Effects of Combined Economic and Linguistic Backgrounds on the Adjustment Process of International Undergraduate Students at Virginia Polytechnic Institute and State University

By

Aristides Maza Duerto

Dissertation submitted to the Faculty of Virginia Polytechnic Institute and State University in partial fulfillment of the requirements for the degree of

Doctor of Philosophy

in

Educational Leadership and Policy Studies

Don G. Creamer, Ed.D. Chair

Joan B. Hirt, Ph.D.

Steven M. Janosik, Ed.D.

Sandra L. Dika, Ph.D.

Larkin S. Dudley, Ph.D.

April 14, 2004

Blacksburg, Virginia

Keywords: International Undergraduate Students, Adaptation, College, Support

Effects of Combined Economic and Linguistic Backgrounds on the Adjustment Process of International Undergraduate Students at Virginia Polytechnic Institute and State University

Aristides Maza Duerto

Abstract

This study had three main purposes: (a) to determine whether there is a linear relationship between international undergraduate (IU) students' adaptation and time at Virginia Polytechnic Institute and State University (Virginia Tech), (b) to examine the effects of IU students' combined economic and linguistic backgrounds on their adaptation experience at Virginia Tech, (c) to determine the u-shaped curve model's effectiveness in explaining the adaptation experience of IU students from different backgrounds.

The findings of this study could not be used to justify either a linear or a curvilinear relationship between time and IU students' adaptation. A difference in adaptation was found between IU students with two and four years at Virginia Tech based on their linguistic background differences, but no differences were found in regard to their economic background differences. A correlation analysis suggested a relationship between adaptation and the support IU students received while at Virginia Tech. Nevertheless, the most important finding is the fact that the existing models of IU students' adaptation do not adequately explain their adaptation experience.

This study suggests that future research should concentrate on determining the relationship between IU students' adaptation and the adequacy of support they received.

Acknowledgements

To my advisor, Dr. Don G. Creamer, for his guidance, patience, and always vigorous discussion. His knowledge and wisdom were an important factor in the achievement of my integral growth as a person, as a researcher, and on the completion of this body of work. Thanks to Dr. Joan B. Hirt who had to chair my defense committee at the last minute, and Dr. Steven M. Janosik and Dr. Larkin S. Dudley for serving on my committee. A special thanks to Dr. Sandra L. Dika who provided me with guidance on the methodology and the analysis section of this research all the way from Puerto Rico.

To my classmates, and coworkers, especially Lisa McGuire, who helped me in many ways during these five years. They made me feel at home. I have enjoyed the long discussions in our attempts to "find the truth," "to understand the theory," and our own "search for the role of higher education and the student affairs professional in this world." These will always be in my memory.

To the Cranwell International Center at Virginia Tech, its director Kim Beisecker and her wonderful staff for their support in communicating with and contacting the international undergraduate students at Virginia Tech.

To Sara Thorne-Thonsen. I have no words to express my gratitude for the time and effort you put in this body of work to make my ideas and concepts clear and understandable. Thank you.

To my wife, Anahid. To you goes my deepest gratitude for your understanding and

constant support in the last five years. To my son, Esteban Aristides Maza Koubelian. I hope one day I have the honor of seeing you obtain your Ph.D. as I am to have the honor of having my parents see me obtaining mine. To my parents, Aristides Maza Tirado and Carmen Cecilia Duerto de Maza, thank you for your endless support and understanding. To my bother, Octavio Maza Duerto who helped me to find this great program and assisted with the process of getting me admitted. To my sisters, Orianna Emilia Maza Duerto and Jenice Carolina Maza Duerto: I love you both.

Finally, last but not least, to my friends in Blacksburg, you know who you are. I wish you the best with your own studies. I thank you for all the support you provided for me and my family in good and bad times, and for being my family in Blacksburg: I love you all. Anahid, Esteban and I will miss you!

A mis padres quienes han sido mi inspiración para el logro de mis metas.

A mi papá Aristides Maza Tirado, por ver mi verdadero potencial y mostrarme más allá de mis horizontes. Gracias papá por tu constante apoyo, el cual me ha permitido alcanzar mis sueños e ilusiones.

A mi mamá, Cecilia Duerto de Maza, quien con su desinteresado amor y sacrificio ha sabido siempre mantenerme en el camino de la honestidad, honradez y dedicación a mis estudios. Gracias mamá por haberme enseñado el poder del Gojonzo.

Table of Contents

Abstract ii

Acknowledgements iii

Table of Contents vi

List of Tables xii

List of Figures xvii

Chapter 1 1

Introduction 1

International Students in the United States of America 1

The Adjustment Process 5

Tinto's Model of Transition 7

Stage 1: The Separation from Communities of the Past. 7

Stage 2: The Transition between High School and College. 7

Stage 3: The Incorporation into the Society of the College. 8

Sverre Lysgaard and International Students' Transition Process 10

The Optimism Stage. 12

The Downstage [sic]. 12

The Recovery Stage. 13

An Extension to the U-Shaped Curve Model 13

Summary 13

Problem Statement 14

Purpose of the Study 16
Constructs of the Study 16
Research Questions 17
Hypotheses 17
Definitions 18
Significance of the Study 20
Limitations of the Study 22
Organization of the Study 23
Chapter 2 24
Literature Review 24
Research on International Students' Adaptation Process 25
Studies of Academic Transition Experiences 25
Studies of Social Transition Experiences 27
Studies of Personal Transition Experiences 30
International Students' Coping Mechanisms. 31
International Students' Financial Problems. 33
Studies of Cultural Transition Experiences 34
Oberg's 1960 Adaptation Model. 36
The first stage. 36
The second stage. 36
The third stage. 37

The fourth stage. 37
Winkelman's 1994 Cultural Shock Adaptation Model. 39
The honeymoon or tourist phase. 40
The crisis phase. 40
The adjustment and reorientation phase. 40
The adaptation, resolution, or acculturation stage. 40
Other Models of Cultural Shock Adaptation. 41
Research on International Students and Linguistic Difficulties 45
Research on International Students and Economic Background 48
Summary 49
Chapter 3 51
Research Methodology 51
Sample 51
Instrumentation 56
Section A: Procedures for Data Collection and Analysis 56
Dependent Variable. 57
Adaptation. 57
Section B: Procedures for Data Collection and Analysis 59
Independent Variables. 59
Time. 59
Economic and linguistic background. 59

Procedures 68
The Participants: International Undergraduate Students at Virginia Tech. 68
The Unit of Analysis. 70
The Survey Management. 70
The Survey Implementation. 71
Non-response. 71
The IRB Form. 73
Data Collection. 73
Data Analysis Procedures 74
Hypotheses 74
Data Analysis 76
Regression Analyses. 78
Chapter 4 81
Data Analysis 81
The AEIUSVT Survey 81
Reliability Analyses of Section A: the AEIUSVT Survey 81
Analysis of Section B: Demography of the Sample 82
The Research Question 92
Hypotheses 92
The Results and Analysis of Section A of the AEIUSVT Survey 94
Hypotheses H_1 and H_2: Adaptation level differs based on E/L backgrounds in

freshman and senior years 95

Hypotheses H_3, H_{3a}, H_{3b}, H_{3c}, H_{3d}: Is the adaptation process of IU students at Virginia Tech a linear relationship between time and adaptation? And if so, are there differences between the slopes and the intercepts of the regression lines based on the E/L backgrounds of the IU students? 104

A Graphical Representation of the Relationship between Time and Adaptation. 107

Differences Based on Linguistic Backgrounds. 120

Exploratory Analysis 120

Relationship of time and adaptation. 120

An alternative model of adaptation. 124

Chapter 5 129

Discussion and Implications 129

Overview of Study 129

Limitations 130

Discussion of the Findings 131

Adaptation and Time 131

Adaptation and Linguistic Characteristics 133

Adaptation and IU Students' Adequacy of Support Received while at Virginia Tech 134

Implications for Future Practice, Research, and Policy 137

Summary 140

References 141

Appendix A: Regulations Affecting International Students in the United States 156

Appendix B: Authorization from the Institute for Social Research in Oslo, Norway to Use "A study of intercultural contact: Norwegian Fulbright grantees visiting the United States" by Sverre Lysgaard, 1959. 157

Appendix C: Authorization from Daya Singh Sandhu to Use "The Cultural Adaptation Pain Scale (CAPS)" 158

Appendix D: Adaptation Experience of International Undergraduate Students at Virginia Tech Survey (The AEIUSVT Survey) 159

Appendix: E-mail Message Sent through the Cranwell International Center to Potential International Undergraduate Students Inviting Them to Answer the Online Survey 168

Appendix F: Fliers Distributed at the International Week. 169

Appendix G: Two Sample Copies of the Follow up E-mail Messages Sent to Potential Participants from Group 1 170

Appendix H: Three Sample Copies of the Follow up e-mail Messages to Potential Participants from Groups 2, 3, and 4 172

Appendix I: Two Sample Copies—Half Spanish and Half English—of the Follow up e-mail Messages to Potential Participants from Spanish Speaking Countries 175

Appendix J: The Institutional Review Board (IRB) at Virginia Tech for Research Involving Human Subjects Form 177

Appendix K: Frequency Tables for the 50 Items in the Section A of the AEIUSVT survey (N = 318) 178

List of Tables

Table 3.1: Number of International Undergraduate (IU) Students at Virginia Polytechnic Institute and State University (Virginia Tech) Distributed into the 92 Countries of Origin Represented (*N* = 595)……..…….....53

Table 3.2: Distribution of International Undergraduate (IU) Students at Virginia Tech by Academic Class Status….....54

Table 3.3: Distribution of International Undergraduate (IU) Students at Virginia Tech by Sex.....55

Table 3.4: Distribution of Countries of Virginia Tech International Undergraduate (IU) Students into Developed and Underdeveloped Countries……...61

Table 3.5: Distribution of Countries of Virginia Tech International Undergraduate (IU) Students into English Speaking Countries and Non English Speaking Countries……...…...62

Table 3.6: Dummy Coding Scheme for each Hypothesis Used in the Regression Comparisons..80

Table 4.1: Cronbach's Alpha for Total and Subscale Scores (*N* = 318).……..83

Table 4.2: International Undergraduate (IU) Student Responding to the Adaptation Experience of International Undergraduate Students at Virginia Tech (AEIUSVT) Survey Distributed into the 83 Countries of Origin Represented (*N* = 318).…….....84

Table 4.3: Demographic Characteristics of International Undergraduate (UI) Student Sample (*N* = 318)……...85

Table 4.4: International Undergraduate (IU) Students' Response to Survey Question: "I was required to take the TOEFL exam to be admitted to Virginia Tech?" (*N* = 318)…….87

Table 4.5: International Undergraduate (IU) Students' Response to Survey Question: "Did you attend an English Language Institute (ELI) in the United States before coming to Virginia Tech?" (*N* = 318)……...90

Table 4.6: International Undergraduate (IU) Students' Response to Survey Question: "I attended an ELI for:" (*N* = 52)…….…….....91

Table 4.7: International Undergraduate (IU) Students' Response to Survey Question: "I have sufficient financial funds to support myself in the United States while at Virginia Tech." (*N* = 318)……...93

Table 4.8: Crosstabs between Sample's Academic Class Status and Years at Virginia Tech (*N* = 313)……...96

Table 4.9: Crosstabs between Sample's Academic Class and Years at Virginia Tech: Chi-Square Tests (*N* = 313).……...…...……..97

Table 4.10: Number, Means, and Standard Deviation for International Undergraduate (IU) Students with 1 Year at Virginia Tech Divided into the Four Combined Economic and Linguistic (E/L) Background Groups and Four Dependent Variables (*N* = 126).....98

Table 4.11: One-Way Analysis of Variances for International Undergraduate (IU) Students with 1 Year at Virginia Tech Divided Into the Four Combined E/L Background Groups and Four Dependent Variables (*N* = 126)…….…...99

Table 4.12: Number, Means, and Standard Deviation for International Undergraduate (IU) Students with 3 Years at Virginia Tech Divided into the Four Combined E/L Background Groups and Four Dependent Variables (*N* = 51).……..……..100

Table 4.13: One-Way Analysis of Variances for International Undergraduate (IU) Students with 3 Years at Virginia Tech Divided into the Four Combined E/L Background Groups and Four Dependent Variables (*N* = 51)…..…….…….101

Table 4.14: Number, Means, Standard Deviation, and Post Hoc Test for International Undergraduate (IU) Students with 2 Years at Virginia Tech Divided into the Four Combined E/L Background Groups and Four Dependent Variables (*N* = 86)…....…….102

Table 4.15: One-Way Analysis of Variances for International Undergraduate (IU) Students with 2 Years at Virginia Tech Divided into the Four Combined E/L Background Groups and Four Dependent Variables (*N* = 86)……103

Table 4.16: Number, Means, Standard Deviation, and Post Hoc Test for International Undergraduate (IU) Students with 4 Years at Virginia Tech Divided into the Four Combined E/L Background Groups and Four Dependent Variables (*N* = 49)……...105

Table 4.17: One-Way Analysis of Variances for International Undergraduate (IU) Students with 4 Years at Virginia Tech Divided into the Four Combined E/L Backgrounds Groups and Four Dependent Variables (*N* = 49)……..……..106

Table 4.18: Number, Mean, Standard Deviation, and Intercorrelations for Regression Comparison 1 (Group 1 vs. Group 2) and the Adaptation Experience of International Undergraduate Student at Virginia Tech (AEIUSVT) Survey Total Score (*N* = 104)…...108

Table 4.19: Multiple Coefficient of Determination (R^2), the Adjusted R^2 (ΔR^2), the Standard Error of the Estimate, and Coefficients for Regression Comparison 1 (Group 1 vs. Group 2) and the Adaptation Experience of International Undergraduate Student at Virginia Tech (AEIUSVT) Survey Total Score ($N = 104$).....109

Table 4.20: Number, Mean, Standard Deviation, and Intercorrelations for Regression Comparison 2 (Group 1 vs. Group 3) and the Adaptation Experience of International Undergraduate Student at Virginia Tech (AEIUSVT) Survey Total Score ($N = 104$)…...110

Table 4.21: Multiple Coefficient of Determination (R^2), the Adjusted R^2 (ΔR^2), the Standard Error of the Estimate, and Coefficients for Regression Comparison 2 (Group 1 vs. Group 3) and the Adaptation Experience of International Undergraduate Student at Virginia Tech (AEIUSVT) Survey Total Score ($N = 104$).…….....111

Table 4.22: Number, Mean, Standard Deviation, and Intercorrelations for Regression Comparison 3 (Group 1 vs. Group 4) and the Adaptation Experience of International Undergraduate Student at Virginia Tech (AEIUSVT) Survey Total Score ($N = 200$)…...112

Table 4.23: Multiple Coefficient of Determination (R^2), the Adjusted R^2 (ΔR^2), the Standard Error of the Estimate, and Coefficients for Regression Comparison 3 (Group 1 vs. Group 4) and the Adaptation Experience of International Undergraduate Student at Virginia Tech (AEIUSVT) Survey Total Score ($N = 200$)……..……113

Table 4.24: Number, Mean, Standard Deviation, and Intercorrelations for Regression Comparison 4 (Group 2 vs. Group 4) and the Adaptation Experience of International Undergraduate Student at Virginia Tech (AEIUSVT) Survey Total Score ($N = 213$)…...114

Table 4.25: Multiple Coefficient of Determination (R^2), the Adjusted R^2 (ΔR^2), the Standard Error of the Estimate, and Coefficients for Regression Comparison 4 (Group 2 vs. Group 4) and the Adaptation Experience of International Undergraduate Student at Virginia Tech (AEIUSVT) Survey Total Score (N = 213).....115

Table 4.26: Number, Mean, Standard Deviation, and Intercorrelations for Curvilinear Regression Model: IU Students' Time at Virginia Tech and the Adaptation Experience of International Undergraduate Student at Virginia Tech (AEIUSVT) Survey Total Score (*N* = 313)..….121

Table 4.27: Curvilinear Regression Model: IU Students' Time at Virginia Tech and the Adaptation Experience of International Undergraduate Student at Virginia Tech (AEIUSVT) Survey Total Score (*N* = 313) .....…….…….……...122

Table 4.28: Number, Mean, Standard Deviation, and Intercorrelations for Categorical Variables in Section B of the Adaptation Experience of International Undergraduate Student at Virginia Tech (AEIUSVT) Survey (*N* = 306)...…….…….……...126

Table 4.29: Regression Summary for Categorical Variables in Section B of the AEIUSVT Survey (*N* = 306)…...…….128

List of Figures

Figure 1: Lysgaard's U-Shaped Curve Model.....11

Figure 2: Oberg's 1960 Model on Cross Cultural Adjustment……..38

Figure 3: Sample Groups' Characteristics and Potential Number of International Undergraduate (IU) Students for Each Sample Group……69

Figure 4: Hypothesized Relationship between Adjustment and Time.....…….77

Figure 5: Respondents to Adaptation Experience of International Undergraduate (IU) Student at Virginia Tech (AEIUSVT) Survey Grouped by Linguistic and Economic (E/L) Characteristics with Numbers and Percentages……..……89

Figure 6: Graph of Relationship between Time and Adaptation for Pain Subscale Score……..116

Figure 7: Graph of Relationship between Time and Adaptation for Learned Helplessness Subscale Score……..117

Figure 8: Graph of the Relationship between Time and Adaptation for Positive Adaptation Subscale Score……..……118

Figure 9: Graph of the Relationship between Time and Adaptation for Adaptation Experience of International Undergraduate Student at Virginia Tech (AEIUSVT) Total Score for Adaptation……..……...119

Chapter 1

Introduction

Although today there are numerous students from foreign countries attending colleges and universities in the United States of America (U.S.), the practice of traveling abroad in search of a better education is not new. During the golden age of Athens some 2,200 years ago, students from around the Mediterranean and farther away traveled great and often hazardous distances to attend that city's renowned schools. In more recent times, some of the great leaders of the world received their education abroad. Gandhi and Nehru, both from India, were educated in England, the very country against which they later generated the revolution that gave India its independence. The Chinese leader Sun Yat Sen completed his education in Russia and went on to lead the revolution that would create the Republic of China (Knudson, 1956).

International Students in the United States of America

After the U.S. gained its independence from England, international students seeking the opportunity for a better education began to come to attend its colleges and universities. The earliest known foreign student in the U.S. was Francisco the Miranda, a student from Venezuela who studied at Yale in 1784 and later became a liberation leader in Latin America (Klinger, 1998).

There is no exact count of the number of international students in the U.S. before 1910, but records show that there were 4,856 international students in the U.S. in 1911. Over the last 40 years the number of international students enrolled in universities and colleges in the U.S. has increased steadily, with a dramatic rise in the last 20 years. In 1947, there were over 25,000

international students attending American colleges and universities. Between 1974 and 1995, the international student population on American campuses tripled from 154,000 students to 452,635 students (David, 1993/1994; David, 2002; Tompson & Tompson, 1996).

