexico.

The CONACYT program might revisit parts of the scholarship program to address issues regarding sufficient funding, gender differences and diversification of applicants. CONACYT is a key organization and the most important effort of the Mexican government to support Mexican students to study doctoral programs abroad. It benefits not only the Mexican students, but also aids the Mexican society in the development of human capital. However, there are several important points to address regarding their scholarship program. First, the CONACYT program could revise the level of funding for Mexican students abroad, considering such factors as inflation and cost of living of the city where the student is pursuing his/her doctoral degree. Specifically, Mexican doctoral students in the United States find the level of funding is insufficient to make ends meet. Second, the CONACYT program could look at the differences in gender and engage in outreach to increase female participation in doctoral programs and provide support need to increase women's self-confidence and academic satisfaction. Third, CONACYT could look at the parents' educational background of their scholarship recipients and diversify their strategies to recruit members of less privileged backgrounds by creating a more accessible application process and by promoting the CONACYT scholarship program throughout Mexico.

Recommendations drawn from the literature review

American institutions might take a close look at the experience of sponsored international students from developing countries. American institutions could address the challenges of this understudied population and create the support needed for them to succeed regarding diversity training for faculty members, American students and administrators, language classes, counseling, and other services that are designed to foster an environment that respects global diversity. In addition, based on the findings, sponsored students still struggle financially; thus, American institutions can make an effort to offer additional scholarships and/or assistantships.

American institution might evaluate the effectiveness of programs, offices and services for international doctoral students. Institutions could implement a survey system to evaluate the experience of international doctoral students in the U.S. and the use of university resources. In addition, institutions could create policies related to training staff that work with international doctoral students, so they have an understanding of the students' differences. For example, there should be trained facilitators at the writing center with specific expertise in working with English as a second language students. Staff in the Office of International Studies should be trained in methods of working with specific populations.

American institutions could collect data and track international students after they finish their academic program. Institutions might implement a system to follow up on its graduates and have information available about completion rates divided by international students, especially in graduate school. This information would be helpful to know what students stay in the United States and what students go back to their home country.

The U.S. government might implement a national policy to attract Mexican international students to this country. The U.S. government might work with the Mexican government and especially CONACYT to give this issue high priority. The U.S. government could work towards the goal of making the visa process easier. Also, the government might invest in cultural exchanges programs such as Fulbright and language training such as Foreign Language and Area Studies Program FLAS to promote the mobility of students and the good will among nations. Such programs have helped advance research and teaching around the world.

American institutions and the Mexican National Council of Science and Technology, CONACYT, might actively engage in advocating for Mexican international students. Institutions might be informed of the current trends of immigration policies that affect international students.

Further, American institutions and the CONACYT program could utilize their resources to support, advocate and represent Mexican international students to make their stay comfortable and productive and contribute to the successful student's graduation.

American institutions and the CONACYT program could support and guide this energetic community of scholars. While reading through the answers and comments on the online survey, I had the feeling that participants were eager to help and to interact with other Mexican doctoral students in the United States. There is a lack of programs to support and guide this understudied population. A single facebook group of CONACYT sponsored students is not enough. There could be policies in place not only from the CONACYT program, but also from American institutions to create a support group for Mexican doctoral students in the United States. In this group, students could share experiences, post questions regarding scholarship procedures, have a classification of publications by Mexican doctoral students, job opportunities, additional funding opportunities, conference opportunities, and information about where previous Mexican sponsored students became employed after finishing their program. Not only would the students benefit, but also, the CONACYT program, American institutions, Mexico and post-secondary institutions around the world.

Conclusion

The purpose of this study was to explore the factors that affected the acculturation of Mexican doctoral students in the United States in order to draw attention to the challenges that face this under-researched population. The findings of this study add to existing research regarding the acculturation of international students looking at the participants' characteristics through the lens of their country of origin (in this case, Mexico).

Among the findings in this research, I found similarities in the acculturation experience of international students and Mexican doctoral students. However, the findings also showed that there were experiences better examined through the student's nationality rather than a single group that included all international students. The findings from this study are meaningful for Mexican doctoral students in the United States, The CONACYT program, The Mexican government, The U.S. government, American institutions and post-secondary institutions around the world. On the one hand, Mexican doctoral students can gain an insight about the challenges their colleagues have. The findings of this study can also increase the sense of belonging of Mexican doctoral students to a group that could enable them to share their experiences, network and enrich their participation as a CONACYT sponsored student and as a Mexican doctoral student in the United States. The CONACYT program, the Mexican government, the U.S. government, American institutions and other higher education institutions around the world can learn from the findings how they can better support this understudied population to help them succeed in their doctoral programs. There should be a shared responsibility not only to the doctoral students, but to the CONACYT program and American institutions to create the best environment for students to succeed.

APPENDICES

APPENDIX A

INITIAL EMAIL TO PARTICIPANTS

In English

Dear doctoral students:

My name is Gloria Gabriela Tanner from Michigan State University. I am doing my dissertation study. Like you, I am a Mexican doctoral student in the United States. This study is entitled *The Graduate Experience of Mexican International Students in U.S. doctoral programs.* Your participation will contribute in our knowledge to understand and better assist doctoral Mexican students in American institutions.

Below, you can find the link for the survey:

https://www.survey.monkey.com

This link is related only to the survey and your e-mail. Please do not resend this message.

The survey is designed to be answered in about 15 to 20 minutes. Your participation is voluntary. There is not a right and wrong answer. You may choose to answer all or some questions and you may end this survey at any time. The data will be kept confidential. After completing the survey, you will enter a lottery to win a certificate for $50 dlls from amazon.com.

If you have any question, you can contact me at tannerg@msu.edu.

Thank you for participating.

Gloria Gabriela Tanner

In Spanish

Estimado estudiante de doctorado:

Mi nombre es Gloria Gabriela Tanner de la Universidad del Estado de Michigan y estoy llevando a cabo un estudio de investigación como parte de mi tesis. Como tu, soy estudiante Mexicano de doctorado en los Estados Unidos. Mi tesis se titula "La Experiencia de Estudiantes Mexicanos en Programas de Doctorado en los Estados Unidos". Su participación contribuirá al conocimiento para entender y asistir mejor a estudiantes Mexicanos de doctorado en los Estados Unidos.

Aqui puede encontrar el vínculo para el cuestionario:

https://www.surveymonkey.com

Este vinculo esta ligado únicamente con este cuestionario y su correo electrónico. Por favor no reenvie este mensaje.

El cuestionario es diseñado para ser contestado en aproximadamente de 15 a 20 minutos. Su participación es voluntaria. Las preguntas son de opinión propia y no hay respuestas correctas o incorrectas. Todas las respuestas serán confidenciales. Al contestar este cuestionario, usted entrara a una rifa de un certificado por $50 dólares del sitio amazon.com. Para cualquier pregunta puede contactarme al correo electrónico tannerg@msu.edu.

Gracias por su participación.

Gloria Gabriela Tanner

Por favor note: Si no desea recibir mas correos en el futuro, seleccione el siguiente vinculo: https://www.surveymonkey.com/optout.aspx?sm=OlRGvEXIKCEl6gPkwooWhg_3d_3d

APPENDIX B

The Survey

In English

STUDENT DATA QUESTIONNAIRE

UNIVERSITY EXPERIENCE INFORMATION

Directions: The following questions are related to acculturation experiences of international students. Please read each of the sentences below. On a scale of 1 to 6 please mark your level of agreement with the following statements related to your experience in the U.S.

Strongly Disagree 1	Disagree 2	Slightly disagree 3	Slightly agree 4	Agree 5	Strongly Agree 6

	1	2	3	4	5	6
1. I value having contact with US culture during my stay in the United States						
2. I value to having contact with my own culture during my stay in the United States						
3. I am satisfied with my academic experience in this university						
4. My academic experience has had a positive influence on my intellectual growth						
5. I feel good about my performance in my academic program and courses						
6. I feel comfortable reaching out to professors and my academic advisor when I have questions						
7. I feel confident I am able to overcome barriers to finish my program successfully						
8. I have developed close relationships with other Americans students since coming to this university						
9. I am able to identify differences between values of my home country and American culture values						
10. I have been able to manage feeling lonely or homesick						
11. I am motivated to learn new knowledge and skills						
12. I have become used to American customs						
13. I feel that I am often misunderstood due to my						

different beliefs and values						
14. I feel I have enough guidance to complete my doctoral program.						
15. I participate in community activities on campus and the local community						
16. I feel my experience studying in the U.S. has given me a better perspective of the world						
17. I worry about the location where I will have my future career.						
18. I worry about my financial situation						
19. I feel confident expressing my ideas in English in the classroom						
20. I feel other students treat me differently because of my race or national origin						
21. I communicate with my family and friends back home						
22. I meet with my advisor at least once per semester to discuss my progress in my program						
23. I have had a hard time adjusting to the weather						
24. I feel professors treat me differently because of my race or national origin						
25. I have contact with the international student center on campus						
26. My advisor is available when I need him/her						
27. I feel I am able to express my ideas well in written English						
28. I spend my free time with other American students						
29. I spend my free time with other international students from my own country						
30. I spend my free time with international students from other countries						

Comments:

_____

_____

Directions: Please take a few minutes to select the box (es) in front of the responses that are most adequate or by typing in a response in the space provided.

_____

31. Estimate the number of students from your country in your program: __

32. My relationship with my academic advisor is:

□ Poor □ Fair □ Good □ Excellent

33. My relationship with the faculty in my department is:

□ Poor □ Fair □ Good □ Excellent

34. My relationship with the graduate students in my program is:

□ Poor □ Fair □ Good □ Excellent

35. How would you rate your overall experience as a doctoral student in your institution?

□ Poor □ Fair □ Good □ Excellent

36. What has changed about you, if anything, since enrolling in your graduate program?

37. What has been your **most rewarding or satisfying** experience as a doctoral student in your institution?

38. What has been your **least rewarding or satisfying** experience as a doctoral student in your institution?

39. What would you change to improve your doctoral experience?

40. What are the three most important things that someone from your country should know before coming to the U.S. to study?

DEMOGRAPHIC INFORMATION

Directions: Please take a few minutes to select the box (es) in front of the responses that are most adequate or by typing in a response in the space provided.