In the twenty-first century, this trend appears to be holding steady. University and college administrators have welcomed the growth in international enrollment, because it has offset the declining enrollment of American students and proved a financial asset to many campus budgets (Tompson & Tompson, 1996). During the 2000-2001 academic-year, 547,867 foreign students made up approximately 3.8% of the total enrollment in U.S. colleges and universities. Seventy-three percent of all foreign students enrolled in 2001 had non-U.S. funds as their primary source of funding, thereby bringing almost $11.04 billion into the U.S. economy (David, 1993/1994; David, 2002; Hey-Kyung, 2001).

A study conducted at the University of Wisconsin at Madison in 2001 evaluated the economic impact of international students on the Madison community and found that each international student spent $44,384 on tuition, academic expenses, and living expenses. In the 1999-2000 academic-year, the money international students spent represented a $249 million economic benefit for the city of Madison. A similar study at the University of South Dakota at Vermillion in 1999 found that collectively international students spent an average of $1,001,991 per year in the community, which directly impacted this small county's economic well being (David, 2001).

Although Robinson (1978) notes that the American system of education has been educating those who will be the leaders of the world during the first half of the 21st century, the U.S.'s share of the world's foreign student population had decreased from 45% in 1969 to 30%

in 1977 (National Association of Foreign Student Affairs (NAFSA), 1978; NAFSA, 1998). However, by 2001, the U.S. had become the leading destination for international students, and it is still the country that hosts the largest number of international students of any country in the world (David, 2002: Hey-Kyung, 2001; Sandhu & Asrabadi, 1994). This is the case even though "the United States does not produce enough graduates literate in math and science, but India and China generate surpluses" (Campo-Flores, Smith, Breslau, Samuel, & Clemetson, 2000, p. 40).

During the 2000-2001 academic year, in spite of this deficiency, the top 10 countries of origin of foreign students in the U.S. included (in descending order) China and India, as well as Japan, the Republic of Korea, Taiwan, Canada, Indonesia, Thailand, Turkey, and Mexico. It is important to note that 55% of all international students enrolled for the 2000-2001 academic-year were from Asia, while 15% were from Europe, 12% were from Latin America, 7% were from the Middle East, 6% were from Africa and another 6% were from North America and Oceania (Hey-Kyung, 2001).

International students also are vital to the quality of teaching and to the learning process, because a multicultural mix is essential to students who will live in a world where opportunities transcend national boundaries and jobs increasingly require the capacity to think and work across cultures (Goodman, 1996). International students are a resource for promoting cultural awareness on campus and in surrounding communities (Quimbita, 1989). Because they come from a wide range of social, cultural, academic, linguistic, and religious backgrounds, they bring with them the cultural and intellectual wealth of their home country and take home the culture of the host country (Ballard, 1987).

In the 2000–2001 academic-year, California with 74,281 international students and New

York with 58,286 led the nation in numbers of foreign students enrolled in their institutions of higher education. Texas was third with 37,735 international students. New York University in New York City had the most foreign students in the nation with a total of 5,399 students, and the University of Southern California at Los Angeles was second with 5,321 international students. Out of 135 colleges and universities with foreign students, Virginia Polytechnic Institute and State University (Virginia Tech) in Blacksburg, Virginia was 80th with 1,592 international students (David, 2002; Hey-Kyung, 2001).

In addition, there were 85,238 international students in intensive English language programs (IEPs) and English Language Institutes (ELI) for the same academic year. More than 80% of these English institutes' international students eventually enter American colleges and universities and around 10% of these English institutes' international students are the spouses and dependents of graduate international students and scholars at American colleges and universities (David, 2002).

According to Campo-Flores et al. (2000), "Washington gets the message. Over the years, and over the protest of U.S. labor unions, Congress has steadily increased the number of H1-B visas for immigrant knowledge workers" (p. 40). The same can be said about the numbers of international students and scholars. Even though most of them return to their countries of origin, some stay and contribute to the economic development of the U.S. Those returning to their countries of origin contribute to their country's development, as did Gandhi, Nehru, Miranda, and Sun Yat Sen (Higbee, 1961; Ho, 1973; Knudson, 1956).

One of the most important, but least appreciated successes of American foreign policy has been the reservoir of goodwill toward the U.S. created by educating successive generations

of world leaders. As the debate on foreign students proceeds, the U.S. must recognize that this country gains much from being their destination of choice. It also remains true that 99.99% of international students enrolled in the U.S. institutions of higher education wish the American people no ill. They cause the U.S. no problems, and seek nothing more than the best education in the world. As the U.S. government seeks to define an effective anti-terrorism strategy, educators and the public in general cannot afford to punish the many for the acts of the few (Johnson, 2001), especially because the U.S., now more than ever, needs friends worldwide. The positive attitude of international students toward the American people persists even though during their stay in the U.S. these international students go through a sometimes painful transition process of adaptation and adjustment to the new cultural, social, and physical environment of the American colleges and universities.

The Adjustment Process

The college years represent a time when students are striving to form an individual identity (Sheehan & Pearson, 1995). For any student, this can prove to be a difficult time, full of self-doubt and anxiety. Many students have difficulty adjusting to the college environment and experience problems connected with (a) social isolation, (b) loneliness, (c) separation, (d) individuation, (e) fear of social interaction, and (f) finances (Brooks & Dubois, 1995; Holmbeck & Wandri, 1993; Keller, 1979; Lapsley, Rice, & Shadid, 1989; Sax, Astin, Korn, & Mahoney, 1996). International students face the same obstacles as domestic students when they first arrive at American colleges and universities. They have to deal with all of their self-doubt and anxiety, as well as score well on the SAT, and cope with the universities' and colleges' admission processes early in their experience with the American higher education system (Johnson, 1971;

Lin & Yin, 1997). Therefore, higher education administrators' major concern regarding first-year college students continues to be the many challenges that they face during their adjustment process.

One part of this adjustment process is the separation from the family and the self individualization of the students. First-year college students are faced with the fact that they have to loosen some of their attachment to family to become their own persons and develop their own ideas (Holmbeck & Wandri, 1993). Since traditional-age first-year students reveal high levels of dependency on parental figures, some might have difficulties creating social networks outside their families and, therefore, continue to use the parental figures as their support network (Lapsley et al., 1989). However, if students are able to keep close ties with their families while balancing their own lives at college and have sufficient autonomy to make their own decisions and choices, they will make a more successful adjustment to college life. Even so, the separation from home and family causes anxiety and fear of social interaction (Holmbeck & Wandri). This situation is not all bad, because it brings about individualization by having to work hard to become their own person. Without the structure of a guardian or parental figures, some first-year students' adjustment concerns have been related to feelings of social isolation and loneliness after being separated from their families (Brooks & Dubois, 1995).

Since most college students experience some problems as they move into college life, there are a number of models that try to explain the transition process students go through when they come to college.

Tinto's Model of Transition

The most important of these is Tinto's (1987) model of transition, which states that there are three stages of transition in domestic students' college careers. These stages are:

Stage 1: The Separation from Communities of the Past.

Once students come to college, they disassociate themselves, in varying degrees, from membership in the communities of their past, including their families, their local high schools, and their local area of residence (Tinto, 1987; Tinto, 1993).

Since the values, norms, behaviors, and intellectual styles of the past communities differ from those of the college communities, a student's process of adaptation to the new behaviors and norms of the college community leads to some degree of transformation that may reflect his/her rejection of the norms of past communities. Foreign students, students from very small rural communities, and students from distinct social, ethnic, or religious communities may find separation particularly difficult, because it may represent a major shift in the way they conduct their daily life (Tinto, 1987; Tinto, 1993).

Stage 2: The Transition between High School and College.

The second stage is the transition between high school and college. It occurs right after that of separation, when the students pass from the old to the new environment. Before students fully adopt the norms and behaviors of the new community, they have to let go of those of the old community. During this period, the students try to learn the norms and behaviors of the new community, and each student's attitude toward the changes influences this learning process (Tinto, 1987; Tinto, 1993).

Stage 3: The Incorporation into the Society of the College.

The third stage in Tinto's model is the incorporation of the student into the society of the college. After the separation and transition stages, which tend to occur very early in a student's career, he or she is faced with the task of becoming integrated into the community of the college. During this period, new students have to learn the ropes of college life largely on their own. Some colleges provide special programs for freshmen, but, in general, students have to go through this process by themselves (Tinto, 1987; Tinto, 1993).

Although Tinto's three stages focus on domestic students, international students share many of the same adjustment problems. However, as these international students leave their homes and travel thousands of miles to attain an advanced college degree, they bring with them their own special types of needs that are not issues for the average American college students (Charles & Stewart, 1991) and face other obstacles that do not affect domestic students. As American institutions of higher education, motivated by the cultural, economical, and educational gains international students provide them, recruit from more diverse groups, the concern for the adjustment needs and adaptation process of these international students will be more prevalent (Kenny & Stryker, 1996).

To come to the U.S., international students have to go through a pre-arrival process in their home countries to get the student visas needed to study in American colleges and universities and then follow a set of rules and laws to remain in the U.S. as students (Gabriel, 1973; Johnson, 1971). These rules and regulations, which have been increased, expanded, and tightened since the September 11, 2001 attacks, include a new list of "special requirements and rules" as well as "special register" requirements that students from Muslim countries have to

follow, in addition to the existing rules and regulations that all international students have to follow to remain a student or to become one. A copy of the regulations affecting international students in the United States can be found in Appendix A. Along with all these rules and regulations, as well as the adaptation concerns, many international students also have to cope with academic issues and a limited knowledge of English that can play an important part in how they relate to professors and peers, and in how they study (Cadieux & Wehrly, 1986).

Also, most international students coming for the first time to institutions of higher education in the U.S. know little about the American educational system and American culture (Meg Mei-Chih, 2001). A new and different culture presents another obstacle for international students. They go through a more extensive acclimatization process than domestic students, because they have to get used to the American culture and the American higher education system while trying to preserve their own culture. International students, looking back to the familiar world of their home countries and worrying about successfully adapting to their new environment, find themselves straddling two cultures, while reluctantly relinquishing one and adaptively confronting the other (Adelegan & Parks, 1985; Padilla, 1980).

Moreover, international students have to deal not only with variations in the classroom behavior of the social systems of different universities, but also with the considerable variance in the degree of social distance characteristic of faculty-student relations in different cultures. Consequently, international students are at first confused and disturbed by what they perceive to be the lack of respect their American peers exhibit toward professors (Gullahorn & Gullahorn, 1963; Marion, 1986).

Letting go of the familiar and adjusting to the new environment are problems confronted

by international students when they arrive in the U.S. They want to continue eating the food, wearing the clothing, and hearing the music of their home countries. They want to keep in close contact with their families and friends, and they worry about making new friends, getting to know local people, securing housing, and adjusting to local customs, morals, climate, and food. Most of them also worry about being able to communicate in English (Adelegan & Parks, 1985; Lee, Abd-Ella, & Burks, 1981; Meg Mei-Chih, 2001). These special factors make the transitional experience at American colleges and universities different for international students than for their American counterparts and affect their performances in U.S. universities and colleges (Adelegan, & Parks; Cadieux, & Wehrly, 1986; Gullahorn, & Gullahorn, 1963; Marion, 1986).

As the number of international students grew, and the importance of international students to the U.S. education system was recognized, researchers began to take an interest in assessing the impact of the transition process on these students and devised methods to measure it. Tinto's 1987 model of domestic college students' transition was one such method. It used the general freshmen population, which is fine up to a point, because all freshmen tend to share the same problems adjusting. However, since international students experience even more adjustment issues, it is necessary to assess the usefulness of some of the earlier models, and point out their strengths and weaknesses.

Sverre Lysgaard and International Students' Transition Process

In 1955, Sverre Lysgaard developed the u-shaped curve model, the most famous of the transition models (see Figure 1), to explain the special transition process of international students when they come to colleges and universities in the U.S. Since its introduction, almost every American institution of higher education uses the u-shaped curve model as a guide to the

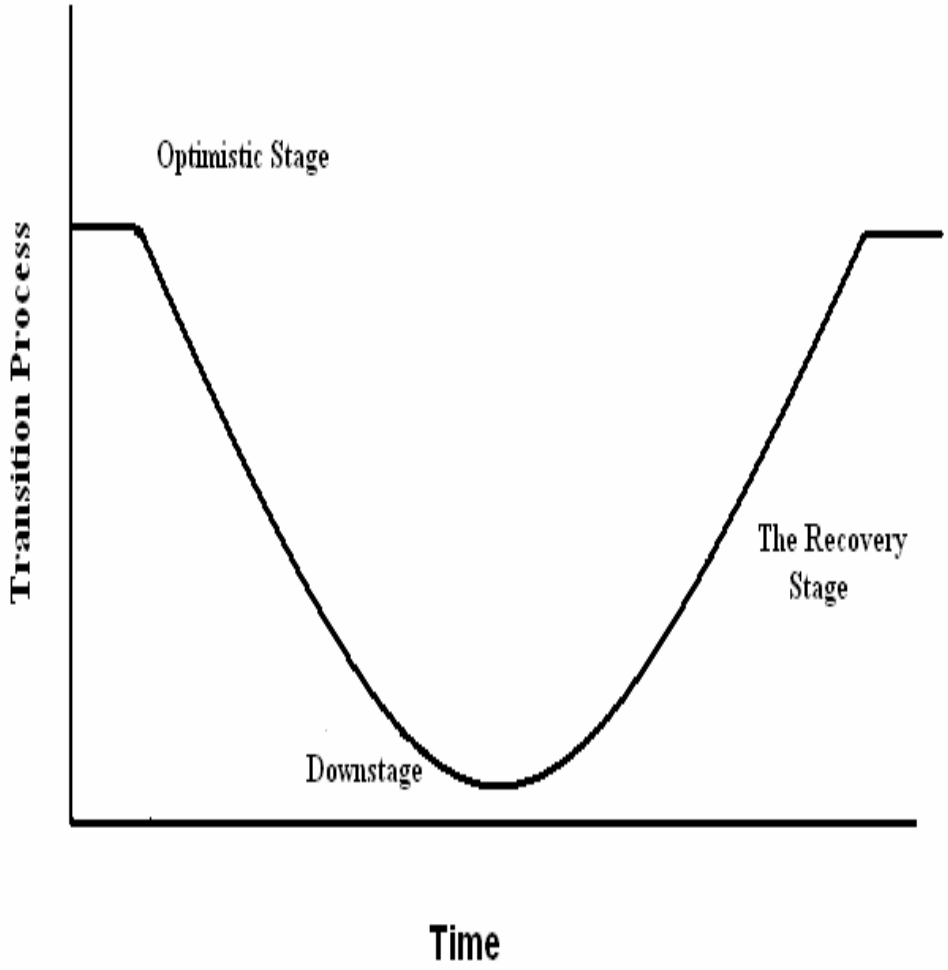


Figure 1: Lysgaard's u-shaped curve model.

transition process of international undergraduate (IU) students in colleges and universities. This model uses three stages, which Lysgaard calls the optimism stage, the downstage [sic], and the recovery stage to define the transition process (Lesser & Peter, 1957; Lysgaard, 1955). A copy of the authorization from the Institute for Social Research in Oslo, Norway to use "A study of intercultural contact: Norwegian Fulbright grantees visiting the United States" by Sverre Lysgaard, 1995 can be found in Appendix B.

The Optimism Stage.

The optimism stage, which occurs during the early part of the stay, is characterized by feelings of optimism. When international students arrive in the U.S., they feel joy and happiness, because they have reached their destination. Their satisfaction level is high, and during this time they believe that the adjustment process is going to be easy and successful (Klineberg & Hull, 1979; Lesser & Peter, 1957; Lysgaard, 1955).

The Downstage [sic].

The second stage, defined as the downstage [sic], occurs when students start to confront difficulties in the process of adapting to their new college environment. As international students become more involved in relationships with other students, faculty, and staff, they start encountering difficulties in achieving certain goals, and may become confused, frustrated, and depressed. Sometimes they develop negative feelings toward the host culture, and their satisfaction levels start to decrease. This stage ends with the students' satisfaction levels finally declining to their lowest level (Klineberg & Hull, 1979; Lesser & Peter, 1957; Lysgaard, 1955).

The Recovery Stage.

The recovery stage begins when the students emerge from the downstage [sic]. Those international students who are able to resolve the difficulties encountered in the second stage and remain in the U.S. for a sufficient length of time start to feel better adjusted to the new environment and culture. As they feel more integrated into the American community, their satisfaction levels start to rise again (Klineberg & Hull, 1979; Lesser & Peter, 1957; Lysgaard, 1955).

An Extension to the U-Shaped Curve Model

Gullahorn and Gullahorn (1963) have proposed an extension to the u-shaped curve model with their w-shaped curve hypothesis. This hypothesis argues that in any intercultural relationship there are two readjustment-transitional processes. The first, which consists of adaptation to the environment, rules, and norms of the new culture, is based on Lysgaard's u-shaped curve model. The second process occurs when the persons return to their home country, culture, and institution, and experience a transition process of readjustment to their own culture. The second u-shaped curve on the Gullahorns' w-shaped curve model represents this second process.

Summary

For centuries, students have traveled long distances in their quest for greater knowledge. This desire informs the aspirations of international students who come to the U.S. seeking the opportunity for a better education. When today's international students first arrive at their colleges and universities all around the U.S., they face the same obstacles as domestic students

new to college life. However, international students face other obstacles that do not affect domestic students, because they must adapt not only to the environment and the culture of the college or university, but also to the new cultural rules and norms of their host country. As a result, the adaptation process of international students coming to attend American colleges or universities differs from that of domestic students, and these differences can affect their performance in U.S. institutions of higher education.

Problem Statement

Tinto's 1987 model of college students' adjustment, based on research done on domestic students coming to college for the first time, has offered some explanation of the adaptation process of international students. Lysgaard postulated the u-shaped curve model after studying 198 Norwegian Fulbright grantees who had received travel grants for various purposes in the U.S. These students left for the U.S. in 1950 and all of them had returned to Norway by March 1953; however, most of the students (73%) stayed between one and two years in the U.S. Of the 198 Fulbright grantees, 10 students (5%) were 19 years old or younger, 26 students (13%) were between 20 and 24 years old, 157 students (78%) were between 25 and 59 years old, and 7 students (4%) were 60 years old or older. The sample consisted of 148 (75%) males, and 50 (25%) females. In addition, 156 grantees or 78% of these Norwegian Fulbright students had a degree from a Norwegian higher education institution before they came to the U.S. (Lysgaard, 1954).

There are three major drawbacks to Lysgaard's model as an explicator of international students' adjustment. First, the model is based only on the experience of Norwegian students. Secondly, the sample Lysgaard used to create his u-shaped curve model does not represent the

current diverse and cosmopolitan IU student population in today's institutions of higher education in the U.S. The third and most serious drawback is in the measurement and operationalization of adaptation or adjustment as described by Lysgaard. Lysgaard measured the satisfaction levels of Fulbright students when they were in the U.S. as a measurement of the adaptation level of international students in colleges and universities in the U.S. While it may be conceivable that satisfaction levels begin high, drop, and then rise again, it is questionable whether the adaptation or adjustment actually follows this pattern. The labeling of satisfaction as adjustment is misspecified and misleading.

The Gullahorns' w-shaped curve model of international students' adjustment is concerned with explaining the adjustment process that takes places once the international students return to their home countries rather than their adjustment process when they are abroad. Therefore, this model does not help the study of the adjustment process of international students while in the U.S., because the initial adjustment is based on the existing u-shaped curve model developed by Lysgaard in 1955, and not all international students return home.

Even though many authors and researchers have used the u-shaped curve model to describe the adjustment process of IU students, there appears to be a lack of research that assesses whether the u-shaped curve model really explains adaptation or adjustment and not simply satisfaction. It is important to keep in mind that Lysgaard measured satisfaction levels to obtain a model for adjustment. However, although IU students can adapt well to their new environment and thereby achieve a level of satisfaction with it, this level does not ensure complete satisfaction with their experience or vice versa. Also, adaptation does not mean satisfaction. In other words, Lysgaard's u-shaped curve model is not appropriate to the analysis

of IU students' adaptation process in the U.S., because it is based solely on satisfaction levels. Furthermore, Berry (1976a, 1976b) has already established that adaptation is a useful concept in the study of acculturation, but it has never been used for such purpose.

Finally, there is a lack of research on whether the Lysgaard model can be applied to a more culturally and economically diverse sample of IU students. What applied to Norwegian Fulbright grantees, an elite group of students and scholars, might not apply to most IU students coming from every corner of the world.

Purpose of the Study

This study had three main purposes:

The first was to measure the adaptation process of IU students at Virginia Tech in Blacksburg, Virginia over time to find out what kind of relationship (adaptation/time) it had by determining whether there was a linear relationship between adaptation and time. The second was to examine the effects of combined economic and linguistic backgrounds (E/L backgrounds) on the adaptation process of IU students at Virginia Tech. The third was to determine the u-shaped curve model's application and effectiveness at explaining the adaptation experience of international undergraduate students from different E/L backgrounds.

Constructs of the Study

There were two main constructs in this study. The first was based on the u-shaped curve model of international students' transition process explained earlier in this chapter. Adaptation was viewed as the reduction of conflict and the group and individual options taken to lesson acculturative conflicts (Berry, 1980). These individual options taken to lessen acculturative

conflicts have been described in the literature as an adaptation or adjustment process. The adaptation process (dependent variable) was conceptualized as the sum of the academic, cultural, social, and personal transition experiences of IU students and operationalized as the IU students' total score in the Adaptation Experience of International Undergraduate Students at Virginia Tech Survey (AEIUSVT Survey) adapted from Sandhu, Porter, and McPhee (1996) Cultural Adaptation Pain Scale (CAPS).

The second construct consisted of the characteristics of combined E/L backgrounds of the IU students at Virginia Tech. The combined E/L backgrounds (4 categories) were the independent variables for this study.

Research Questions

One two-part question guided this study:

What was the relationship between adaptation and time for international undergraduate students and did this relationship differ based on combined economic and linguistic (E/L) backgrounds?

Hypotheses

The following research hypotheses were based on a careful review of the current literature, as well as the researcher's own experiences as an IU student and working with international students.

H_1 = Adaptation level differs based on E/L backgrounds in freshman year.

H_2 = Adaptation level differs based on E/L backgrounds in senior year.

H_3 = The adaptation process of international undergraduate students at Virginia Tech is not equivalent to the one described by the u-shaped curve model, because the u-shaped curve model described the relationship between time and adaptation as curvilinear and used satisfaction as the measure to approximate adaptation. This study hypothesized that the measurement of adaptation over time would yield a linear relationship.

Theoretically, adaptation to the new culture could not start out high, decline, and then return to its original level or higher. Specifically, Hypothesis 3 suggested that there would be differences in the slopes and the intercepts of the regression lines among Virginia Tech IU students based on their E/L backgrounds.

Definitions

The following definitions guided this study:

Adaptation or Adjustment Process: It was operationalized in this study as the IU students' progression of becoming accustomed or fine-tuned to the new environmental expectations as a way to fit the conditions of the new environment. International undergraduate students' adaptation experience process in this study was synonymous with IU students' adjustment process and vice versa.

The Time Length of the Adaptation Process: This process was conceptualized as the time that was needed by IU students to become comfortably adapted or adjusted to the American culture, and the American system of higher education, as well as to the American institution of higher education they were attending.

The Adaptation Experience of International Undergraduate Students at Virginia

Tech (AEIUSVT) Survey Total Score: This consisted of the global score of an individual or a particular group of IU students on the CAPS by Sandhu, Porter, and Mc Phee (1996). Permission to use the CAPS can be found in Appendix C.

International Undergraduate Student: This was a student who needed an F-1 Visa for admission as an undergraduate student to Virginia Tech.

Domestic Undergraduate Student: This was a student who was an U.S. citizen or resident and, therefore, did not need an F-1 Visa for admission as an undergraduate student to Virginia Tech.

Non English Speaking Student: This was a student whose country of origin was a non English speaking country as classified by the Central Intelligence Agency (CIA) Factbook of 2002 (Central Intelligent Agency, 2002), and ultimately a student who was asked by Virginia Tech International Undergraduate Students Admission Office to take the Test of English as a Foreign Language (TOEFL) to gain admission to Virginia Tech.

English Speaking Student: This was a student whose country of origin was classified as an English speaking country by the CIA Factbook of 2002 (Central Intelligent Agency, 2002), and who was not asked by Virginia Tech International Undergraduate Students Admission Office to take the TOEFL exam to gain admission to Virginia Tech.

International Undergraduate Student from a Developed Country: This was a student whose country of origin was classified as a high income level country by the World Bank in its annual World Development Indicators Database 2002 (World Bank, 2002). The economic condition of the country of origin was used as a proxy for the economic condition of individual,

but it did not describe the individual's own economic status or condition.

International Undergraduate Student from an Underdeveloped Country: This was a student whose country of origin was classified as anything except a high income level country by the World Bank in its annual World Development Indicators Database 2002 (World Bank, 2002). The economic condition of the country of origin was used as a proxy for the economic condition of individual, but it did not describe the individual's own economic status or condition.

Significance of the Study

The present study was important, because it has provided a way to evaluate and improve current programs designed to help IU students adapt to their new life and created a guideline for other types of studies of the adaptation process. In terms of practice, the study can help student affairs professionals in charge of developing programs to assist IU students, because it has provided information on how well the u-shaped curve model measures the adaptation process of these students at Virginia Tech. Student affairs professionals can use this information to assess current programs designed to help the IU students with their adaptation or adjustment process to their college or university by identifying areas that need improvements or adjustments.

Faculty who teach IU students also can benefit from the results of this study, because it has provided them with information on the adaptation process of these students. Such information can help faculty evaluate how effectively their courses are meeting the needs of this group of students. The information can help faculty understand the ways IU students differ from domestic students when coping with their university environment. Such knowledge should encourage faculty to find ways to accommodate these students' differences in terms of class

structure and environment.

The results of the study can also benefit officers involved with IU student programming, because it has provided information on the adaptation process of these students at Virginia Tech. Such information can be used to program events that will better serve their needs.

The study has also provided information on the differences in the adjustment process of IU students based on their combined E/L backgrounds. Student affairs personnel ought to be interested in knowing this information, because it can help them better understand the specific needs of each group being studied as well as the differences in the adaptation process of these groups.

International undergraduate students currently studying in the U.S. can benefit from the findings of this study, because it has offered them information about the adjustment process of IU students in an American university environment. These students can use this information to better understand their own adaptation process. Realizing they are not alone can help them alleviate feelings of isolation, frustration, and depression.

In addition to providing practical information, the results of this study also have significance for future research. Since this study examined only the adaptation process of international undergraduate students from different E/L backgrounds at Virginia Tech, a large university, other studies might be conducted at other types of higher education institutions (e.g. colleges, community colleges, liberal arts schools). These future studies might expose differences in the IU students' adaptation process at other types of higher education institutions, thereby leading to ways of creating better programs to ease their adjustment process.

Limitations of the Study

The present study has its limitations, as does any research. The first limitation was related to the sample. All the IU students who participated in this study came from the same institution, Virginia Tech. The IU students who decide to attend Virginia Tech might have special characteristics that make them different from IU students who attend other universities and colleges in the U.S. If this is true, the results of the study could have been influenced.

As with any study, this study has limitations that relate to the nature of the data collected. Since most of the data was collected through an Internet-based survey, it is possible that participants were less than candid in the information they provided. At the same time, because this type of survey required a small level of familiarity with technology, it could be possible that the participants were not familiar with this type of technology and, therefore, might have made mistakes. If this is the case, the results of the study could have been influenced.

This study was based on a cross-sectional data analysis. It has been noted earlier in this section that a longitudinal data analysis could provide a better picture of the adaptation/adjustment process over time. The use of a cross-sectional data analysis could produce dramatically different results from those obtained from the use of a longitudinal data analysis. If this occurred, the results of the study could have been influenced.

Although this study used the economic condition of the IU students' country of origin as a proxy for the economic condition of the individual, it is possible that the economic condition of the country did not describe the actual economic reality or economic status of the individuals. Therefore, the use of the economic condition of an IU student's country of origin as a proxy for

the economic condition of the individual might not be the best way to evaluate the economic background of IU students. If this occurred, the results of the study could have been influenced.

Despite these limitations, the present study has provided new information about the adjustment process and the transitional experience of IU students at Virginia Tech based on these students' combined E/L backgrounds and has filled the gap existing in the literature about the IU students' adaptation/adjustment process while attending institutions of higher education in the U.S.

Organization of the Study

This study is organized into five chapters. Chapter 1 introduced the study and provided the problem statement, purpose, research questions, hypotheses, definitions, significance, and limitations. Chapter 2 examines the available literature on the subject of IU students and their first year transition experience. Chapter 3 provides a description of the research methodology and research design of the study, including sampling techniques, as well as the instrument and procedures used to collect and analyze the data. Chapter 4 reports the results of the study, while Chapter 5 provides a discussion of those results and their implications for future practice and research.

Chapter 2

Literature Review

To assess the adaptation process of international undergraduate (IU) students based on their combined economic (developed vs. underdeveloped countries) and linguistic backgrounds (English speaking students vs. non English speaking students), an examination of the literature was necessary to understand the process IU students have gone through to adjust and adapt to the United States of America (U.S.) culture and the expectation of U.S. colleges and universities. The researcher's careful review of the literature on international students' adjustment and/or adaptation to institutions of higher education in the U.S. has shown that the literature can be divided into four important groups essential to international students' adjustment and adaptation process: (a) studies about academic transition experiences of international students, (b) studies about social transition experiences of international students, (c) studies about personal transition experiences of international students, and (d) studies about cultural transition experiences of international students. The studies about personal transition experiences divide into two groups: (a) those focusing on international students' coping mechanisms, and (b) those focusing on international students' financial problems.

Since this study also analyzes the IU students' adaptation process based on their combined E/L backgrounds, research on international students and linguistic difficulties, as well as international students and the influence of their economic background on their adaptation process were also examined to fully explore this adaptation process. It was interesting to discover that there was little recent research available on the subject of international students and the influence of their economic background and linguistic difficulties on their adaptation process,

which was surprising considering the number of international students attending colleges and universities in the U.S.

Research on International Students' Adaptation Process

Research on international students' adaptation process was divided for this study into four research groups essential to the international students' adjustment and adaptation process: (a) studies of academic transition experiences, (b) studies of social transition experiences of international students, (c) studies of personal transition experiences of international students, and (d) studies of cultural transition experiences of international students.

Studies of Academic Transition Experiences

Information about the academic transition experiences, which have provided one means of assessing international students' adaptation process, has been acquired from the students' own academic experiences at colleges and universities in the U.S. These experiences incorporated their relations with peers, their level of comfort in classes, their relations with faculty and staff, and their academic concerns. Nora (1993) referred to these experiences as academic integration and defined them as the development of a strong affiliation with the college academic environment both in the classroom and outside of class. Nora's definition also included interactions with faculty, academic staff, and peers in an academic nature.

International students arriving in the U.S. for the first time were faced with social isolation, homesickness, and fear of social interaction, and at the same time, they were forced into the culture, traditions, and routines of the American higher education institutions (Bulthuis, 1986; Price, 2002). Besides, no matter how well prepared international students thought they

were to study in a country other than their own, they were seldom prepared for the shock of total and complete immersion in a foreign system and language (McClellan, Cogdal, Lease, & Lodono-McConnell, 1996). Therefore, when international students first arrived on an American campus, they had to adapt quickly to the new system to succeed academically (Bulthuis; Price). The process of adaptation was made more difficult, because, as Charles and Stewart (1991) pointed out, comprehension of long lectures, class participation, discussion groups, and presentations were all obstacles to international students' adjustment to American academic and social life.

Manese, Sedlacek and Leong (1988) found significant differences between the ability of male and female international students to adjust to this new environment, because women had a greater need to become more comfortable speaking up in class and taking class notes. Men and women were similar in expressing moderate needs in the area of general study skills, writing skills, and academic advising. Additionally, there were no significant differences between male and female international students in their needs concerning test anxiety and school activities.

The American system of education is different from other educational systems in the world, because it emphasizes the discovery of knowledge and independent library research. International students have found that U.S. professors' expectations, teaching strategies, reading assignments, and examinations differed from those of teachers in their home countries who emphasized the lecture approach to education and the memorization of large bodies of information. Student participation was neither expected nor required, and the professors always had the last word on any topic (Bulthuis, 1986; Maxwell, 1974). Because of the change in academic expectations, the ultimate issue confronting international students every day was the

fear of disappointing others, such as parents, previous teachers, mentors, and friends, as well as themselves. In other words, as Quintrell and Westwood (1994) have noted, they must cope daily with the fear of failure.

International undergraduate students needed assistance in some areas of study skills, taking notes, reading assignments, writing papers, and taking examinations, as well as in career development (Maxwell, 1974). Results of a study conducted by Ramsay, Barker and Jones (1999) indicated that international students needed more special and specific attention when it came to academics. The students felt that they needed adequate time with an advisor and often requested direct feedback on ideas and work. However, most international students tended to be reluctant to initiate a counseling relationship. This reluctance might negatively affect IU students, because counseling centers often offer assistance in developing study skills, as well as more general counseling services. Therefore, an introduction to counseling services and continual staff outreach might be particularly important for international students (Manese et al., 1988).

Studies of Social Transition Experiences

Social transition experiences of international students provided another indicator of their adaptation to American colleges and universities. This factor involves the students' relations with other students of the same and the opposite sex, their social activities, and their participation in social activities on-campus and off-campus. Nora (1993) defined the social transition experience as social integration and the development of a strong affiliation with the college social environment both in the classroom and outside of class. Nora's definition also included interactions with faculty, academic staff, and peers on a social level, peer group interaction,

informal contact with faculty, and involvement with organizations.

Since international students are not allowed to work outside their college or university without special permission (see Appendix A), they have very limited opportunities to meet other students through work. They were more likely than any other group to eat meals in the student union or cafeterias and spend time between classes in libraries. They were also more likely to spend time at the student union just to be with people. The reason for this might be that student unions and libraries provide the primary environment for international students' social contacts (Shorter & Creamer, 1985).

Social isolation and homesickness were two of the major concerns higher education professionals had about international students. Some predominant concerns of these students were leaving their families, making friends, getting involved in relationships with the opposite sex, and being accepted by the community (Meloni, 1986). Parr, Bradley, and Bingi (1992) have reported that international students who had the most concerns were the least socially outgoing on campus and in the community.

According to Boyer and Sedlacek (1988), the social integration of international students was positively related to their patterns of academic success in American institutions of higher education. Because social activities and social networks in general provided a great deal of support for these students, the socialization of international students into the community had the possibility of resulting in positive academic success (Kenny & Stryker, 1996; Saidla & Parodi, 1991). To this it must be added that the overall experience of international students was affected by further situational factors arising from engaging in the socio-educational establishment, which had a significant influence on the whole educational process to be undertaken (Gatfield, 1999).

Nevertheless, many international students resisted this socialization into the community, because they only felt safe and secure with individuals of their culture (Kenny & Stryker; Saidla & Parodi).

Consequently, international students who spent more of their leisure time with domestic students, were significantly better adapted than those who spent more leisure time with students of their own cultural and language backgrounds. Isolated international students reported more problems related to cultural, academic, and social adjustment than did students who had a long and stable relationship with domestic students (Heikinheimo & Shute, 1986; Saidla and Grant, 1993; Saidla and Parado, 1991; Surdam & Collins, 1984). Schram and Lauver (1988) found that the international students most at risk were non-European undergraduates who spent little time with other students. Their study also pointed out that social interaction with domestic students was one of the important predictors of international students' alienation on college and university campuses, along with graduate status and a European nation as a home country.

One of the factors that makes social transition difficult is that the concept of friendship varies greatly from one culture to another. In some cultures, friendship is a deep and consuming relationship that is reserved for very few people, because it is based on mutual love and respect with unlimited obligations (Herskovits, 1982). In the U.S., however, friendship is understood to mean just doing things with other people whose company one enjoys. Therefore, the relationships of most Americans with international students rarely went beyond the most superficial contacts, and many international students soon gave up hope of establishing deep cross-cultural friendships (Bulthuis, 1986; Furukawa, Sarason, & Sarason, 1998; Heikinheimo & Shute, 1986; Miller, 1971). However, Abe, Talbot, and Geelhoed (1998) found that when

international students persisted at maintaining an increased interaction with American students, they also saw themselves adapting very well to American life. In contrast, those who saw themselves as having a high level of social support in the home country were more distressed after arriving in the new country. Perhaps this is due to the shock of decreased support.

A final concern about international students' social adjustment is the way in which these students might interpret actions and statements made by their classmates, faculty and staff, as well as any member of the host culture. Generally, international students were unfamiliar with the cultural context that some individuals might use when they act or speak. These students often felt that they were seen as "stupid" or inadequate because of the misunderstandings that occurred. These misunderstandings sometimes multiplied until feelings of helplessness began to form, thereby inhibiting successful adjustment of the student to the new setting (Adelegan & Parks, 1985). In contrast, social support was often linked with positive adaptation as well as positive physical and mental health in international students (Adelman, 1988; Furukawa et al., 1998; Hayes & Lin, 1994).