PERSONAL INFORMATION

1. In what university are you currently enrolled? _____

2. Discipline of study: _____ _____

3. Gender □ Female □ Male □ Other: _____

4. Hometown: _____ Country: _____ State: _____

5. Age: _____

6. Years of residency in the U.S. _____

7. Academic year in your program: □ First year □ Second year □ Third year □ Fourth year □ Fifth year □ Sixth year □ Seventh year □ Other:____

8. Previous experience studying in an English speaking country □ Yes □ No

a. If yes, in what country did you study?: _____

b. What degree did you earn?: _____

9. Academic performance in Bachelor's degree:

□ Poor □ Fair □ Good □ Excellent

10. Academic performance in Master's degree:

□ Poor □ Fair □ Good □ Excellent

11. Academic performance in doctoral program:

□ Poor □ Fair □ Good □ Excellent

12. Current GPA in your doctoral program: _____

13. Date (month and year) of expected program completion: _____

14. Desired position after finishing the program:

□ Faculty □Academia □ Government □ Business □ Private sector

□ Self employment □ Administrator. Where: _____ □ Other: _____

15. Marital status: □ Single □ Married □ Divorced □ Widowed □ Partnered

16. Location of your spouse or partner: □ Same location □ Mexico □ Elsewhere in the US □ Other, specify _____

17. If you are a parent, number of children: _____

c. Age (s) of your children: _____

18. Source of funding for your studies (all that apply):

□ Graduate Teaching □ Research Assistantship □ Scholarship

□ Family Funds □ Other: _____

FAMILY INFORMATION

19. Mother's highest educational attainment level:

□ Elementary school diploma □ Middle school diploma □ High school diploma/ GED □ Technical school diploma

□ Bachelor's degree □ Masters degree (EdM/AM/MS)

□ Doctorate (EdD / PhD) □ Professional degree (JD/MD/DDS)

20. Father's highest educational attainment level:

□ Elementary school diploma □ Middle school diploma □ High school diploma/ GED □ Technical school diploma

□ Bachelor's degree □ Masters degree (EdM/AM/MS)

□ Doctorate (EdD / PhD) □ Professional degree (JD/MD/DDS)

21. Number of siblings: _____

Thank you for taking the time to answer the survey. Please send an email to tannerg@msu.edu to confirm you completion of the survey and to enter a raffle to win a $50 gift certificate from amazon.com.

In Spanish

QUESTIONARIO

Direcciones: Las siguientes preguntas son relacionadas con la experiencia de aculturación de estudiantes internacionales. Por favor, lea cada enunciado y seleccione la opción que mejor describa su opinión en relación a su experiencia como estudiante internacional. Existen 6 opciones: 1-Totalmente en desacuerdo; 2- En desacuerdo; 3-Algo en desacuerdo; 4-Algo de acuerdo; 5-De acuerdo y 6-Totalmente de acuerdo. Recuerde que las preguntas son de opinión propia, hechas independientemente, y no hay respuestas correctas o incorrectas. Todas las repuestas serán confidenciales.

Sumamente en Desacuerdo 1	Muy en Desacuerdo 2	Algo en Desacuerdo 3	Algo de Acuerdo 4	Muy de acuerdo 5	Sumamente de Acuerdo 6

	1	2	3	4	5	6
1. Yo valoro tener contacto con la cultura Estadounidense durante mi estadía en los Estados Unidos.						
2. Yo valoro tener contacto con mi propia cultura durante mi estadía en los Estados Unidos.						
3. Estoy satisfecho con mi experiencia académica en esta Universidad.						
4. Mi experiencia académica ha tenido una influencia positiva en mi desarrollo intelectual.						
5. Me siento satisfecho con mi desempeño en los cursos						

de mi programa académico.						
6. Siento que tengo la confianza para contactar a mi asesor(a) académico y a mis profesores cuanto tengo preguntas.						
7. Siento que tengo la confianza para superar los obstáculos y terminar mi programa académico exitosamente.						
8. Yo he cultivado amistades cercanas con otros estudiantes Estadounidenses desde que llegue a esta Universidad.						
9. Yo puedo identificar diferencias entre los valores de mi país y los valores de la cultura Estadounidense.						
10. Yo he podido controlar mis sentimientos de soledad y nostalgia.						
11. Yo estoy motivado para aprender nuevas habilidades y obtener nuevos conocimientos.						
12. Yo me he acostumbrado a las tradiciones Estadounidenses.						
13. Siento que a menudo soy malentendido debido a mis diferentes valores y creencias.						
14. Siento que tengo la suficiente tutela y dirección para terminar mi programa de doctorado.						
15. Yo participo frecuentemente en actividades comunitarias en campus.						
16. Siento que mi experiencia estudiando en los Estados Unidos me ha dado una mejor perspectiva del mundo.						
17. Me preocupo acerca del lugar (ciudad) donde voy a desarrollar mi carrera al terminar mi programa de doctorado.						
18. Me preocupo por mi situación financiera.						
19. Me siento con la confianza de expresar mis ideas en Ingles en el salón de clases.						
20. Siento que otros estudiantes me tratan diferente debido a mi raza o a mi nacionalidad.						
21. Me comunico frecuentemente con mi familia y amigos de mi país.						
22. Yo me reúno con mi asesor(a) académico por lo menos una vez al semestre para platicar sobre mi progreso en mi programa de doctorado.						
23. Se me ha hecho difícil adaptarme al clima de aquí.						
24. Siento que los profesores me tratan diferente debido a mi raza o a mi nacionalidad.						
25. Tengo contacto frecuente con el centro para estudiantes internacionales en mi campus.						
26. Mi asesor(a) académico esta disponible cuando necesito de su ayuda.						

27. Creo que mi nivel de Ingles es suficientemente bueno para expresar ideas académicas por escrito.						
28. Yo paso la mayoría de mi tiempo libre con otros estudiantes Estadounidenses.						
29. Yo paso la mayoría de mi tiempo libre con otros estudiantes internacionales de mi propio país.						
30. Yo paso la mayoría de mi tiempo libre con otros estudiantes internacionales de otros países.						

Comentarios:

_____

_____

Direcciones: Por favor tome algunos minutos para seleccionar la opción que sea mas adecuada para usted o para escribir la respuesta en el espacio siguiente.