Studies of Personal Transition Experiences

Personal transition experiences of international students have been used to examine their adaptation process at colleges and universities. This area of research has focused on the students' personal feelings, their relationships with their families and friends in their home country, and their relationships with roommates and other students, as well as their mechanisms for dealing with personal concerns and financial limitations. The literature on international students' personal transition experiences can be divided into international students' coping mechanisms and international students' financial problems.

International Students' Coping Mechanisms.

Studies have indicated that studying in a foreign country often creates a level of psychological and socio-cultural stress, anxiety, and depression. A considerable number of studies have also demonstrated that international students often experience moderate to severe clinical depression and loneliness (Chiu, 1995; Leawell, 2001).

The ability of international students to cope with the drastic changes in their lifestyle and the stress of adapting to an alien environment depended on the individual student. Dunnett (1991) has found that a student's degree of past familiarity with aspects of American culture, the length of stay in the U.S., and the number and intensity of differences and similarities between the student's culture and the American culture posed additional difficulties. David (1972) recognized those situational factors, as well as awareness of one's own and the new culture, individual variables, and communication patterns as factors that influenced international students' ability to cope with American culture. According to Kou and Tsai (1996), other personal qualities that helped a person cope with the ambiguity inherent in cross-cultural adjustment included the ability to plan for the future, to take risks, to feel confident in personal ability, and to confront uncertainty. Kou and Tsai also reported that a hasty personality had fewer problems adapting.

One method international students used to cope with adjustment to the U.S. was to interact primarily with other students from their home country. These subgroups offered advice on coping, served as temporary surrogates for the home society, and compensated for the international students' feelings of social and personal isolation. In general, these subgroups formed a support system for the international students. Although these groups might help in the

adjustment process, they also might limit an international student's contacts with American students, thereby increasing he/her isolation from the campus social structure (Berry 1980; Dillard & Chisolm, 1983; Goodman, 1996; Marion, 1986; Wong-Reiger, 1984). In contrast, other international students tried to cope with a new environment by immersing themselves in hard work. Aside from the need to succeed academically, Heikinheimo and Shute (1986) found devotion to work kept the students' minds occupied and helped to combat loneliness.

International students attending a college or university in the U.S. also are concerned about their health, many obsessively so. These concerns stemmed from ignoring health care available to them. Also students who did not have support groups and who were not emotionally and financially supported by their parents had a higher risk of developing health problems such as sleep deprivation, unhealthy diet, and simple problems with their vision, hearing, and skin. These conditions inhibited their adjustment process (Fisher & Ozaki, 1985; Klineberg & Hull, 1979).

Affective factors encompassing the personal domain (e.g., family-related worries, illnesses, political instability in their countries, and so forth) were likely to impact on international students' studies, especially where there was a climate with no understanding and support for these areas of concern. A person's self-esteem and self-image are validated by significant others in his/her life who provide emotional and social support in culturally patterned ways. Therefore, the normal response of international students who were experiencing a withdrawal of support was to have feelings of anxiety and isolation (Adjei, 1991).

International students also worried about their living conditions in their host environment. They might not feel that the conditions were desirable because of possible health problems, but

they often made the decision that their education was worth living in such conditions and found ways of coping with these issues (Fisher & Ozaki, 1985).

International Students' Financial Problems.

The lack of funds for education was the second most frequently cited problem international students have reported in terms of adjustment issues. It is erroneous to assume that all international students came from wealthy backgrounds or had access to sufficient funds for their education. Even though some came from wealthy families, most struggled to afford college (Cadieux & Wehrly, 1986). Moreover, government policies often restricted international students with student visas from working while in the U.S. (Shorter & Creamer, 1985). Therefore, financial stress could affect international students' academic life and development, because their financial problems obligated them to carry heavier academic loads to graduate as soon as possible (Cadieux & Wehrly).

Klineberg and Hull (1979) found that international students' financial concerns stemmed from their ignorance about their financial needs once they arrived at their colleges and universities. The academic success of foreign students or scholars was based on the security of knowing that financial resources were adequate to meet their needs for the duration of their stay in the U.S. Since many international students are self-supporting and those who do not have scholarships and awards have to find the rest of the money for their education, they often arrived in their host countries and found that their expenses were much more than expected. These students might not achieve the same academic success as traditional students who did not have these types of financial barriers (Rose, 1983).

Studies of Cultural Transition Experiences

Cultural transition experiences of international students have also been used to examine their adaptation process at American universities and colleges. This area of research focuses on the different stages in the process of cultural adjustment or acculturation. It looks at the students' ability to adapt to the new culture, their level of comfort with the American culture, and their participation in cultural activities on and off campus.

Redfield, Linton, and Herskovits (1936) defined acculturation as "those phenomena which result when groups of individuals having different cultures come into continuous first-hand contact with subsequent changes in the original culture patterns of either or both groups" (p. 150). Redfield et al. explained that "under this definition acculturation is to be distinguished from culture change, of which it is but one aspect, and assimilation, which is at times a phase of acculturation" (p. 150). Hoffa (2000) noted that it was difficult to know what life was really like in a country or region whose culture one had never experienced directly and pointed out that simply "knowing about" another culture was not the same thing as knowing what it was going to feel like to be learning and living there on its terms. Some of the most evident culture differences included language, religion, and political organization. Others can be so subtle that even though foreign students might be vaguely aware of them, making adjustments was a complex process and students might remain uncomfortable and off-balance for quite some time (Hoffa).

For most traditional first-year students, college was the first time they lived away from their parents and their home. This situation was also true for international students. However, they were more likely to be living thousands of miles from their families while attempting to integrate into a new culture and a new style of education (Holmberck & Wandri, 1993). They

were forced to go through a very different form of separation-individuation than first-year American students, because they had to go through a process of readjustment to a new culture. The myriad of implicit life rules learned in their own cultures were not valid in the new setting and a new set of rules had to be learned. These include, but are not limited to, rules for what is considered appropriate behavior, social interaction, and communication.

It would be fairly easy to learn new rules for living if these rules were made explicit and international students were provided with a list of things to learn when arriving in the U.S. However, as in any other culture, U.S. cultural rules are not easily related at a level below conscious awareness and not easily relayed to conversation partners (Snoke & Long, 1998). For any person who spent an extended period of time in a new or different culture, some adjustment was normal and perhaps universal (Abjei, 1991; Adelegan & Parks, 1985).

For international students, adjustment issues took place most of the time inside the classroom, but these adjustments had to do with the cultural differences between the international students and their new surroundings. For example, if a student was reared in a culture that taught students not to maintain eye contact or to speak out of turn during a conversation in class, it was obvious that these cultural barriers inhibited the international student from fully participating in and benefiting from student-instructor interactions that so many American students took for granted. In the same way, cultures, such as those that taught gender dominance, have been shown to create limitations for male students who needed to cooperate with female instructors and classmates. The more informal style of studying in the U.S. was discovered to be the main source of dissatisfaction that international students reported when citing reasons for poor academic performance (Brown, Gipps, McAlister, & McCallum, 1992; Mizuachi & Dolan, 1994;

Sakurako, 2000).

One of the difficulties students and other travelers have had in adjusting to foreign life comes about because they brought too many of their own cultural problems with them. Cultural problems can include misleading stereotypes and preconceptions about others, coupled with a lack of awareness of that part of them that was formed by their own culture. As a result, students suddenly felt terribly out of place (Hoffa, 2000). Moreover, attempts to categorize cultural characteristics often ended up in cultural stereotypes that were unfair and misleading. International students as well as Americans engaged in dangerous stereotyping, the results of which were not always complimentary (Hoffa).

All of these concerns have prompted researchers who study the cross-cultural adjustment process to create models to explain it. One of these models is Oberg's 1960 adaptation model.

Oberg's 1960 Adaptation Model.

Oberg's (1960) adaptation model has suggested that cultural shock and cross-cultural adjustment progress through four stages:

The first stage. During the first stage, students had elevated emotions from lots of unusual stimulations, exhilaration from novel activities, and a heady sense of having done themselves proud in getting to another culture. They were proud of what they had accomplished. There was an early fascination with all the sights and sounds of their new environment. At this stage, the students felt comfortable with their new surroundings (Oberg, 1960).

The second stage. The second stage was characterized by the plummet into harsh reality, confusion and frustration, and fatigue. Emotions usually turned from buoyancy to heaviness, and

a hostile and aggressive attitude often developed toward the hosts. Students sometimes asserted their cultural superiority, or they accepted their hosts indiscriminately and detached themselves from their homeland culture (Oberg, 1960).

The third stage. The third stage was characterized by the student's initiative to take action, to search for solutions to mal-adjustments, to meet people, to become involved, to learn new procedures, to establish new patterns, and to adapt to the new ways (Oberg, 1960).

The fourth stage. The fourth stage was characterized by integration into the new culture. The students started to put things together and accepted the highs and the lows of the new culture, while redefining their own cultural borders, to become a part of the host culture and traversed the new culture's various environments comfortably (Oberg, 1960).

Although Oberg has not done so, his 1960 model on the cross-cultural adjustment process can be depicted graphically as a u-shaped curve model (see Figure 2).

Oberg (1960) also listed a number of symptoms of cultural shock. These symptoms included, but were not limited to: fatigue, discomfort, generalization and frustration about the host culture, a feeling of helplessness, the inability to cope with the demands of the day, excessive preoccupation with personal cleanliness, worries about food, drinking water, bedding, and preoccupation with personal health. Another symptom, excessive fear of being cheated, robbed, or injured, resulted in negative feelings toward hosts and a refusal to learn the host country's language or practice their common courtesies. Other symptoms were related to personal and social relations: a strong desire to interact with and be dependent upon long-term residents of his/her own nationality, as well as a terrible longing for home and home cooking,

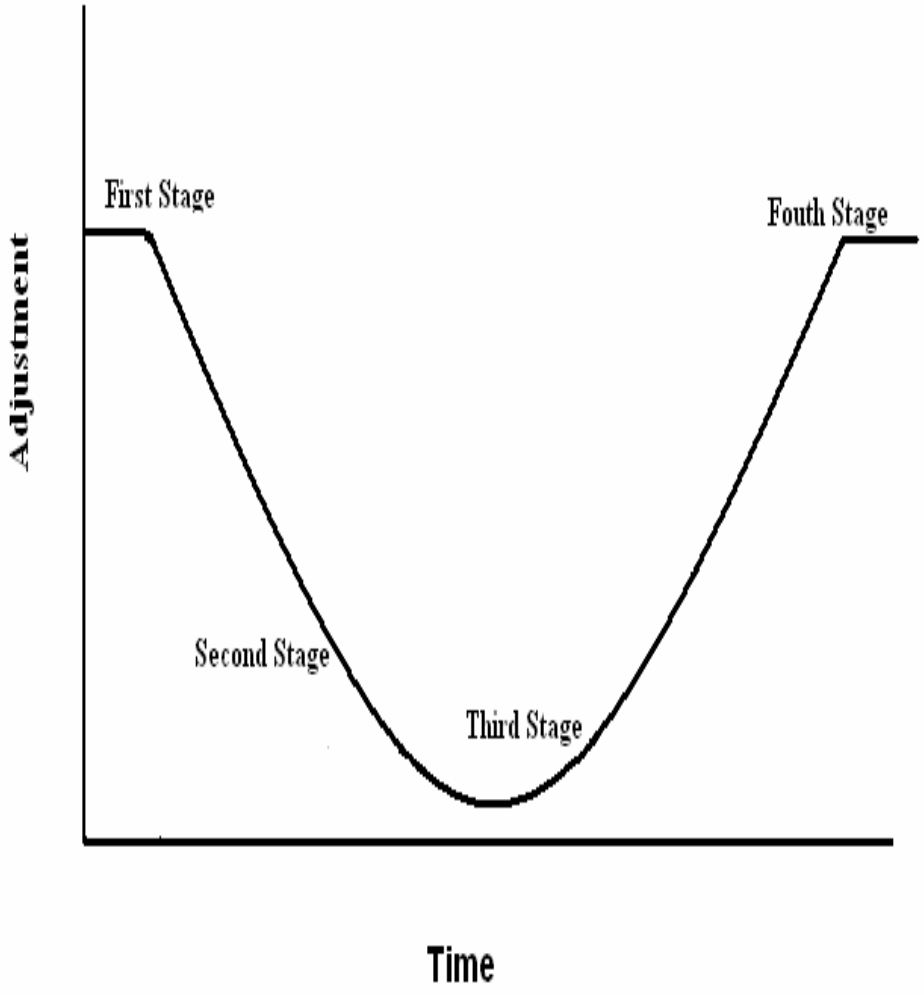


Figure 2: Oberg's 1960 model on cross cultural adjustment.

accompanied by the active desire to return home, the loss of inventiveness, and a decline in the quality of work (Oberg). In the most serious cases, culture shock caused (a) irritation at the slightest provocation, (b) criticism, (c) fits of anger over delays and other minor frustrations, (d) loneliness, and (e) a need to meet others, but at the same time, (f) a reluctance to let the host see their sorry emotional state, and (g) difficulty in communicating feeling to others (Brislin, 1981; Oberg).

In addition, Oberg (1954) also described the causes of culture shock. They included situational factors such as food, housing, climate, transportation, neighbors, and the degree to which they were different from similar situations at home or from what the person expected they would be. The presence of structure where the person did not want it and the lack of structure where the persons needed it also contributed to cultural shock, as did the presence or absence of time constraints, the lack of a niche in which to fit, the absence of role models, and the lack of meaningful work. The situation sometimes was complicated by increased ambiguity and uncertainty that made it impossible to predict what was likely to happen next. Questions about personal competences, as well as the deprivation of identity reinforcements created self-doubt in the person (Oberg).

Winkelman's 1994 Cultural Shock Adaptation Model.

Winkelman (1994) has provided a more recent model of cultural shock, the cultural shock adaptation model. This model also consisted of four stages and maintained that the cultural shock stages were "sequential and cyclical." It included the following phases:

The honeymoon or tourist phase. This phase consisted of a period of excitement, idealization, and euphoria related to all the new experiences of living in a different culture. Similarities between the host culture and the individual's culture validated the continued use of cultural behaviors. The problem was that the new culture was viewed from the person's ethnocentrism, because he or she was still integrated with his or her own culture (Winkelman, 1994).

The crisis phase. An individual's characteristics triggered this phase, which generally developed within a few weeks of arrival in a new culture. Negative experiences created by an inability to manage problems identified this phase. Tension and frustration began to grow because of the differences in the cultures related not only to behaviors, but also to values and attitudes the sojourner experiences (Winkelman, 1994).

The adjustment and reorientation phase. Adaptation was key to this stage of development in which individuals learned to adjust to a new environment. A rejection of the second culture first marked it. Then, a person replaced a growing sense of being different and a rejection of the second culture with an ability to accommodate himself or herself to the new culture (Winkelman, 1994).

The adaptation, resolution, or acculturation stage. This stage was achieved when an individual developed stability by learning how to manage the new culture, resolve problems, and adapt to the environment. Skills and an understanding of the new culture were acquired in this stage of development (Winkelman, 1994).

Other Models of Cultural Shock Adaptation.

Other researchers have outlined five-stage models of cultural shock (Adler, 1975; Pedersen, 1995). These models named the stages as contact, disintegration, reintegration, autonomy, and independence. The difference between them and the four-stage models outlined in this study is that the adjustment and reorientation phase of the four-stage models is divided in the five-stage models.

Unlike American students experiencing college life for the first time, many international students encountered a tremendous culture shock when they entered the U.S. and engaged in cultural activities. They had to cope with differences in climate, food, social values, models of behavior, and verbal communication. These experiences often resulted in students losing their cultural and personal identity. Because international students felt deprived of their personal and cultural identities, they attempted to regain their once familiar worlds and self-identities through forming subgroups that provided viable support systems (Dillard & Chisolm, 1983).

Moreover, being an international student in the U.S. often turned out to be a difficult and unsettling experience involving periods of isolation and loneliness. If entry into an American higher education institution was a major development transition for well-prepared American high school graduates, the transition was even more difficult for young people arriving from different cultures with different educational systems. In other words, it was a cultural shock for them (Marion, 1986). Nevertheless, much of the research on international students and their adjustment mentioned interactions with host families or the host culture in general. These studies reflected the necessity of satisfying interaction with the host culture and also pointed out that the result of the interaction with the host culture showed a more positive academic and social

experience for these international students (Heikinhelmo & Shute, 1986; Quintrell & Westwood, 1994).

Support from the host culture was also necessary for the success of the international student. Research has indicated that interaction with the host culture created situations in which the international students were more able to adjust successfully to the American culture (Price, 2002). Social support within the host culture was needed to act as a buffer against the psychological affects of stress. International students gained confidence from social feedback through support systems. The students who sought out this kind of support felt less alienated and more socially involved; consequently, they achieved greater social adjustment (Adelegan, 1985; Searle & Ward, 1990).

Some authors have focused their research on the sociocultural difficulties faced by international students. These studies have turned from the study of the personal and psychocultural adaptation to culture change in education. Spindler and Spindler (1982), who studied adaptation to cultural acquisition of international students, found that there was a surface phenomenon, the manifest, overt cultural content, and then there were the tacit agreements. All the Spindler studies have found the implicit, tacit, or hidden levels of culture to be the most important (Spindler, 1974; Spindler, 1987; Spindler & Spindler).

International students shared certain characteristics regardless of their diverse cultural, social, religious, and political backgrounds. For instance, unlike other ethnic minorities, refugees, or recent immigrants, most international students planned to return to their home countries eventually and were in the U.S. only temporarily. Thus, international students were in transition and had specifically chosen to live in a foreign academic setting to realize their

educational objectives. Since international students were far from their families, relatives, and friends at home, they were likely to have basic social support networks that were very distinct from those of American students. Being faced with a new set of basic values and beliefs, international students were continually challenged to accommodate themselves to a variety of cultural differences (Thomas & Althen, 1989).

The wide cultural gaps were also notable in the area of social relationships. In America's highly mobile, individual-oriented society, the concept of friendship was much less permanent and lasting than in most other cultures (Bulthuis, 1986). However, international students tended to perceive Americans' amiable and sociable characteristics as offers of serious friendships or romantic relationships (Balas, 2000). Consequently, in social settings, cultural misunderstandings frequently arose when Americans' superficial pleasantries, such as "I'll call you," or "come on over sometime" were interpreted by international students as positive signs of sincere interest. Misinterpretations of Americans' merely friendly intentions as provocative romantic invitations were thus very common among international students (Pedersen, 1991).

Women's liberation in the U.S. also played a part in complicating heterosexual relationships between Americans and international students coming from more male-dominated cultures (Bulthuis, 1986). In addition to their misinterpretations of Americans' concepts of friendships and romantic relationships, international students, whose notion of privacy was defined strictly in the context of groups (usually extended families), were usually perplexed by the nature of individual privacy in the U.S. (Aubrey, 1997). Over time, international students' disappointment with relationships, combined with their experiences of racial or ethnic prejudice and discrimination (Halpern, 1993; Hayes & Lin, 1994; Robinson & Ginter, 1999), often

discouraged them from attempting to form deep, significant relationships with Americans (Bulthuis; Robinson & Ginter).