_____

31. Estime el número de estudiantes de su propio país en su programa de doctorado: ____

32. En general, mi relación con mi asesor(a) académico es:

□ Mala □ Regular □ Buena □ Excelente

33. En general, mi relación con los profesores de mi departamento académico es:

□ Mala □ Regular □ Buena □ Excelente

34. En general, mi relación con los estudiantes de mi programa académico es:

□ Mala □ Regular □ Buena □ Excelente

35. En general, mi experiencia como estudiante de doctorado en mi institución es:

□ Mala □ Regular □ Buena □ Excelente

36. ¿Qué ha cambiado acerca de usted desde que empezó el programa de doctorado en su institución?

37. ¿Cuál ha sido la experiencia **mas satisfactoria** como estudiante de doctorado en su institución?

38. ¿Cuál ha sido la experiencia **menos satisfactoria** como estudiante de doctorado en su institución?

39. ¿Qué cambiaria usted para mejor su experiencia como estudiante de doctorado?

40. ¿Qué considera usted que son las tres cosas mas importantes que una persona de su país debe saber antes de ir a los Estados Unidos a estudiar en un programa de posgrado?

INFORMACION DEMOGRAFICA

Direcciones: Por favor conteste las siguientes preguntas en el espacio disponible o seleccione la respuesta que sea más adecuada para usted. Todas las respuestas serán confidenciales.

INFORMACION PERSONAL

1. ¿En que Universidad esta usted actualmente estudiando su posgrado? _____

2. Principal disciplina de estudio: _____

3. Genero: □ Mujer □ Hombre □ Transgenero

4. Edad: _____

5. Tiempo de residencia en los Estados Unidos: ____Años y _____Meses.

6. Ciudad de Residencia antes de vivir en los Estados Unidos: _____

7. Año Académico actual de su programa □ Primer año □ Segundo año □ Tercer año □ Cuarto año □ Quinto año □ Sexto año □ Septimo año □ Otro:____

8. ¿Tiene usted experiencia previa estudiando en un país angloparlante? □ Si □ No

   a. Si su respuesta es si, ¿En que país estudio?: _____

   b. ¿Que grado recibió usted? _____

9. Desempeño académico en el grado de licenciatura:

□ Malo □ Regular □ Bueno □ Excelente

10. Desempeño académico en el grado de maestría:

□ Malo □ Regular □ Bueno □ Excelente

11. Desempeño académico en su programa de doctorado:

□ Malo □ Regular □ Bueno □ Excelente

12. ¿Cual es su promedio académico general en su programa de doctorado?: _____

13. Fecha en la que espera terminar su programa de doctorado (mes y año): _____

14. Cual es el puesto que desea incursionar al termino de su programa?:

□ Profesor □Academia □ Gobierno □ Negocios □ Private sector

□ Propio negocio □ Administrador. □ Otro: _____

15. Estado civil: □ Soltero(a) □ Casado(a) □ Divorciado(a) □ Viudo(a) □ En union libre

16. Ubicación de □ Mismo lugar □ Mexico □ Otra ciudad de E.U.

su esposo(a) o pareja: □ Otro, especifique _____

17. Si es usted padre, ¿Cuántos hijos tiene?: _____

a. ¿Cuáles son las edades de sus hijos? _____

18. Cual es la forma(as) en que apoya sus estudios (todas las que apliquen):

□ Beca □ Asistencia de investigación de la universidad

□ Asistencia de enseñanza de la universidad □ Fondos familiares

□ Otros, especifique: _____

INFORMACION FAMILIAR

19. Nivel más alto de educación de su madre:

□ Primaria □ Secundaria □ Escuela Técnica

□ Preparatoria □ Licenciatura □ Maestría □ Doctorado □ Otro, espeficique: _____

20. Nivel más alto de educación de su padre:

□ Primaria □ Secundaria □ Escuela Técnica

□ Preparatoria □ Licenciatura □ Maestría □ Doctorado □ Otro, espeficique: _____

21. Si usted tiene hermanos (as), ¿Alguno de ellos(as) obtuvo el grado de licenciatura?

□ Si □ No

Gracias por tomar el tiempo para contestar este cuestionario. Favor de enviar un correo a tannerg@msu.edu para confirmar el término de este cuestionario y entrar a una rifa de una tarjeta de $50 dolares del sitio amazon.com.

APPENDIX C

DISTRIBUTION OF PARTICIPANTS' INSTITUTION

Table C.1
Frequency by institution

No.	Institution	No. of Students
1	The University of Arizona	13
2	Arizona State University	10
3	University of California Los Angeles	9
4	Texas A & M University	8
5	Harvard University	7
6	Columbia University	6
7	University of California Irvine	6
8	University of Pittsburgh	6
9	University of California at Davis	5
10	University of California San Diego	5
11	University of California Santa Cruz	5
12	University of Wisconsin Madison	5
13	Cornell University	4
14	Massachusetts Institute of Technology	4
15	Purdue University	4
16	The University of Chicago	4
17	University of Illinois at Urbana Champaign	4
18	Virginia Polytechnic Institute and State U.	4
19	John Hopkins University	4
20	Colorado State University	3
21	Florida State University	3
22	New School University	3
23	Ohio State University	3
24	Stanford University	3
25	The State University of New York	3
26	The University of New Mexico	3
27	The University of Texas at Austin	3
28	University of California Santa Barbara	3
29	University of Florida	3
30	University of Miami	3
31	University of North Carolina at Chapel Hill	3
32	University of Washington	3
33	Washington State University	3
34	Case Western Reserve University	2
35	New Mexico State University	2