Furthermore, the terrorist attacks committed on the U.S. in 2001 also have created stress and more adjustment problems for international students wanting to interact with their American host culture. It is vital to remember that these atrocities originated in extremist and radical organizations, and did not represent the broader beliefs or values of any particular national, religious, or ethnic group. The actions of groups that lack regard for human life must not lead to misguided judgments about ethnic or religious minorities in American colleges and universities. The international students who live next door were not responsible for these acts. They are hurting too. If Americans turn against these neighbors because they look foreign or are religiously different, they will be denying their neighbors the very values that they seek to defend (NAFSA's Press Release, September 13, 2001).

Other problems associated with adjusting to the American culture included social withdrawal, inability to sleep well, irritability, excessive concern with health, distrust, sexual problems, sadness and depression, academic problems, loss of self-esteem, and, in serious cases, hostility toward members of the host country (Brislin, 1981; Sjogren & Shearer, 1973). Saidla and Grant (1993) have, therefore, argued that it has become increasingly important for faculty, staff, and administrators to assist international students in making a successful adjustment to the host-culture, because past research has demonstrated the importance of a fairly stable and supportive relationship with a host national in the international student's psychological adjustment.

The literature on international students has suggested that they go through a cultural

change during their stay in the U.S. However, research on the impact of the U.S. experience on the attitudes and values of international students has revealed that those in the U.S. for 2 or 3 years changed their basic cultural and religious attitudes very little. However, these international students appeared to move toward greater open-mindedness and toward placing greater value on knowledge. Those from countries with constraints on relationships between women and men gained an increased desire for greater freedom. However, their attitudes toward the home country and career goals were resistant to change (Spaudling & Flacks, 1979).

Research on International Students and Linguistic Difficulties

Since this study also has analyzed IU students' adaptation process based on their linguistic background, research on the effect of the linguistic difficulties of international students on the adaptation process also has been examined. Although American English is widely used around the world, it is not the international standard. Accepted standards of English vary among English speaking countries. The variations are not errors, but simply an expression of local, national, and international dialectical variations (Stalker, 1997).

As part of the process of settling into the American culture successfully, international students must master both conversational and formal English. Conversational English is used for everyday and social life while formal English is necessary for academic work. Language competence has been found to correlate positively with positive adaptation (Lin & Yin, 1997; Noels, Pon, & Clement, 1996).

Learning a language consists of more than just learning vocabulary, grammar, and sounds. A student also has to know the cultural rules that govern oral communication, such as an

acceptable amount of talk, the volume of the voice, turn-taking processes, and pauses between speakers. Any second language learner faces initial language difficulties and international students are no exception to this. Even the most competent students can expect to have some difficulty in understanding the variety of accents they will encounter (Smith, 1993). Furthermore, many international students and native English speaking students from ethnic minorities might have expectations about the role of public speaking that differed from those of their instructors. Several studies found that students with better language competence experienced less discomfort than did students with poor language competence (Brislin, 1981; Church, 1982; Lee et al., 1981; Pruitt, 1978).

International students, however, need more than verbal language to be able to communicate in a new culture. Effective communication involves the ability to understand cultural norms, nonverbal behavior, and the intentions of others, as well as the ability to see relationships between people in the same way that they are seen in the host community. For these reasons, language difficulty has been linked to the academic performance of students studying foreign languages, and because the number of studies on this subject is limited, the question remains as to what ways and to what extent this problem occurs (Jochems, 1991; Jochems, Rijins, Smid & Verweij, 1993). Nevertheless, a study by Light and Mossop (1987) has pointed out that English language proficiency was more important for the academic success of students in non-technological studies than in technological studies, including mathematics, pure science, and engineering. However, international students—even from an English speaking country—usually found the American spoken idioms strange. Furthermore, lecturers with idiosyncratic speech patterns such as dialect speakers and mumblers were difficult even for native English

speakers to understand (Gleason, 1993; Maxwell, 1974; Schmidt, 1983).

In a study conducted at the University of Tennessee, a comparison of the transition experiences of international students with those of American students revealed that the problems of both international and American students were the same, with the exception that international students responded to having problems with the language (Johnson, 1971). In fact, the ability to speak the language was the prevailing concern of international students about their educational experience in the American higher education system. International students have claimed that their lack of English language proficiency affected their ability to complete reading assignments and caused them to have difficulties expressing opinions in class and participating in discussions. Their ability to understand lectures, follow instructions, take notes, and answer essay questions in examinations was affected by their lack of English language proficiency, which also inhibited contact with professors and peers (Cadieux & Wehrly, 1986; Klineberg & Hull, 1979; Meloni, 1986; Quintrell & Westwood, 1994).

Quintrell and Westwood (1994) have reported that one of the main adjustment problems for international students was difficulty with the English language, and Parr et al. (1992) have stated that international students equipped with adequate language skills had an easier experience in their adjustment process. Furthermore, international students with friends or acquaintances in the host culture had fewer language problems, because they were able to practice their language skills and learn more about the host culture (Heikinheimo & Shute, 1986).

Although international students' lack of English proficiency and their poor understanding of the American culture were barriers that contributed to a sense of loneliness (Penn & Durham, 1978), as they developed their skills in the first year of college and became more familiar with

the American system of higher education and their new environment, these language concerns became less important. Therefore, these language problems have become less important by the second year of college (Gabriel, 1973).

Research on International Students and Economic Background

Since this study also has analyzed the adaptation process of IU students based on the economic level of the students' home countries, research on the effect of the economic background of their home country on their adaptation process has been examined to explore these experiences fully.

In 1988, Schram and Lauver conducted a study that found that a European home country was an important predictor of an international student's alienation on the college campus and that the international students most at risk of isolation were the non-European IU students. Other studies have confirmed that students from European countries adjusted more easily than did students from third world countries (Brislin, 1981; Church, 1982; DeArmond, 1983; Klineberg & Hull, 1979; Parr et al., 1992; Spaulding & Flack, 1979; Yang, Teraoka, Eichenfeld & Audas, 1994). Also, Asian cultures, which are described as vastly different from American culture, caused Asian international students to have severe difficulties with intercultural adaptation (Zhang & Rentz, 1996). Sodowsky and Plake (1992) found that international students from Africa, Asia, and South America reported significantly greater levels of perceived prejudice than European students.

A 1983 workshop on international students' experiences held at the University of Delaware resulted in the documentation of the experiences of international students from

developing countries. The workshop pointed out that students' experiences are shaped by the economic status of their home country (Title XII Office, 1983). Cadieux and Wehrly (1986) reported that the most common concerns of international students from developing countries include financial problems as well as language difficulties, adjustment to a new educational system, social and cultural adjustment, and the relevance of academic programs. Differences in the background and characteristics of international students also influenced their adjustment. Many researchers have found that adjustment or adaptation stress increased when the gap between the student's traditional culture and the host culture was greatest (Brislin, 1981; Church, 1982; DeArmond, 1983; Klineberg & Hull, 1979; Spaulding & Flack, 1979).

Summary

Research has revealed that the adaptation process of IU students consists of a complex process of changes that these students have to go through. Although this research has concentrated on studies of IU students' academic, cultural, social, and personal adaptation process, as well as economic and linguistic difficulties of international students from developed and underdeveloped countries, nevertheless, there seemed to be few studies that have addressed all of these topics at the same time and no studies that have addressed the diverse population of international students in today's American colleges and universities. Even though Lee et al. (1981), in their comprehensive review of the literature, have suggested the importance of investigating subgroups (e.g., by sex, academic class, and regional origin) within the diverse international student population, there were no studies of IU students' adjustment process based on their combined E/L background.

Finally, Lysgaard's u-shaped curve model of international students' adaptation was

developed based on the satisfaction levels of 198 white Norwegian students—most of them men—who spent from 3 to 36 months in the U.S. and whose age distribution ranged between less than 20 years old to more than 60 years old. Although the age made the population of the study a much dispersed population (Lesser & Peter, 1957; Lysgaard, 1954; Lysgaard, 1955), it really was not a linguistically or economically diverse sampling. Nevertheless, this u-shaped curve model has been used to explain the transition experiences of IU students between the ages of 18 and 23 years from countries of all types of E/L backgrounds in four-year programs at colleges and universities around the U.S. since its postulation in 1955.

The present study sought to address the gap in existing literature pertaining to the relationship between adaptation and time, and the effects of combined E/L backgrounds on the adaptation process of IU students.

Chapter 3

Research Methodology

This chapter focuses on the research methodology that seeks to incorporate models, concepts, and variables presented in the review of the literature with the research questions and hypotheses posed in Chapter 1 to prepare the analysis. The sampling, instrumentation, dependent variable, adaptation of the survey, procedures, and data analysis plan are systematically described in this chapter.

This study had three main objectives. The first was to measure international undergraduate (IU) students' adaptation process over time to determine whether there is a linear relationship between adaptation and time. The second objective was to examine the effects of combined economic and linguistic (E/L) backgrounds on the adaptation process of IU undergraduate students at institutions of higher education in the United States of America (U.S.). The third was to use the results to discuss the application(s) and effectiveness of the u-shaped curve model to explain the adaptation process of IU students from different E/L backgrounds.

The study used an online survey to collect data on the variables of interest. The design of the study was correlational, and used the simple analysis of variance (ANOVA) to study differences in adaptation based on E/L backgrounds and multiple regression with categorical and continuous variables to study differences in the relationship between adaptation and time based on E/L backgrounds.

Sample

The potential sample for this study was the total population of IU students enrolled at

Virginia Polytechnic Institute and State University (Virginia Tech) for the spring semester of 2003. The Cranwell International Center at Virginia Tech, which produces and maintains this list, reported that the population consisted of 595 IU students from 92 countries and represented about 4% of the total undergraduate student population enrolled for the spring 2003 semester at Virginia Tech (see Table 3.1). Of these, 139 (23%) were females and 456 (77%) were males. In terms of academic class, there were 187 freshmen (31.5%), 133 sophomores (22.3%), 121 juniors (20.4%), 136 seniors (22.9%), and 18 non-degree seeking students (3.02%) (see Tables 3.2 and 3.3). The different sizes of the class groups can be explained by IU students leaving the institution because (a) a fair number of international undergraduate students who enter Virginia Tech under the age of 18 years rarely can stay until graduation, (b) a low percentage of international undergraduate students transfer to other institutions, (c) international undergraduate students fail academically.

Large numbers of IU students who drop out of Virginia Tech are placed on academic suspension. Their academic failure is most often caused by a combination of these factors:

1. Adjustment to independence. This would include time management and adaptation to the new environment.

2. False assumptions. Many international undergraduate students believe that an international high school education will make study at Virginia Tech easy.

3. Cultural adjustment. International undergraduate students have a hard time adjusting to going to classes on time, doing homework, food, dorm living, and so forth.

4. Difficulties adjusting to academic demands. Most international undergraduate

Table 3.1

Number of International Undergraduate (IU) Students at Virginia Polytechnic Institute and State University (Virginia Tech) Distributed into the 92 Countries of Origin Represented (N = 595)

Country	*n*	Country	*n*	Country	*n*	Country	*n*
Albania	1	Ecuador	9	Kuwait	6	Saudi Arabia	22
Algeria	1	Egypt	3	Latvia	1	Singapore	3
Australia	3	El Salvador	8	Lebanon	3	South Africa	3
Bahamas	1	Ethiopia	6	Macedonia	1	Spain	1
Bahrain	2	France	24	Madagascar	1	Sri Lanka	1
Bangladesh	12	Germany	6	Malaysia	2	St. Kitts & Nevis	1
Belgium	2	Ghana	4	Mexico	4	St. Vincent & Grenada	1
Benin	1	Greece	2	Morocco	3	Sudan	1
Bhutan	1	Haiti	1	Nepal	3	Sweden	2
Bolivia	4	Honduras	1	New Zealand	1	Switzerland	5
Bosnia-Herzegovinia	2	Hong Kong	14	Nicaragua	3	Syria	1
Botswana	4	India	101	Niger	1	Taiwan	12
Brazil	6	Indonesia	7	Nigeria	11	Thailand	7
Burundi	2	Iran	1	Norway	1	Trinidad & Tobago	1
Cameroon	2	Israel	2	Pakistan	11	Tunisia	2
Canada	13	Italy	2	Panama	7	Turkey	43
China	22	Ivory Coast	5	Paraguay	1	United Arab Emirates	6
Colombia	4	Jamaica	3	Peru	6	United Kingdom	13
Costa Rica	2	Japan	14	Philippines	7	Venezuela	3
Croatia	3	Jordan	9	Poland	2	Vietnam	1
Cyprus	6	Kazakhstan	1	Portugal	3	Zaire	1
Denmark	3	Kenya	4	Romania	3	Zambia	1
Dominican Republic	1	Korea (South)	54	Russian Federation	2	Zimbabwe	1

Note. From the Cranwell International Center at Virginia Polytechnic Institute and State University, June 6, 2003.

Table 3.2
Distribution of International Undergraduate (IU) Students at Virginia Tech by Academic Class Status

Distribution	*n*	*P*
Freshmen	192	32.27%
Sophomores	137	23.03%
Juniors	127	21.34%
Seniors	139	23.36%

Note. a. From the Cranwell International Center at Virginia Polytechnic Institute and State University, June 6, 2003.
b. $N = 595$.

Table 3.3

Distribution of International Undergraduate (IU) Students at Virginia Tech by Sex

Distribution	*n*	*P*
Male	456	76.64%
Female	139	23.36%

Note. a. From the Cranwell International Center at Virginia Polytechnic Institute and State University, June 6, 2003.
b. $N = 595$.

students have a hard time especially with "college English."

5. Many international undergraduate students also drop out when they realize they are not going to make it in the Engineering College at Virginia Tech.

Instrumentation

This study used data from the Adaptation Experience of International Undergraduate Students at Virginia Tech Survey (AEIUSVT survey) adapted from the Cultural Adaptation Pain Scale (CAPS) developed in 1994 by Sandhu and Porter (Sandhu, Porter & McPhee, 1996). A copy of the written authorization of Daya Singh Sandhu to use the CAPS in this study can be found in Appendix C. The AEIUSVT survey consisted of two sections: (a) a modified version of the CAPS, and (b) a demographic form developed by the researcher. A copy of The AEIUSVT survey can be found in Appendix D.

A panel of professionals with many years of experience with international students reviewed the AEIUSVT survey to ensure that the questions and the demography part of questionnaire were appropriate for IU students at Virginia Tech. At the recommendation of this panel, some questions were modified to make them more understandable to the international undergraduate population. For example, “I am ostracized by some people” was changed to “I am not accepted by some people.”

Section A: Procedures for Data Collection and Analysis

The data were collected from IU students enrolled at Virginia Tech for the spring semester of 2003. Although the total possible number of participants was 595, the usable sample size was 318 IU students who responded to the section A of the AEIUSVT survey. This number

represented a response rate 53.44%.

Dependent Variable.

The main purpose of this study, and the one that sets it apart from other studies of the adaptation process of international undergraduate students, was the measurement of adaptation. Adaptation was the sole dependent variable in this study. The AEIUSVT survey section A was developed for the collection of this variable and it is referred to in this study as the AEIUSVT survey total score.

Adaptation. The dependent variable of interest was cultural adaptation. In the literature on international students, the adaptation process normally was associated with integration into the new cultural environment to which the international students were exposed. In this study, adaptation was measured using the CAPS which was developed to measure the pain that accompanies cultural adaptation (Sandhu & Asrabadi, 1994; Sandhu et al., 1996).

The Sandhu and Porter's (1994) CAPS was originally composed of 60 items and used a 5-point Likert scale where 1 = Strongly Agree (SA), 2 = Agree (A), 3 = Not Sure (NS), 4 = Disagree (D), 5 = Strongly Disagree (SD). The researchers' preliminary analysis revealed clusters around four factors—pain, learned helplessness, positive adaptation, and bigoted. The pain scale is a 26-item scale negatively worded (e.g., I feel looked down on by other people). The learned helplessness scale is a 14-item scale negatively worded (e.g., I feel choices for success in life are limited), and the positive adaptation scale is a 10-item scale positively worded (e.g., I feel adequate functioning in this society). Since the reliability for 10 items in the bigoted subscale was low, the authors recommended these items be dropped from the final scale, leaving

a total of 50 items (Sandhu & Asrabadi, 1994; Sandhu et al., 1996).

Sandhu et al. (1996) used the total score of the remaining three subscales of the survey to measure cultural adaptation. To obtain this score the researchers, prior to data analysis, reverse-coded the responses for the pain items and learned helplessness items so that high values indicate lower pain and helplessness. The total score of all three scales ranged between 50 and 200, where higher scores represented greater levels of adaptation (Sandhu & Asrabadi, 1994; Sandhu et al.).

Reliability evidence in the test sample for the three subscales showed adequate reliability for use with a college population. Cronbach's alpha estimates for each of the subscales were .89 for pain, .71 for learned helplessness, and .66 for positive adaptation. The Cronbach's alpha estimate for the entire scale was .85 (Sandhu & Asrabadi, 1994; Sandhu et al., 1996).

Sandhu et al. (1996) provided sufficient construct validity evidence for the scale. First, they identified an initial pool of 150 items by examining the current cross-cultural literature. This survey revealed 15 major themes of psychological pain. Two independent judges familiar with cross-cultural literature reviewed the first draft of the test of 150 items for their relevance. An inter-rater agreement of .88 was considered satisfactory to retain the items. On the recommendation of these judges, 25 items were taken out based on their face validity and redundancy (Sandhu et al.).

A representation of different ethnic groups took the pilot test of 125 items. The participants were asked to rate the statements using this Likert-type scale ranging from strongly agree to strongly disagree. Close examination of the means and standard deviation of the items, along with participants' comments about the wording of the items, resulted in the elimination or

revision of some items. These procedures resulted in a final pool of 50 items that formed the CAPS (Sandhu & Asrabadi, 1994; Sandhu et al., 1996).

Section B: Procedures for Data Collection and Analysis

The IU participants at Virginia Tech were asked to provide demographic information in section B of the AEIUSVT survey. They indicated their academic class, gender, country of origin, and age. They were also asked whether or not they had to take the TOEFL to gain admission to Virginia Tech, and to provide the month and the year when they first started studying at Virginia Tech. This last one was used to obtain the IU students' time at Virginia Tech in months. The data were collected from the 318 IU students enrolled at Virginia Tech for the spring semester of 2003 who responded to the section B of the AEIUSVT survey.

Independent Variables.

Two independent variables were used in this study: time which was represented by the academic class of the students (a continuous variable), and combined E/L backgrounds (a categorical variable). The demographic information collected in section B of the AEIUSVT survey was used to determine these two independent variables.

Time. Time was measured using academic class. Students were asked to indicate academic class as 1 = freshman, 2 = sophomore, 3 = junior, and 4 = senior. Thus, time was measured cross-sectionally rather than longitudinally. A higher value for time indicated a longer period of time in the U.S.

Economic and linguistic background. E/L backgrounds were measured in four categories: (a) English speaking students from developed countries, (b) English speaking students from

underdeveloped countries, (c) non English speaking students from developed countries and (d) non English speaking students from underdeveloped countries. This variable was computed after data entry as a combination of E/L backgrounds.

The economic classification of the student's home country, as classified by the World Bank Development Indicators Database 2002 (World Bank, 2002), was used to determine economic background (see Table 3.4). Students indicated their home country from a list of countries provided in the demographic section of the survey. This list was based on information provided by the Cranwell International Center. Each country was classified as either 1 = developed or 2 = underdeveloped.

The linguistic background of the student was first operationalized as the official language of the country of origin as determined by the CIA Annual Factbook (Central Intelligent Agency, 2002) (see Table 3.5). This was done to have an idea of the number of English and non English speaking students available in the original population used for the study, even though a question in section B of the AEIUSVT survey—the demographic section—asked each participant whether or not he/she had to take the TOEFL to gain admission to Virginia Tech. The requirement to take the TOEFL was the official classifying criterium to determine the language background of the student. International undergraduate students who answered "no" to the question were classified as 1 = English (English speaking student). International undergraduate students who answered "yes" to the question were classified as 2 = non English (Non-English speaking student).

The variable of the combined E/L backgrounds was computed by combining the two variables to create four possible groups. Students were classified as 1 = English speaking students from developed countries; 2 = English speaking students from underdeveloped

Table 3.4

Distribution of Countries of Virginia Tech International Undergraduate (IU) Students into Developed and Underdeveloped Countries

Countries with High-Income Economies (Developed Countries)		Countries with Low and Middle-Income Economies (Underdeveloped Countries)			
Australia	South Africa	Albania	Haiti	Nigeria	Vietnam
Bahamas	Spain	Algeria	Honduras	Pakistan	Zaire
Bahrain	Sweden	Bangladesh	India	Panama	Zimbabwe
Belgium	Switzerland	Benin	Indonesia	Paraguay	
Canada	United Arab Emirates (UAE)	Bhutan	Indonesia	Peru	
Cyprus	United Kingdom (UK)	Bolivia	Iran	Philippines	
Denmark		Bosnia-Herzegovina	Ivory Coast	Poland	
France		Botswana	Jamaica	Romania	
Germany		Brazil	Jordan	Russia Federation	
Greece		Burundi	Kazakhstan	Saudi Arabia	
Hong Kong		Cameroon	Kenya	Sri Lanka	
Israel		China	Latvia	St. Kitts & Nevis	
Italy		Colombia	Lebanon	St. Vincent & Gren.	
Japan		Costa Rica	Macedonia	Sudan	
Korea (South)		Croatia	Madagascar	Syria	
Kuwait		Dominican Republic	Malaysia	Taiwan	
New Zealand		Ecuador	Mexico	Thailand	
Norway		Egypt	Morocco	Trinidad & Tobago	
Portugal		El Salvador	Nepal	Tunisia	
Puerto Rico		Ethiopia	Nicaragua	Turkey	
Singapore		Ghana	Niger	Venezuela	

Note. From World Development Indicators Database 2003, World Bank.

Table 3.5
Distribution of Countries of Virginia Tech International University (IU) Students into English Speaking Countries and Non English Speaking Countries

Country	Language	Classification
Albania	Albanian (Tosk is the official dialect), Greek.	Non English
Algeria	Arabic (official), French, Berber dialects.	Non English
Australia	English, native languages.	English
Bahamas	English, Creole (among Haitian immigrants).	English
Bahrain	Arabic, English, Farsi, Urdu.	Non English
Bangladesh	Bangla (official, also known as Bengali), English.	Non English
Belgium	Dutch 58%, French 32%, German 10%, legally bilingual (Dutch and French).	Non English
Benin	French (official), Fon and Yoruba (vernaculars in south), tribal languages (at least six major ones in north).	Non English
Bhutan	Dzongkha (official), Bhotes speak various Tibetan dialects, Nepalese speak various Nepalese dialects.	Non English
Bolivia	Spanish (official), Quechua (official), Aymara (official).	Non English
Bosnia-Herzegovinia	Croatian, Serbian, Bosnian.	Non English
Botswana	English (official), Setswana.	English
Brazil	Portuguese (official), Spanish, English, French.	Non English
Burundi	Kirundi (official), French (official), Swahili (along Lake Tanganyika and in the Bujumbura area).	Non English
Cameroon	24 major African language groups, English (official), French (official).	English
Canada	English 59.3% (official), French 23.2% (official), and other 17.5%.	English
China	Standard Chinese or Mandarin (Putonghua, based on the Beijing dialect), Yue (Cantonese), Wu (Shanghaiese), Minbei (Fuzhou), Minnan (Hokkien-Taiwanese), Xiang, Gan, Hakka dialects, and other minority languages.	Non English
Colombia	Spanish (official).	Non English

(Table 3.5: *Continued*)

Country	Official Language	Classification
Costa Rica	Spanish (official), English spoken around Puerto Limon.	Non English
Croatia	Croatian 96%, other 4% (including Italian, Hungarian, Czech, Slovak, and German).	Non English
Cyprus	Greek, Turkish, English.	Non English
Denmark	Danish, Faroese, Greenlandic (an Inuit dialect), German (small minority).	Non English
Dominican Republic	Spanish (official).	Non English
Ecuador	Spanish (official), Amerindian languages (especially Quechua).	Non English
Egypt	Arabic (official), English and French widely understood by educated classes.	Non English
El Salvador	Spanish, Nahua (among some Amerindians).	Non English
Ethiopia	Amharic, Tigrinya, Oromigna, Guaragigna, Somali, Arabic, other local languages (English taught in schools).	Non English
France	French 100%, declining regional dialects (Provencal, Breton, Alsatian, Corsican, Catalan, Basque, Flemish).	Non English
Germany	German.	Non English
Ghana	English (official), African languages (including Akan, Moshi-Dagomba, Ewe, and Ga).	English
Greece	Greek 99% (official), English, French.	Non English
Haiti	French (official), Creole (official).	Non English
Honduras	Spanish, Amerindian dialects.	Non English
Hong Kong	Chinese (Cantonese), English; both are official.	English
India	English enjoys associate status but is the most important language for national, political, and commercial communication, Hindi the national language and primary tongue of 30% of the people, Bengali (official), Telugu (official), Marathi (official), Tamil (official), Urdu (official), Gujarati (official), Malayalam (official), Kannada (official), Oriya (official), Punjabi (official), Assamese (official), Kashmiri (official), Sindhi (official), Sanskrit (official), Hindustani (a popular variant of Hindi/Urdu spoken widely throughout northern India). Note: each spoken by a	English

(Table 3.5: *Continued*)

Country	Official Language	Classification
	a million or more persons; numerous other languages and dialects, for the most part mutually 24 languages unintelligible.	
Indonesia	Bahasa Indonesia (official, modified form of Malay), English, Dutch, dialects, most widely spoken is Javanese.	Non English
Iran	Persian & Persian dialects 58%, Turkic & Turkic dialects 27%, Kurdish 9%, Luri 2%, Balochi 1 %, Arabic 1 %.	Non English
Israel	Hebrew (official), Arabic used officially for Arab minority, English most commonly used foreign language.	Non English
Italy	Italian (official), German (parts of Trentino-Alto Adige region predominantly German speaking), French (small French-speaking minority Valle d'Aosta region), Slovene (Slovene-speaking minority in Trieste-Gorizia area).	Non English
Ivory Coast	French (official), 60 native dialects with Dioula the most widely spoken.	Non English
Jamaica	English, Creole.	English
Japan	Japanese.	Non English
Jordan	Arabic (official), English widely understood among upper and middle classes.	Non English
Kazakhstan	Kazakh (Qazaq, state language) 40%, Russian (official, used in everyday business) 66%.	Non English
Kenya	English (official), Kiswahili (official), numerous indigenous languages.	English
Korea (South)	Korean, English widely taught in junior high and high school.	Non English
Kuwait	Arabic (official), English widely spoken.	Non English
Latvia	Latvian or Lettish (official), Lithuanian, Russian, other.	Non English
Lebanon	Arabic (official), French, English, Armenian.	Non English
Macedonia	Macedonian 70%, Albanian 21%, Turkish 3%, Serbo-Croatian 3%, other 3%.	Non English
Madagascar	French (official), Malagasy (official).	Non English
Malaysia	Bahasa Melayu (official), English, Chinese dialects (Cantonese, Mandarin, Hokkien, Hakka, Hainan, Foochow) Tamil, Telugu, Malayalam, Panjabi, Thai; note - in addition, in East Malaysia.	Non English

(Table 3.5: *Continued*)

Country	Official Language	Classification
Mexico	Spanish, various Mayan, Nahuatl, and other regional indigenous languages.	Non English
Morocco	Arabic (official), Berber dialects, French often the language of business, government, and diplomacy.	Non English
Nepal	Nepali (official; spoken by 90% of the population), about a dozen other languages and about 30 major dialects; note - many in government and business also speak English (1995).	Non English
New Zealand	English (official), Maori (official) .	English
Nicaragua	Spanish (official).	Non English
Niger	French (official), Hausa, Djerma.	Non English
Nigeria	English (official), Hausa, Yoruba, Igbo (Ibo), Fulani.	English
Norway	Norwegian (official).	Non English
Pakistan	Punjabi 48%, Sindhi 12%, Siraiki (a Punjabi variant) 10%, Pashtu 8%, Urdu (official) 8%, Balochi 3%, Hindko 2%, Brahui 1%, English (official and lingua franca of Pakistani elite & most government ministries), Burushaski, and other 8%.	Non English
Panama	Spanish (official), English 14%.	Non English
Paraguay	Spanish (official), Guarani (official).	Non English
Peru	Spanish (official), Quechua (official), Aymara.	Non English
Philippines	Filipino (based on Tagalong, official) English (official), eight major dialects - Tagalong, Cebuano, Ilocan Hiligaynon or Ilonggo, Bicol, Waray, Pampango, and Pangasinense.	Non English
Poland	Polish.	Non English
Portugal	Portuguese.	Non English
Romania	Romanian, Hungarian, German.	Non English
Russia Federation	Russian, other.	Non English
Saudi Arabia	Arabic.	Non English
Singapore	Chinese (official), Malay (official and national), Tamil (official), English (official).	English

(Table 3.5: *Continued*)

Country	Official Language	Classification
South Africa	11 official languages, including Afrikaans, English, Ndebele, Pedi, Sotho, Swazi, Tsonga, Tswana, Venda, Xhosa, Zulu.	English
Spain	Castilian Spanish (official) 74%, Catalan 17%, Galician 7%, Basque 2%.	Non English
Sri Lanka	Sinhala (official and national language) 74%, Tamil (national language) 18%, other 8%.	Non English
St. Kitts & Nevis	English.	English
St. Vincent & Gren.	English, French patois.	English
Sudan	Arabic (official), Nubian, Ta Bedawie, diverse dialects of Nilotic, Nilo-Hamitic, Sudanic languages, English.	Non English
Sweden	Swedish	Non English
Switzerland	German (official) 63.7%, French (official) 19.2%, Italian (official) 7.6%, Romansch 0.6%, Other 8.9 %.	Non English
Syria	Arabic (official), Kurdish, Armenian, Aramaic, Circassian widely understood, French, English somewhat understood.	Non English
Taiwan	Mandarin Chinese (official), Taiwanese (Min), Hakka dialects.	Non English
Thailand	Thai, English (secondary language of the elite), ethnic and regional dialects.	Non English
Trinidad & Tobago	English (official), Hindi, French, Spanish, Chinese.	English
Tunisia	Arabic (official and one of the languages of commerce), French (commerce).	Non English
Turkey	Turkish (official), Kurdish, Arabic, Armenian, Greek.	Non English
UAE	United Arab Emirates: Arabic (official), Persian, English, Hindi, Urdu.	Non English
United Kingdom	English, Welsh (about 26% of the population of Wales), Scottish form of Gaelic (about 60,000 in Scotland).	English
Venezuela	Spanish (official), numerous indigenous dialects.	Non English
Vietnam	Vietnamese (official), English (increasingly favored second language), some French, Chinese,	Non English

(Table 3.5: *Continued*)

Country	Official Language	Classification
	Khmer, mountain area (Mon-Khmer and Malayo-Polynesian).	
Zaire	No listed.	No classification
Zambia	English (official), major vernaculars - Bemba, Kaonda, Lozi, Lunda, Luvale, Nyanja, Tonga, & about 70 indigenous languages.	English
Zimbabwe	English (official), Shona, Sindebele (the language of the Ndebele, sometimes called Ndebele), numerous but minor tribal dialects.	English

Note. From the CIA World Factbook 2002. Retrieved May 24, 2003, from http://www.cia.gov/cia/publication/factbook/

countries; 3 = non English speaking students from developed countries; and 4 = non English speaking students from underdeveloped countries (see Figure 3). These combined background variables were used in the multiple regression and ANOVA analyses.

Procedures

This study used an online survey to gather data on the variables of interest. Online surveys are the latest form of survey instruments used in market research, confirmatory research, and studies in general. While there are advantages and disadvantages to online surveys, this method was determined to be most appropriate to gather the data, based on characteristics of the study and the IU student population which is young and computer-literate. In addition, IU students at Virginia Tech had been studied before using online surveys. These previous online surveys had good response rates, and no incidents of modification of e-mail surveys, e-mail flames, or letter bombs were reported. Consequently, the same behavior from the IU students at Virginia Tech was expected for the online survey used in this study (DSS, 2001, Kim V. Beisecker, Director of the Cranwell International Center, Virginia Polytechnic Institute & State University, personal communication, March 11, 2003).

The Participants: International Undergraduate Students at Virginia Tech.

The participants had to meet two criteria to be part of the study. The first was that they had to hold an F-1 international student visa or similar visa. Since this study focused on international undergraduate students, all the participants were required to be neither U.S. citizens nor residents. Verification that students held an F-1 visa assured the researcher that they were indeed international students. The second requirement was that the participants had to be IU students in

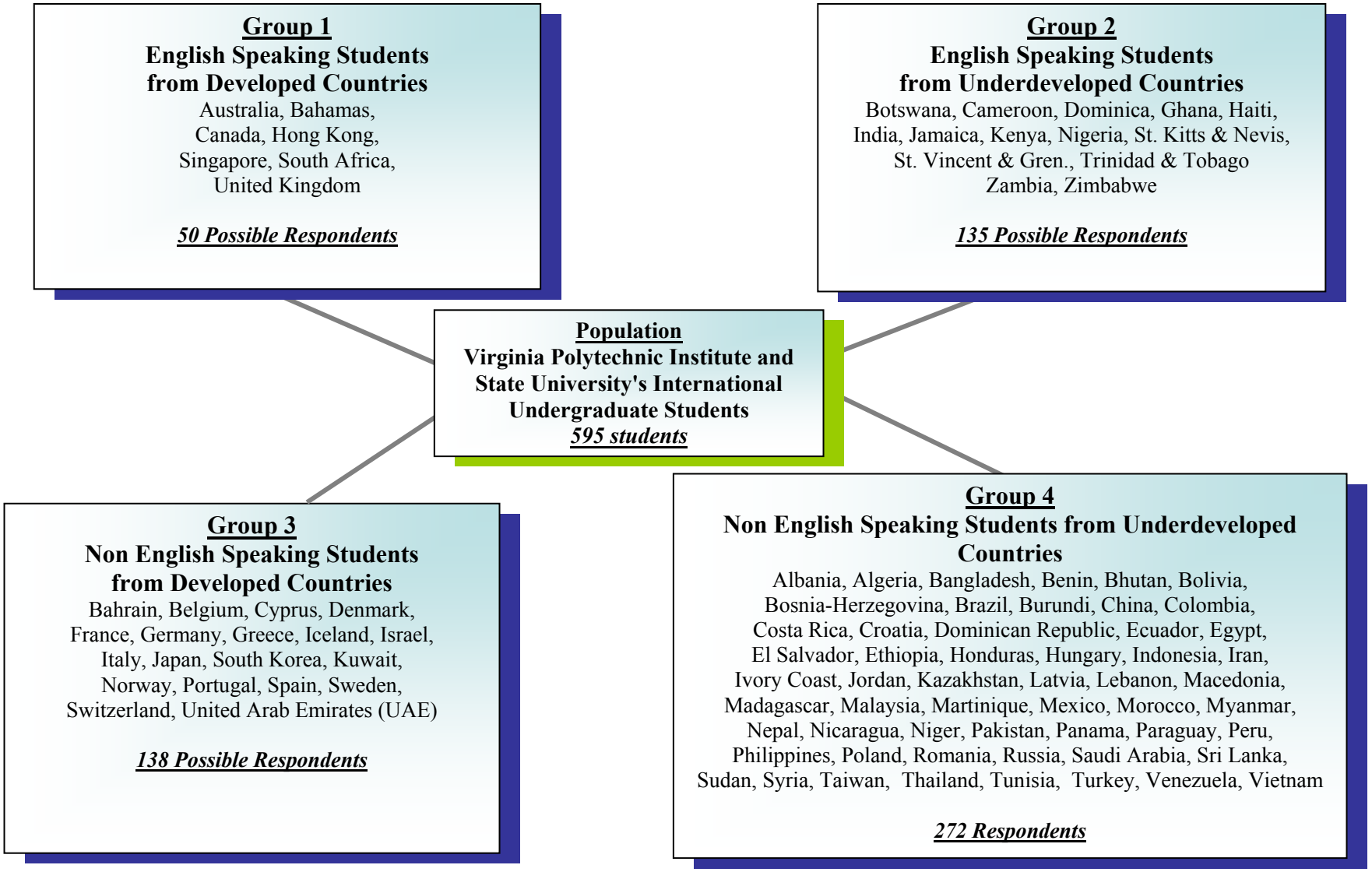


Figure 3: Sample groups' characteristics and potential number of international undergraduate (IU) students for each sample group. From the Cranwell International Center at Virginia Polytechnic Institute and State University, June 6, 2003.

their freshman, sophomore, junior, or senior year, as classified by Virginia Tech's classification of academic class.

To accredit these characteristics, this study relied on the data provided by the Cranwell International Center at Virginia Tech, which is the department that keeps track of international students inside the institution. The Center listed international undergraduate students at Virginia Tech who held F-1 Visas and were classified by the institution as IU students. With the help of the director of the Cranwell Center, the researcher was able to target, with the e-mail inviting participation in the study, only the students classified by the Cranwell Center as foreign or IU students at Virginia Tech.

The Unit of Analysis.

When the students completed the AEIUSVT survey, the unit of analysis or the unit of observation in this study was the individuals' perceptions and attitudes to the questions on the web posted survey (see Appendix D).