Table C.1 (cont'd)

36	Oklahoma State University	2
37	Oregon State University	2
38	Pardee Rand Graduate School	2
39	Rice University	2
40	The George Washington University	2
41	The University of Texas at El Paso	2
42	University of California-Riverside	2
43	University of California-San Marcos	2
44	University of Nebraska –Lincoln	2
45	University of North Texas	2
46	University of Texas at Austin	2
47	Carnegie-Mellon University	1
48	American University	1
49	Baylor University	1
50	Boston University	1
51	City University of New York	1
52	Clemson University	1
53	Emory University	1
54	Florida Institute of Technology	1
55	George Mason University	1
56	Georgetown University	1
57	Georgia Institute of Technology	1
58	Illinois Institute of Technology	1
59	Iowa State University of Science and Technology	1
60	Kent State University	1
61	Michigan State University	1
62	Michigan Technological University	1
63	New York University	1
64	Northwestern University	1
65	Ohio University	1
66	Pennsylvania State University	1
67	Portland State University	1
68	Rensselaer Polytechnic Institute	1
69	South Dakota State University	1
70	The University of Michigan at Ann Arbor	1
71	The University of North Caroline Charlotte	1
72	The University of Texas at Arlington	1
73	The University of Texas at Dallas	1
74	The University of Vermont	1

Table C.1 (cont'd)

75	University of Akron	1
76	University of California Merced	1
77	University of Colorado at Boulder	1
78	University of Georgia	1
79	University of Houston	1
80	University of Iowa	1
81	University of Kansas	1
82	University of Minnesota	1
83	University of Notre Dame	1
84	University of Texas at Arlington	1
85	University of Texas at Dallas	1
86	University of Texas at El Paso	1
87	University of Virginia	1
88	Vanderbilt University	1
89	Yale University	1
	Total Participants	224

REFERENCES

REFERENCES

Abel, C. F. (2002). Academic success and the international student: Research and recommendations. New *Directions for Higher Education*, 117, 13-20.

Anderson, E. M., and Shannon, A. L. (1988). Toward a conceptualization of mentoring. *Journal of Teacher Education, 39*(1): 38--42.

Altbach, P. G., & Knight, J. (2007). The Internationalization of Higher Education: Motivations and Realities. *Journal of Studies in International Education, 11*(3/4 (Fall/Winter 2007)), 290-305.

Andrade, M. S. (2006). International students in English-speaking universities: Adjustment factors. *Journal of Research in International Education*, *5*(2), 131-154. Retrieved December 7, 2007, from http://jri.sagepub.com/cgi/reprint/5/2/131

Andrews, R. W., Herman, J., & Osit, J. L. (1999). Asian women and academic confidence. *Journal of the Indiana University Student Personnel Association, 1999*, 45-61.

ANUIES (2011). *Anuario Estadistico de Postgrado*. 2011.

Astin, A.W. (1984). Student involvement: A developmental theory for higher education. *Journal of College Student Personnel, 25*, 297-308.

Aupetit, S., & Gerard, E. (2009). *Fuga de cerebros, movilidad academica, redes cientificas: Perspectivas latinoamericanas*. Mexico: IESALC-CINVESTAV-IRD.

Bain, S., Fedynich, L., & Knight, M. (2011). The successful graduate student: a review of the factors for success. *Journal of Academic Business and Ethics, 3* (January 2011), 1-9.

Bandura, A. (1986). *Social foundations of thought and action: A social cognitive theory.* Englewood Cliffs, NJ: Prentice-Hall.

Barratt, M. F. & Huba, M. E. (1994). Factors related to international graduate student adjustment in an American community. *College Student Journal, 39*, 422–435.

Bell, M. J. (2012). Define Academic Performance. Retrieve March 30, 2012 from http://www.ehow.com/about_4740750_define-academic-performance.html

Berry, J. W. (1997). Immigration, acculturation, and adaptation. Applied Psychology: An *International Review, 46*(5-68).

Berry, J. W. (2005). Acculturation: Living successfully in two cultures. *International Journal of Intercultural Relations, 29*, 697-712. doi: 10.1016/j.ijintrel.2005.07.013.

Biglan, A. (1973). The characteristics of subject matter in academic areas, *Journal of Applied Psychology, 57*, 195–203.

Bok, D. (2006). *Our Underachieving Colleges: A Candid Look at How Much Students Learn and Why They Should be Learning More*. , 434. Princeton: Princeton University Press.

Bourhis, R. Y., Moise, L. C., Perreault, S. & Senecal, S. (1997). Towards an interactive acculturation model: A social psychological approach. *International Journal of Psychology*, 32, 369–386.

Brislin,R. W., Lonner, W. J., & Thorndike, E. M., (1973). *Cross-cultural research methods*. New York: Wiley.

Bush, G.W. (2001). Statement for International Education Week 2001 (November 13). Washington, D.C., http://www.exchange.state.gov/iew2001/message.htm.

Carnegie (2013). Carnegie Classification. Retrieved on July, 21, 2013 from http://classifications.carnegiefoundation.org/descriptions/basic.php.

Chapdelaine, R., & Alexitch, L. (2004). Social skills difficulty: model of culture shock for international graduate students. *Journal of College Student Development, 45*(1), 167-184.

Charles, H., Stewart, M. (1991). Academic advising of international students. *Journal of Multicultural Counseling and Development, 19* (4), 173-181.

Cohen, J. (1988). *Statistical Power Analysis for the Behavioral Sciences*.(2nd Ed). New Jersey: Lawrence Erlbaum Associates.