The Survey Management.

The online AEIUSVT survey was managed using Virginia Tech's free survey management software provided for use by students, faculty, and staff and located at http://survey.vt.edu/survey/login.jsp?r=1. The survey was posted on a Virginia Tech web page using the Virginia Tech Internet server; however, the researcher had absolute and complete administrative control over the survey, including data collection and data management procedures. A system of usernames and passwords that the researcher had absolute control over protected all of the data.

For the AEIUSVT, the Virginia Tech survey maker assigned the following web address: http://survey.vt.edu/survey/entry.jsp?id=1019490886963. This was the address that was given to the potential participants.

The Survey Implementation.

The survey opened for data collection on March 13, 2003 at 11:29:17 am. At 11:34:00 am, the researcher sent an e-mail inviting all international undergraduate students to participate in the study using the e-mail service of the Director of the Cranwell International Center at Virginia Tech. The e-mail explained the purpose, the importance, and the requirements of the study and provided the international undergraduate students with the web page address where the survey was posted. A copy of the e-mail message sent through the Cranwell International Center to potential international undergraduate students inviting them to answer the online survey can be found in Appendix E.

The online survey was secured from unauthorized users with a password to prevent other Internet users and browsers from entering it. The password system was based on the Virginia Tech students' PID system which consists of students' personal identification and passwords that they use to access the Virginia Tech online services. The researcher set up the system to allow only one response per student identification number to prevent duplication of results. The researcher also set up the system to make no record of each student's identification number to prevent identification of respondents and to guarantee the anonymity of the respondents.

Non-response.

To advertise the survey and improve the response rate, four things were done. First, the

researcher created 400 fliers that were distributed among IU students attending and participating in the annual Virginia Tech International Week, which, in spring 2003, began on April 4. This interactive week of dance, music, food, and a variety of sounds and movements from around the world included the international parade, an opening night of dances, cultural shows, the street fair in downtown Blacksburg, the international movies festival, international luncheons at the Cranwell Center, rice and tea tasting, talent show, and soccer tournament. It ended with the international party. A copy of the flier distributed during the International Week can be found in Appendix F.

Secondly, in the case of group 1 where the total number of potential student participants was low (see Figure 3), the researcher initially contacted the representative or president of international undergraduate student organizations representing the students from these countries (e.g., Hong Kong Club, African Students Association) and ask them to promote the online survey to try to increase the response rate for this group. However, because many of these students did not have a specific association to which they belonged, and because of the very low response rate obtained from this group after two weeks of the survey being online, the researcher asked the Director of the Cranwell International Center to send e-mails personalized by country to the students of the country being targeted in each e-mail. Two sample copies of the follow up e-mail messages to potential participants from group 1 can be found in Appendix G.

In the case of the other three groups, the researcher did not expect any problems obtaining the desired number of participants, because the total numbers of potential participants in these groups were sufficiently large. However, after three weeks of the survey being online, the response rate was also very low for these three groups. Therefore, the researcher asked the

Director of the Cranwell International Center to send e-mails personalized by country to the students of the country being targeted in each e-mail. Three sample copies of the follow up e-mail messages to potential participants from groups 2, 3, and 4 can be found in Appendix H.

Finally, the researcher used his knowledge of the Spanish language to write e-mails personalized by country to the students of Spanish speaking countries (e.g., Dominican Republic, Spain, Mexico, Panama) to promote the online survey among them to try to increase the response rate of the students from these countries. The researcher asked the Director of the Cranwell International Center to send e-mails personalized by country to the students of the country being targeted in each e-mail. Two sample copies—half Spanish and half English—of the follow up e-mail messages to potential participants from Spanish speaking countries can be found in Appendix I.

The IRB Form.

Before this study was carried out, a request for an exemption from the Institutional Review Board (IRB) at Virginia Tech for research involving human subjects was submitted and approved by the IRB committee. A copy of the IRB letter of exemption approval can be found in Appendix J.

Data Collection.

The data were collected by Virginia Tech survey management software. The Virginia Tech survey maker software stores the data as entered by the respondents. The researcher provided the guidelines for the software to do the collection, but the procedures, collection, and organization of the data were done by the survey management software. The collected data was

exported into a "text document" and then exported to SPSS graduate pack 11.0 for Windows to conduct the statistical data analysis procedures.

Data Analysis Procedures

One specific compound question guided this study:

What is the relationship between adaptation and time for IU students and does this relationship differ based on combined economic and linguistic backgrounds?

Hypotheses

The following hypotheses were based on the careful review of the current literature, as well as the researcher's own experiences as an international student and working with international students:

H_1 = Adaptation level differs by E/L group in freshman year.

H_2 = Adaptation level differs by E/L group in senior year.

Hypotheses 1 and 2 related to differences in adaptation at the beginning of the undergraduate experience (freshman year) and the end of the undergraduate experience (senior year). It was expected that there were group-based differences at both stages.

H_3 = The adaptation process of international undergraduate students at Virginia Tech is not equivalent to the one described by the u-shaped curve model, because the u-shaped curve model described the relationship between time and adaptation as curvilinear and used satisfaction as the measure to approximate adaptation. This study hypothesized that the measurement of

adaptation over time would yield a linear relationship.

Theoretically, adaptation to the new culture cannot start out at a high level, decline, and then return to its original level or higher. Specifically, Hypothesis 3 suggested that there would be differences in the slopes and the intercepts of the regression lines among Virginia Tech IU students based on their E/L backgrounds. This hypothesis can be better understood by expanding its terminology:

H_{3a} = There will be differences between the slopes and the intercepts of the regression lines of group 1 (English speaking students from developed countries) and group 2 (English speaking students from underdeveloped countries).

H_{3b} = There will be differences between the slopes and the intercepts of the regression lines of group 1 (English speaking students from developed countries) and group 3 (non English speaking students from developed countries).

H_{3c} = There will be differences between the slopes and the intercepts of the regression lines of group 1 (English speaking students from developed countries) and group 4 (non English speaking students from underdeveloped countries).

H_{3d} = There will be differences between the slopes and the intercepts of the regression lines of group 2 (English speaking students from underdeveloped countries) and group 4 (non English speaking students from underdeveloped countries).

Hypothesis 3_a to hypothesis 3_d proposed that the adaptation process of international undergraduate students at Virginia Tech was not equivalent to the one described by the Lysgaard u-shaped curve model. The Lysgaard model describes the relationship between time and

adaptation as curvilinear and uses satisfaction as the measure to approximate adaptation. This study hypothesized that measurement of adaptation over time would yield a linear relationship (see Figure 4). Theoretically, adaptation to the new culture cannot start out high, decline, and then return to its original level or higher. Specifically, Hypothesis 3_a to hypothesis 3_d suggested that there were differences in the slopes and the intercepts of the regression lines among the four groups. Each group was compared with group 1 to determine differences.

The Lysgaard u-shaped curve model has been the most utilized model of the adjustment process of international students, even though, as chapters 1 and 2 have pointed out, this model has limitations. This study was, therefore, designed to assess the nature of the relationship between adaptation and time to determine whether it is a linear relationship. Rejection of the null hypothesis suggested that the relationship was not linear, but rather curvilinear and resembled the u-shaped curve as described in Lysgaard's model.

The literature has suggested that the relationship between adaptation and time is linear, and that differences between the host country's E/L background and the international undergraduate student's E/L background will result in longer adjustment processes. Conversely, an international undergraduate student with a combined E/L background similar to that of the host country requires a shorter time to adjust. Also, the literature review has suggested that language presents a greater adjustment problem than economic background.

Data Analysis

This study was carried out in several steps and used several statistical techniques, including descriptive statistics, factor analysis, ANOVA, and multiple regression. The study was

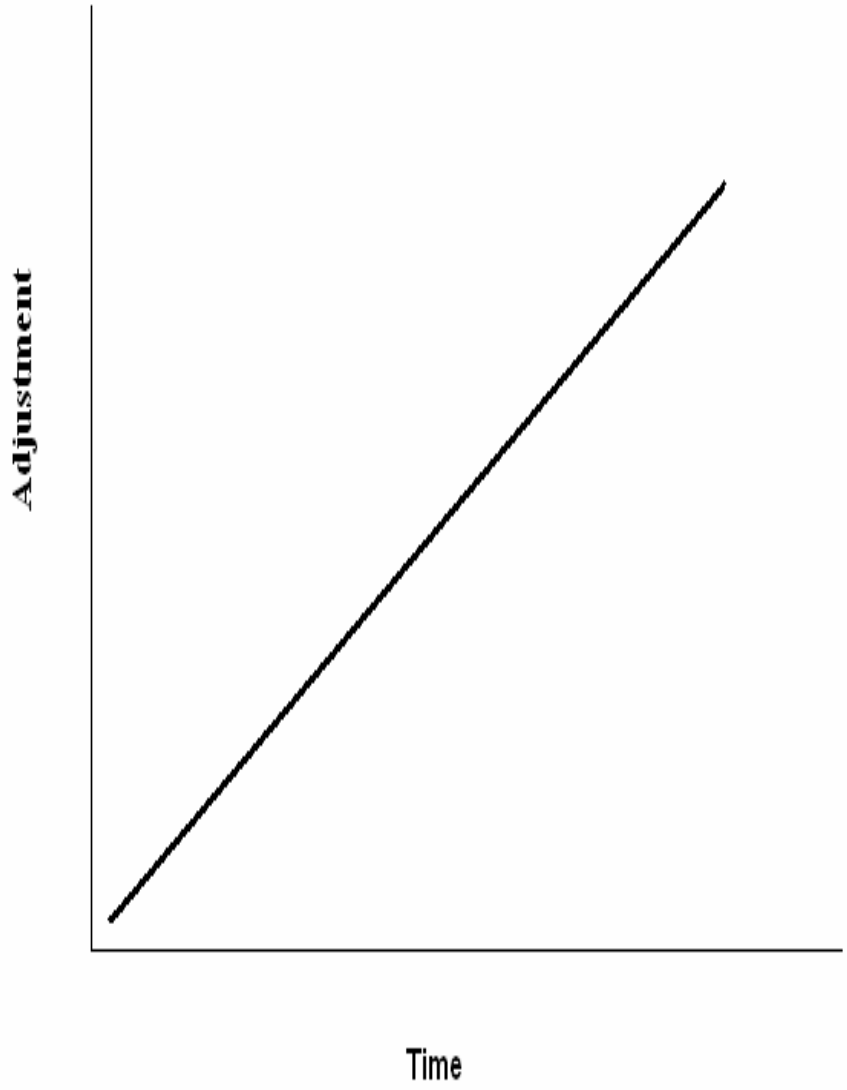


Figure 4: Hypothesized relationship between adjustment and time.

primarily based on a correlational design and this section introduces the characteristics of these data analysis procedures.

All analyses were completed using SPSS 11.0 for Windows and all the tests were carried out at the .05 significance level.

Hypotheses 1 and hypotheses 2 were about the differences in adaptation among the four groups. To test these hypotheses, one way ANOVA tests were used, with the E/L background group as the independent variable and adaptation as the dependent variable. The first test was run for freshmen students only to test for initial differences in adaptation by group. The second test was run for senior students only to test for final differences in adaptation by group. When the omnibus ANOVA tests were significant, post-hoc tests were conducted to determine which groups differed.

Hypotheses 3_a through hypotheses 3_d were about the relationship between time and adaptation. These hypotheses used multiple regression. The analysis involved multiple regression with categorical and continuous variables, because the specific interest was in whether the relationship between time and adaptation differed by group. This type of regression analysis essentially tested for differences in the slopes and intercepts of the regression lines for each group.

Regression Analyses.

To test hypothesis 3_a through hypothesis 3_d, the groups were recoded into four dummy-coded variables. Dummy coding was used to code categorical variables for regression analysis. In this method, membership in a given category was assigned 1, whereas non-membership in the

category was assigned 0.

For hypothesis 3_a through hypothesis 3_d, group 1 was used as the reference group (coded 1) as this group was closest to the host culture in terms of combined E/L backgrounds. For hypothesis 3_d, group 2 was used as the reference group only to register the effect of an economic background that differs from the host culture. Group 4 differs from the host culture in both economic and linguistic aspects. Groups that were not part of the comparison in each hypothesis test were coded as system missing (see Table 3.6).

Next, a product variable between each dummy variable and time was created. Each regression analysis used adaptation as the dependent variable, and time, dummy, and product variables as independent variables were entered into three successive models. The first model generated the regression line for time of adaptation. A significant F-change for this model indicated that time contributes significantly to the explanation of adaptation. Model 2 compared the regression lines of the two groups to determine whether there was a difference between their intercepts. A significant F-change for this model indicated that the intercepts were significantly different. Model 3 compared the slopes of the regression lines to determine whether there was a difference in the slopes of the lines. A significant *F*-change for this model indicated that the lines crossed and were not parallel.

Table 3.6
Dummy Coding Scheme for each Hypothesis Used in the Regression Comparisons

Hypothesis	Dummy coding		
	1	0	Missing
H_{3a} – There is a difference in the regression lines between group 1 and group 2.	Group 1 English Speaking Students from Developed Countries	Group 2 English Speaking Students from Underdeveloped Countries	Group 3 Non English Speaking Students from Developed Countries Group 4 Non English Speaking Students from Underdeveloped Countries
H_{3b} – There is a difference in the regression lines between group 1 and group 3.	Group 1	Group 3	Group 2 Group 4
H_{3c} – There is a difference in the regression lines between group 1 and group 4.	Group 1	Group 4	Group 2 Group 3
H_{3d} – There is a difference in the regression lines between group 2 and group 4.	Group 2	Group 4	Group 1 Group 3

Chapter 4

Data Analysis

Chapter 3 provided a detailed description of the methodology, data analysis steps, and the data preparation process used to conduct this research. The purpose of this chapter is to analyze the data collected during the implementation of the Adaptation Experience of International Undergraduate Students at Virginia Tech Survey (the AEIUSVT survey) following the procedures explained in chapter 3. In addition, the data analysis results and the demographical information are also presented.

The AEIUSVT Survey

The AEIUSVT survey has two parts. Section A is composed of 50 items to measure adaptation. From this total item number, 49 items were used to form the total adaptation scale, as explained in the definition section of chapter 1, and section B consists of demographic questions. The total adaptation scale for section A is composed of three subscales or factors: (a) pain, (b) learned helplessness, and (c) positive adaptation. A complete presentation of the descriptive statistics, including frequencies for section A of the AEIUSVT can be found in Appendix K.

Reliability Analyses of Section A: the AEIUSVT Survey

The AEIUSVT survey total score for section A produced a Cronbach's alpha of 0.94 based on 49 items. Item number 50 "Cultural identity is important to my sense of self" was removed from the formation of the AEIUSVT survey total score used in all the analyses in this research. The pain factor subscale produced a Cronbach's alpha of 0.92 based on 25 items. The learned helplessness subscale produced a Cronbach's alpha of 0.86 based on 14 items, and the

positive adaptation factor produced a Cronbach's alpha of 0.56 based on 10 items (see Table 4.1).

Analysis of Section B: Demography of the Sample

Section B of the AEIUSVT survey was designed to collect demographic information on the respondents. The total sample of 318 international undergraduate (IU) students represented 83 countries (see Table 4.2). Table 4.3 shows that 107 (33.6%) were females and 209 (65.7%) were males. Table 4.3 also shows the breakdown of participants by age, academic class, marital status, family financial status, and time at Virginia Tech in months and years. The participants ranged in age from 17 years to 25 or more years. About 70% of the participants were in the traditional undergraduate age range between 17 to 21 years. Only 2.5% were over 25 years of age.

The breakdown by academic class consisted of 81 freshmen (25.5%), 67 sophomores (21.1%), 67 juniors (21.1%), 103 seniors (32.4%). By marital status the distribution included 315 IU students (99.06%) who declared themselves unmarried and 2 (0.63%) who declared themselves married. One participant did not fill in this section of the survey.

Of the 318 respondents, 220 (69.2%) reported they were asked to take the TOEFL exam to be admitted to Virginia Tech. For the purposes of this study, they were considered non-English speaking students. The 98 IU students (31.8%) who were not asked to take the TOEFL exam to be admitted to Virginia Tech were considered English speaking students (see Table 4.4).

Using this information and the classification of underdeveloped and developed countries obtained from the World Bank Development Indicators Database 2002 (World Bank, 2002), four

Table 4.1
Cronbach's Alpha for Total and Subscale Scores (N = 318).

Description	*n*	α	Δα
AEIUSVT Survey Total Score	49	0.94	0.94
Pain Factor Subscale	25	0.93	0.92
Learned Helplessness Subscale	14	0.86	0.86
Positive Adaptation Subscale	10	0.65	0.66

Table 4.2

International Undergraduate (IU) Students Responding to the Adaptation Experience of International Undergraduate Students at Virginia Tech (AEIUSVT) Survey Distributed into the 83 Countries of Origin Represented (N = 318)

Country	*n*	Country	*n*	Country	*n*	Country	*n*
Afghanistan	1	Dominica	1	South Korea	11	Saudi Arabia	10
Albania	1	Ecuador	5	Kuwait	5	Singapore	1
Algeria	1	Egypt	3	Lebanon	2	South Africa	4
Australia	2	El Salvador	7	Macedonia	1	Spain	1
Bahamas	1	Ethiopia	3	Malaysia	2	St. Kitts & Nevis	1
Bangladesh	7	France	13	Martinique	1	St. Vincent & Grenada	1
Belgium	1	Germany	3	Mexico	2	Sudan	1
Benin	1	Ghana	2	Morocco	1	Sweden	2
Bolivia	4	Greece	2	Myanmar	1	Switzerland	4
Bosnia-Herzegovinia	1	Hong Kong	12	Nepal	3	Taiwan	4
Botswana	2	Hungary	1	Nicaragua	2	Thailand	6
Brazil	3	Iceland	1	Niger	1	Trinidad & Tobago	1
Burundi	1	India	46	Nigeria	2	Tunisia	1
Cameroon	1	Indonesia	3	Pakistan	5	Turkey	18
Canada	10	Israel	1	Panama	7	United Arab Emirates (UAE)	1
China	11	Italy	2	Peru	3	United Kingdom	7
Colombia	4	Ivory Coast	1	Philippines	3	Venezuela	3
Costa Rica	1	Jamaica	5	Poland	2	Vietnam	3
Croatia	2	Japan	12	Portugal	2	Zambia	1
Cyprus	3	Jordan	3	Romania	2	Puerto Rico	3
Denmark	1	Kenya	1	Russia	1		

Table 4.3
Demographic Characteristics of International Undergraduate (IU) Student Sample (N = 318)

Characteristics	*n*	*P*
Gender		
Male	209	65.72%
Female	107	33.65%
Missing	2	0.63%
Age		
17 years old	2	0.63%
18 years old	32	10.06%
19 years old	60	18.87%
20 years old	69	21.70%
21 years old	61	19.18%
22 years old	38	11.95%
23 years old	27	8.49%
24 years old	12	3.77%
25 years old	6	1.89%
Over 25 years old	8	2.52%
Missing	3	0.94%
Academic Class Status		
Freshmen	81	25.47%
Sophomores	67	21.07%
Juniors	67	21.07%
Seniors	103	32.39%
Missing	0	0%
Marital Status		
Single	315	99.06%
Married	2	0.63%
Missing	1	0.31%

(Table 4.3: *Continued*)

Characteristics	*n*	*P*
Family Financial Status		
High	41	12.89%
Middle-high	151	47.48%
Middle	98	30.82%
Middle-low	21	6.60%
Low	6	1.89%
Missing	1	0.31%
Time at Virginia Tech in Months		
4 Months	13	4.09%
9 Months	109	34.28%
10 Months	1	0.31%
12 Months	3	0.94%
16 Months	3	0.94%
21 Months	82	25.79%
22 Months	1	0.31%
24 Months	1	0.31%
28 Months	3	0.94%
33 Months	47	14.78%
36 Months	1	0.31%
40 Months	3	0.94%
45 Months	36	11.32%
52 Months	3	0.94%
57 Months	4	1.26%
64 Months	3	0.94%
Missing	5	1.57%
Time at Virginia Tech in Years		
1 year (4 – 12 Months)	126	39.62%
2 years (13 – 24 Months)	87	27.36%
3 years (25 – 36 Months)	51	16.04%
4 or more years (37 or More Months)	49	15.41%
Missing	5	1.57%

Table 4.4
International Undergraduate (IU) Students' Response to Survey Question: "I was required to take the TOEFL exam to be admitted to Virginia Tech?" (N = 318)

Response	*n*	*P*
Yes	220	69.18%
No	98	30.82%
Missing	0	0.00%

combined economic and linguistic background (E/L background) groups were created and used in the multiple regression and ANOVA analyses. Students were classified as: 1 = English speaking students from developed countries (n = 37); 2 = English speaking students from underdeveloped countries (n = 64); 3 = non English speaking students from developed countries (n = 68); and 4 = non English speaking students from underdeveloped countries (n = 149) (see Figure 5).