Consejo Nacional de Ciencia y Tecnologia. CONACYT. (2010). *Padron de becarios en el extranjero 2010*. Direccion adjunta de posgrado y becas.

Consejo Nacional de Ciencia y Tecnologia. CONACYT. (2012). *Breve Historia del CONACYT*. Retrieved on December 23rd, 2012 from http://2006-2012.conacyt.gob.mx/Acerca/Paginas/default.aspx

Constantine, M., Anderson, G., Berkel, L. V., Caldwell, L., & Utsey, S. (2005). Examining the cultural adjustment experiences of African international college students: A qualitative analysis. *Journal of Counseling Psychology, 52*(1), 57-66.

Cownie, F., & Addison, W. (1996). International students and language support: A new survey. *Studies in Higher Education, 21*(2), 221-231.

Dao, T., Donghyuck, L. & Chang, H.L. (2007). Acculturation Level, Perceived English Fluency, Perceived Social Support Level and Depression among Taiwanese International Students. *College Student Journal, 4(2)*, 287-295.

Duderstadt, J. J. (2000). *A University for the 21st Century*. Ann Arbor, Michigan: The University of Michigan Press.

Fletchen, J., F., & Stren, R., E. (1989). Language skills and adaptation: a study of foreign students in a Canadian university. *Curriculum Inquiry, 19*, 293-308.

Fricker, R.D. Jr., Schonlau, M. (2002). Advantages and disadvantages of internet research surveys: Evidence from the literature. *Field Methods, 14* (4), 347-367.

Gardner, S. K., & Barnes, B. J. (2007). Graduate student involvement: Socialization for the professional role. *Journal of College Student Development, 48*, 369-387.

Girves, J., & Wemmerus, V. (1988). Developing models of graduate student degree progress. *Journal of Higher Education, 59*(2), 163-189.

Gonzalez, V. (2004). *Second Language Learning: Cultural Adaptation Processes in International Graduate Students in U.S. Universities*. Lanham, Maryland: University Press of America.

Graves, T. (1967). Psychological acculturation in a tri-ethnic community. *South-Western Journal of Anthropology, 23*, 337-350.

Hanassab, S., & Tidwell, R. (2002). International Students in Higher Education: Identification of Needs and Implications for Policy and Practice. *Journal of Studies in International Education*, *6*(4), 305-322. Retrieved December 7, 2007, from http://jsi.sagepub.com/cgi/reprint/6/4/305.

Hahs-Vaughn, D. (2004). The impact of parents' education level on college students: An analysis using the beginning postsecondary students' longitudinal study 1990-92/94. *Journal of College Student Development, 45* (5), 483-500.

Harrison, J.K., Chadwick, M., & Scales, M. (1996). The relationship between cross-cultural adjustment and the personality variables of self-efficacy and self-monitoring. *International Journal of Intercultural Relations. 20,* 167-188.

Hartnett, R., & Katz, J. (1977). The education of graduate students. *The Journal of Higher Education. 48*, 6, 646-664.

Hartnett, N., Romcke, J., & Yap, C., (2004). Student performance in tertiary-level accounting: an international student focus. *Accounting and Finance*. 44, 163-185.

Hernandez Castaneda, R. (2008). The graduate experience: Living and studying abroad (a case study). *Revista Electronica de Investigacion Educativa*, *10*(2). Retrieved 05,10/2010 from

Herzig, A. (2004). Becoming mathematicians: Women and students of color choosing and leaving doctoral Mathematics. *Review of Educational Research, 74* (2), 171214.

Hsieh, Min-Hua. (2007). Challenges for international students in higher education: One student. *College Student Journal. 41*(2), 379-391.

Institute of International Education. (2000). Open Doors Report, 2000.

Institute of International Education. (2008). Open Doors Report, 2008.

Institute of International Education (2009). Open Doors Report, 2009.

Institute of International Education (2011). Open Doors Report, 2011.

Institute of International Education. (2012). *Open doors fact sheet: Mexico*. (2012) Retrieved July 1st, 2013 from http://www.iie.org/Research-and-Publications/Open-Doors/Data/Fact-Sheets-by-Country/2012.

Instituto Nacional de Estadistica y Geografia INEGI (2012). *Informacion Nacional*. Retrieved on July 21, 2013 from http://www3.inegi.org.mx/sistemas/mexicocifras/default.aspx.

Instituto Nacional de Estadistica y Geografia INEGI. (2013). *Rezago educativo*. Retrevied on August, 5th 2013 from http://www3.inegi.org.mx/sistemas/mexicocifras/default.aspx#E.

Jacks, P., Chubin, D.E., Porter, A.L., & Connolly, T. (1983). The ABCs of ABDs: A study of incomplete doctorates. *Improving College and University Teaching, 31*(2), 74-81.

Johnson, J. M. (2002). The reverse brain drain and the global diffusion of knowledge. *Georgetown Journal of International Affairs, summer/fall 2002*, 125-131

Kagan, H., Cohen, J. (1990). Cultural adjustment of international students. *Psychological Sciences. 1*(2), 133-137.

Knight, J. (1999). Internationalisation of Higher Education. In Organisation for Economic Co.-operation and Development (Ed.), *Quality and Internationalisation in Higher Education* (pp. 13-23). Danvers, MA: Institutional Management in Higher Education.

Ladd, P. D., & Ruby, R., Jr. (1999). Learning style and adjustment issues of international students. *Journal of Education for Business*, *74*(6), 363-367.

Lee , M., Abd-Ella, M. and Burks, L. (1981*). Needs of Foreign Students from Developing Nations at U. S. Colleges and Universities.* Washington, DC: National Association for Foreign Student Affairs.

Leveille, D. E. (2006). *Accountability in Higher Education: A Public Agenda for Trust and Cultural Change*. Berkeley: Center for Studies in Higher Education.

Lewin, K. (1935). *A dynamic theory of personality*. New York, NY: McGraw-Hill.

Li, G., Chen, W., & Duanmu, J. (2009). Determinants of International Students' Academic Performance: A comparison between Chinese and other international students. *Journal of Studies in International Education*, *14* (4), 389-405

Light, R. L., Xu, M., & Mossop, J. (1987). English proficiency and academic performance of international students. *TESOL Quarterly*, *21*(2), 251-261.

Lin, G. & Yi, J.K. (1997). Asian international students' adjustment: Issues and program suggestions. *College Student Journal, 31*, 473-479.

Lovitts, B. E. (2001). *Leaving the ivory tower: The causes and consequences of departure from doctoral study*. Lanham: Rowman & Littlefield Publishers, Inc.

Magana et al. (1996). Revisiting the dimensions of acculturation: Cultural theory and psychometric practice. *Hispanic Journal of Behavioral Sciences, 18*(4), 444-468.

Manese, J., E., Sedlacek, W., & Leon, F., T. (1988). Needs and perceptions of female and male international undergraduate students. *Journal of Multicultural Counseling and Development, 16*, 24-29.

McKenzie, K., & Grow, K. (2004). Exploring first-year academic achievement through structural equation modeling. *Learning and Individual Differences*, *14*, 107-123.

Mendoza,R .H., & Martinez, J. L. (1981).*The measurements f acculturation*. In A. Baron Jr. (Ed.), Explorations in Chicano psychology (pp. 71-82). New York: Praeger.

Misra, R., Crist, M., & Burant, C.J., (2003). Relationship among life stress, social support, academic stressors, and reactions to stressors of international students in the United States. *International Journal of Stress Management, 10* (2), 137-157.

Mori, S. (2000) Addressing the mental health concerns of international students. *Journal of Counseling and Development, 78*, 137–144.

Morris, R.T. (1960). The two *way mirror: National status of foreign students' adjustment.* Minnesota, Minneapolis: University of Minnesota Press.

Mullen, A., Goyette, K., and Soares, J. (2003). Who goes to graduate school? Social and academic correlates of educational continuation after college. *Sociology of Education, 76* (2), 143-169.

NASULGC: National Association of State Universities and Land Grant Colleges (2007, October). *A National Action Agenda for Internationalizing Higher Education*. Washington, D.C.: NASULGC.

Nerad, M. & Cerny, J. (1993). From facts to actions: Expanding the educational role of the graduate division. *New Directions for Institutional Research*, *80*, 27-40.

Nilsson, J., E., & Doods, A., K., (2006). A pilot phase in the development of the international student supervision scale. *Journal of Multicultural Counseling and Development*. 34(1), 50-63.

Nulty, D.D. (2008). The adequacy of response rates of online and paper surveys: What can be done*? Assessment & Evaluation in Higher Education, 33*(3), 301-314.

Olivas, M. & Li, C. (2006). Understanding stressors of international students in higher education: What college counselors and personnel need to know. *Journal of Instructional Psychology. 33* (3). 217-222.

Oppedal, B. (2006). Development and acculturation. In D. L. Sam & J. W. Berry (Eds.), *The Cambridge handbook on acculturation psychology* (pp. 97-112). Cambridge, UK: Cambridge University Press.

Padilla, A., & Perez, W. (2003). Acculturation, social identity, and social cognition: A new perspective. *Hispanic Journal of Behavioral Sciences, 25*(1), 35-55.

Paglis, L., Green, S., & Bauer, T. (2006). Does adviser mentoring add value? A longitudinal study of mentoring and doctoral student outcomes. *Research in Higher Education, 47* (4), 451-476.

Perrucci, R., & Hu, H, (1995). Satisfaction with social and educational experience among international graduate students. *Research in Higher Education 36* (4), 491-508.

Peterson, D., M., Briggs, P., Dreasher, L., Horner, D.D., & Nelson, T. (1999). Contributions of International Students and Programs to Campus Diversity. *New Directions for Student Services,*88, 67-76.

Pontius, J. & Harper, S., (2006). Principles for good practice in graduate and profesional student engagement. *New Directions for Student Services. 115*, Fall 2006, 47-58.

Porter, S. R., & Whitcomb, M., E. (2003). The impact of lottery incentives on student survey response rates. *Research in Higher Education, 44* (4), 389-406.

Poyrazli, S., Arbona, C., Nora, A., McPherson, R., & Pisecco, S. (2002). Relation between assertiveness, academic self-efficacy, and psychosocial adjustment among international graduate students. *Journal of College Student Development*, *42*(5), 632-642.

Poyrazli, S., Kavanaugh, P., R., Baker, A., & Al-Timini, N. (2004). Social support and demographic correlates of acculturative stress in international students. *Journal of College Counseling, 7,* 73-82.

Poyrazli, S., Lopez, M., D. (2007). An exploratory study of perceived discrimination and homesickness: A comparison of international students and American students. *The Journal of Psychology: Interdisciplinary and Applied, 141* (3), 263-280.

Poyrazli, S. & Grahame, K.M. (2007). Barriers to adjustment: Needs of international students within a semi-urban campus community. *Journal of Instructional Psychology, 34*(1), 28-45.

Rasmi, S., Safdar, S. & Lewis, J. R. (2009). A longitudinal examination of the MIDA model with international students. In A. Chybicka, S. Safdar, & A. Kwiatkowska (Eds.), *Culture and gender an intimate relations*. Gdansk, Poland: Gdanskie Wydawnictwo Psychologiczne.

Redfield, R., Linton, R., & Herskovits, M. J. (1936). Memorandum on the study of acculturation. *American Anthropologist*, 38, 149-152.

Rice, G. R., Choi, C., Zhang, Y., Villegas, J., Ye, H. J., Anderson, D., Nesic, A., & Bigler, M. (2009). International student perspectives on graduate advising relationships. *Journal of Counseling Psychology, 56* (3), 376-391.

Safdar, S., Lay, C. & Struthers, W. (2003). The process of acculturation and basic goals: Testing a multidimensional individual difference acculturation model with Iranian immigrants in Canada. *Applied Psychology, 52*, 555–579.

Sarason, I.G., Sarason, B.R., Shearin, E.N., & Pierce, G., R. (1987). A brief measurement of social support: Practical and theoretical implications. *Journal of Social and Personality Relationships. 4*, 497-510

Senyshyn, R.M., Warford, M.K. & Zhan, J. (2000). Issues of adjustment to higher education: International students' perspectives. *International Education, 30*(1), 17-35.

Shih, S., F., & Brown, C. (2000). Taiwanese international students: Acculturation level and vocational identity. *Journal of Career Development*, *27*(1), 35-47.

Shin, H. & Abell, N. (1999). The homesickness and Contentment Scale: Developing a Culturally Sensitive Measure of Adjustment for Asians. *Research on Social Work Practice*, 9(1), 45-60.

Skudlarek, L.J. (1992). *An examination of selected variables associated with completion of requirements for a doctorate in education*. Austin, Texas: The University of Texas at Austin.

Stoynoff, S. (1997). Factors associated with international students' academic achievement. *Journal of Instructional Psychology*, 24, 56-68.

Social Science Research Council. (1954). Acculturation: An exploratory formulation. *American Anthropologist, 56*, 973-1002.

Sodowsky, G.,R., & Plake, B.,S. (1992). A Study of Acculturation Differences Among International People and Suggestions for Sensitivity to Within-Groups Differences. *Journal of Counseling and Development*, *71*(1), 53-59.

Sorenson, G. & Kagan, D. (1987). Conflicts between doctoral candidates and their sponsors. *Journal of Higher Education, 38*, 17-24.

Stephan, P., E., & Levin, S.G. (2005). Foreign scholars in US science: Contributions and costs". In: *Science and the University*, eds. R. Ehrenberg and P. Stephan, Madison, WI: University of Wisconsin Press.

Strang, K., D. (2009). Measuring online learning approach and mentoring preferences of international doctorate students. *International Journal of Educational Research, 48* (4), 245-257.

The National Academies. (2005). *Policy Implications of International Graduate Students and Postdoctoral Scholars in the United States*. Washington, D.C.: The National Academies Press.

Tinto,V. (1975). Dropout from higher education: A theoretical synthesis of recent research. *Review of Educational Research, 45*, 89-125.

Tinto, V. (1993). *Leaving college: Rethinking the causes and cures of student attrition* (2nd ed.). Chicago: University of Chicago Press

Trice, A. (2003). Faculty perceptions of graduate international students: the benefits and challenges. *Journal of Studies in International Education, 2003*(7), 379-403.

Trice, A. (2004). Mixing it up: international graduate students' social interaction with American students. *Journal of College Student Development*, *45* (6), 671-687.

Trice, A., & Yoo, J. (2007). International graduate students' perceptions of their academic experience. *Journal of Research in International Education, 6* (1), 41-66.

U.S. Department of State. (2010). Student Visas. Retrieved December, 10, 2010 at http://travel.state.gov/visa/temp/types/types_1268.html.

Wan, T., Chapman, D. W., & Biggs, D. A. (1992). Academic stress of international students attending U. S. universities. *Research in Higher Education*, *33*(5), 607-623.

Wang, Y., Martin, M. A., & Martin, S. H. (2002). Understanding Asian graduate students' English literacy problems. *College Teaching, 50*(3), 97-101.

Ward, C., Bochner, S. & Furnham, A. (2001). *The psychology of culture shock* (2nd ed.). London: Routledge.

Wei, M., Heppner, P.P., Mallen, M.J., Ku, T., Liao, Y., & Wu, T. (2007). Acculturative Stress, Perfectionism, Years in the United States, and Depression Among Chinese International Students. *Journal of Counseling Psychology*, *54*(4), 385-394.

Wilton, L., & Constantine, M. (2003). Length of residence, cultural adjustment difficulties and psychological distress symptoms in Asian and Latin American international college student. *Journal of College Counseling, 6*(2), 177-186.

World Bank. (2002). *Constructing knowledge societies: New challenges for tertiary education*. Washington, D.C.: World Bank.

Wright, L.M. (1991). Full-time teaching and the ABD phenomenon. *ACA Bulletin 76*, 49-55.

Xu, M. (1991). The impact of English-language proficiency on international graduate student's perceived academic difficult. *Research in Higher Education, 32* (5), 557-570.

Zusman, A. (2005). Challenges facing higher education in the twenty-first Century. In Altbach, P.G., Berdahl, R.O. & Gumport, P.J. (ed.) 2nd edition. *American Higher Education in the Twenty-First Century Social, Political, and Economic Challenges* (pp.115-160). Baltimore: The Johns Hopkins University Press.