In response to the question of whether the IU student had attended an English Language Institute (ELI) before coming to Virginia Tech, 52 (16.4%) indicated they had and 266 (83.6%) indicated they had not (see Table 4.5). Of those who had attended an ELI, 46 (88.5%) had attended 1 year or less, and 6 (11.5%) had attended for more than 1 year (see Table 4.6).

International undergraduate students were also asked to write in the month and the year they started studying at Virginia Tech. This variable was converted into the number of months at Virginia Tech with a range of 4 to 64 months. Further, a categorical variable was created for use in the ANOVA analyses: (a) IU students with 1 year at Virginia Tech (0 to 12 months), (b) IU students with 2 years at Virginia Tech (13 to 24 months), (c) IU students with 3 years at Virginia Tech (25 to 36 months), and (d) IU students with 4 years or more (37 to 64 months) (see Table 4.3).

International undergraduate students also indicated their family's financial status in their home country. Forty-one of them (12.9%) declared that their families had a high level financial status; 151 (47.5%) declared that their families had a middle-high level financial status; 98 (30.8%) declared that their families had a middle level financial status; 21 (6.6%) declared that their families had a middle-low level financial status; and 6 (1.9%) declared that their families

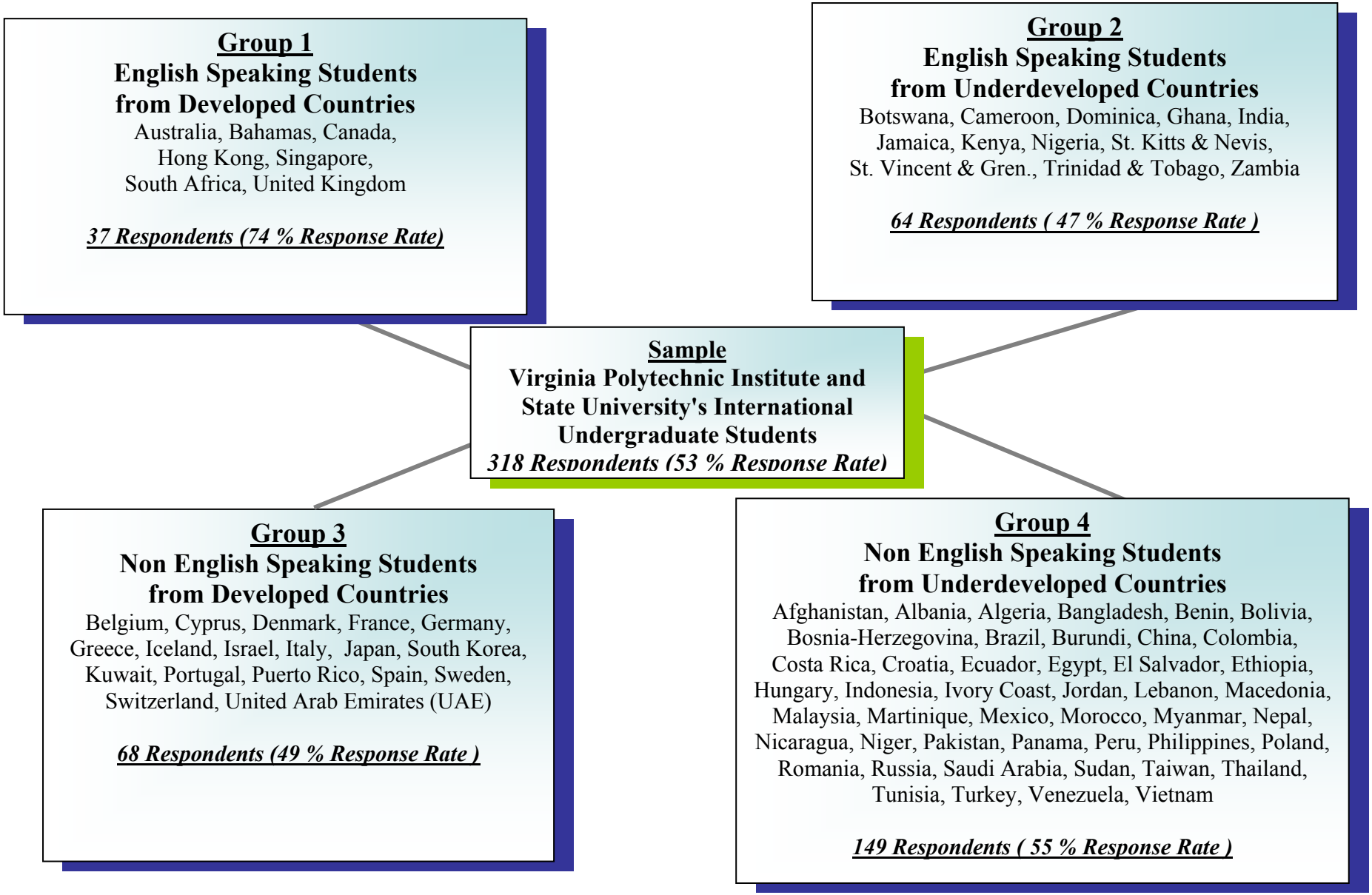


Figure 5: Respondents to Adaptation Experience of International Undergraduate (IU) Student at Virginia Tech (AEIUSVT) survey grouped by linguistic and economic (E/L) characteristics with numbers and percentages.

Table 4.5
International Undergraduate (IU) Students' Response to Survey Question: "Did you attend an English Language Institute (ELI) in the United States before coming to Virginia Tech?" (N = 318)

Response	*n*	*P*
Yes	52	16.35%
No	266	83.65%
Missing	0	0.00%

Table 4.6

International Undergraduate (IU) Students' Response to Survey Question: "I attended an ELI for:" (N = 52)

Response	*n*	*P*
1 to 3 months	14	26.92%
4 to 6 months	17	32.69%
7 to 9 months	10	19.23%
10 to 12 months	5	9.62%
13 to 15 months	1	1.92%
16 to 18 months	1	1.92%
More than 18 months	4	7.69%

had a low financial status (see Table 4.3). When asked if they had sufficient financial funds to support themselves in the U.S. while at Virginia Tech, 243 of them (78.3%) answered yes and 74 of them (23.3%) answered no (see Table 4.7).

The Research Question

This study sought to address the following compound research question: What is the relationship between adaptation and time for international undergraduate students, and does this relationship differ based on combined E/L backgrounds?

Hypotheses

The following hypotheses were based on a careful review of the current literature, as well as the researcher's own experiences as an IU student and working with international students.

H_1 = Adaptation level differs based on E/L backgrounds in freshman year.

H_2 = Adaptation level differs based on E/L backgrounds in senior year.

H_3 = The adaptation process of international undergraduate students at Virginia Tech is not curvilinear, as described by the u-shaped curve model. The u-shaped curve model used satisfaction as the measure to approximate adaptation. This study hypothesized that the measurement of adaptation over time would yield a linear relationship.

Theoretically, adaptation to the new culture would not start out at a high level, decline, and then return to its original level or higher. Specifically, Hypothesis 3 suggested that there would be differences in the slopes and the intercepts of the regression lines among Virginia Tech IU students based on their E/L backgrounds. This hypothesis can be better understood by

Table 4.7
International Undergraduate (IU) Students' Response to Survey Question: "I have sufficient financial funds to support myself in the United States while at Virginia Tech." (N = 318)

Response	*n*	*P*
Yes	243	76.42%
No	74	23.27%
Missing	1	0.31%

explaining its terminology:

H_{3a} = There will be differences between the slopes and the intercepts of the regression lines of group 1 (English speaking students from developed countries) and group 2 (English speaking students from underdeveloped countries).

H_{3b} = There will be differences between the slopes and the intercepts of the regression lines of group 1 (English speaking students from developed countries) and group 3 (non English speaking students from developed countries).

H_{3c} = There will be differences between the slopes and the intercepts of the regression lines of group 1 (English speaking students from developed countries) and group 4 (non English speaking students from underdeveloped countries).

H_{3d} = There will be differences between the slopes and the intercepts of the regression lines of group 2 (English speaking students from underdeveloped countries) and group 4 (non English speaking students from underdeveloped countries).

The Results and Analysis of Section A of the AEIUSVT Survey

This part of the data analysis reflects an attempt to understand and explore the relation between IU students' adaptation and time, and the differences based on E/L backgrounds. All analyses were completed using SPSS 11.0 for Windows and all the tests were carried out at the 95% significance level.

In chapter 3, the researcher stated that time would be measured using academic class (freshmen, sophomore, junior, and senior). Thus, time would be measured cross-sectionally

rather than longitudinally. A higher value for time would indicate a longer period of time in the United States of America (U.S). A crosstab analysis between the academic class and time at Virginia Tech indicated that the variables were independent ($X^2 = 0.000$). Thus, academic class did not correspond with number of years at Virginia Tech. These differences could be attributed to IU students carrying lighter class loads or transferring from different institutions. Therefore, it was considered appropriate to use the longitudinal variable "time at Virginia Tech" instead of the academic class variable as a proxy for time for all the analyses in this study. Tables 4.8 and 4.9 show the crosstabs between the IU students sample's academic class and years at Virginia Tech and the Chi-Square tests values.

Hypotheses H_1 and H_2: Adaptation level differs based on E/L backgrounds in freshman and senior years

To determine whether adaptation differed based on E/L backgrounds, four ANOVA tests for each time group (1, 2, 3, and 4 or more years) were run using the AEIUSVT survey total score, the pain factor subscale score, the learned helplessness subscale score, and the positive adaptation subscale score as the dependent variables. ANOVA tests were run for all years even though the hypothesis was only about years 1 and 4.

For IU students with 1 and 3 years at Virginia Tech, none of the four omnibus ANOVA tests were statistically significant, indicating that there is no difference in adaptation among the groups (see Tables 4.10, 4.11, 4.12, and 4.13). For IU students with 2 years at Virginia Tech, the omnibus ANOVA tests for the pain factor subscale (F (3,82) = 3.245, p = 0.026), and the learned helplessness subscale (F (3,82) = 3.743, p = 0.014) scores were statistically significant. Post hoc tests using the Tukey's honesty significant difference (HSD) showed that group 1 (English

Table 4.8
Crosstabs between Sample's Academic Class Status and Years at Virginia Tech (N = 313)

IU Students' Academic Class		IU Students' Years at Virginia Tech				
		1	2	3	4	Total
Freshman	Count	76	3			79
	% Within class standing	96.2%	3.8%			100.0%
	% Within years at Virginia Tech	60.3%	3.4%			25.2%
	% of Total	24.3%	1.0%			25.2%
Sophomore	Count	14	48	2	1	65
	% Within class standing	21.5%	73.8%	3.1%	1.5%	100.0%
	% Within years at Virginia Tech	11.1%	55.2%	3.9%	2.0%	20.8%
	% of Total	4.5%	15.3%	0.6%	0.3%	20.8%
Junior	Count	20	12	31	4	67
	% Within class standing	29.9%	17.9%	46.3%	6.0%	100.0%
	% Within years at Virginia Tech	15.9%	13.8%	60.8%	8.2%	21.4%
	% of Total	6.4%	3.8%	9.9%	1.3%	21.4%
Senior	Count	16	24	18	44	102
	% Within class standing	15.7%	23.5%	17.6%	43.1%	100.0%
	% Within years at Virginia Tech	12.7%	27.6%	35.3%	89.8%	32.6%
	% of Total	5.1%	7.7%	5.8%	14.1%	32.6%
Total	Count	126	87	51	49	313
	% Within class standing	40.3%	27.8%	16.3%	15.7%	100.0%
	% Within years at Virginia Tech	100.0%	100.0%	100.0%	100.0%	100.0%
	% of Total	40.3%	27.8%	16.3%	15.7%	100.0%

Table 4.9
Crosstabs between Sample's Academic Class Status and Years at Virginia Tech: Chi-Square Tests (N = 313)

	Value	*df*	X^2
Pearson Chi-Square	283.930[a]	9	0.000***
Likelihood Ratio	273.862	9	0.000***
Linear-by-Linear	131.108	1	0.000***

Note. a. 0 cells (0.00%) have expected count of less than 5. The minimum expected count is 10.
b. *** Significant at the 0.001 level.

Table 4.10

Number, Means, and Standard Deviation for International Undergraduate (IU) Students with 1 Year at Virginia Tech Divided into the Four Combined Economic and Linguistic (E/L) Background Groups and Four Dependent Variables (N = 126)

Variable	Group 1			Group 2			Group 3			Group 4			Total		
	n	*M*	*SD*	*n*	*M*	*SD*	*n*	*M*	*SD*	*n*	*M*	*SD*	*n*	*M*	*SD*
Pain Factor Subscale Score	23	2.8111	0.4960	16	2.6336	0.6683	22	2.6287	0.3982	65	2.8238	0.5141	126	2.7633	0.5163
Learned Helplessness Subscale Score	23	3.1175	0.4310	16	2.9583	0.5460	22	2.8485	0.3922	65	3.0212	0.5465	126	3.0006	0.5043
Positive Adaptation Subscale Score	23	2.2014	0.3871	16	2.4051	0.3269	22	2.4391	0.3614	65	2.3145	0.4008	126	2.3271	0.3865
AEIUSVT Survey Total Score	23	2.0622	0.3364	16	2.2422	0.4860	22	2.2763	0.2802	65	2.0769	0.4125	126	2.1300	0.3953

Note. Group 1: English speaking students from developed countries; Group 2: English speaking students from underdeveloped countries; Group 3: non English speaking students from developed countries; Group 4: non English speaking students from underdeveloped countries.

Table 4.11
One-Way Analysis of Variances for International Undergraduate (IU) Students with 1 Year at Virginia Tech Divided into the Four Combined E/L Background Groups and Four Dependent Variables (N = 126)

Variable and Source	*df*	*SS*	*MS*	*F*	P
Pain Factor Subscale Score					
Between groups	3	0.958	0.319	1.204	0.311
Within groups	122	32.365	0.265		
Total	125	33.323			
Learned Helplessness Subscale Score					
Between groups	3	0.879	0.293	1.157	0.329
Within groups	122	30.911	0.253		
Total	125	31.790			
Positive Adaptation Subscale Score					
Between groups	3	0.747	0.249	1.695	0.172
Within groups	122	17.925	0.147		
Total	125	18.673			
AEIUSVT Survey Total Score					
Between groups	3	0.962	0.321	2.106	0.103
Within groups	122	18.575	0.152		
Total	125	19.537			

Table 4.12

Number, Means, and Standard Deviation for International Undergraduate (IU) Students with 3 Years at Virginia Tech Divided into the Four Combined E/L Background Groups and Four Dependent Variables (N = 51)

Variable	Group 1			Group 2			Group 3			Group 4			Total		
	n	*M*	*SD*	*n*	*M*	*SD*	*n*	*M*	*SD*	*n*	*M*	*SD*	*n*	*M*	*SD*
Pain Factor Subscale Score	6	2.6488	0.4085	9	2.6235	0.5730	10	3.0084	0.5634	26	2.7147	0.4947	51	2.7484	0.5166
Learned Helplessness Subscale Score	6	2.7967	0.5981	9	3.0354	0.4998	10	3.268	0.4990	26	3.0306	0.4642	51	3.0505	0.4957
Positive Adaptation Subscale Score	6	2.2917	0.4441	9	2.1634	0.3456	10	2.175	0.4866	26	2.2301	0.4335	51	2.2512	0.4237
AEIUSVT Survey Total Score	6	2.2246	0.4056	9	2.174	0.4182	10	1.9118	0.4192	26	2.1462	0.3709	51	2.1144	0.3945

Note. Group 1: English speaking students from developed countries; Group 2: English speaking students from underdeveloped countries; Group 3: non English speaking students from developed countries; Group 4: non English speaking students from underdeveloped countries.

Table 4.13
One-Way Analysis of Variances for International Undergraduate (IU) Students with 3 Years at Virginia Tech Divided into the Four Combined E/L Background Groups and Four Dependent Variables (N = 51)

Variable and Source	*df*	*SS*	*MS*	*F*	p
Pain Factor Subscale Score					
Between groups	3	0.906	0.302	1.141	0.342
Within groups	47	12.438	0.265		
Total	50	13.344			
Learned Helplessness Subscale Score					
Between groups	3	0.873	0.291	1.199	0.321
Within groups	47	11.416	0.243		
Total	50	12.289			
Positive Adaptation Subscale Score					
Between groups	3	0.203	0.068	0.363	0.780
Within groups	47	8.773	0.187		
Total	50	8.976			
AEIUSVT Survey Total Score					
Between groups	3	0.541	0.180	1.171	0.331
Within groups	47	7.243	0.154		
Total	50	7.784			

Table 4.14

Number, Means, Standard Deviation, and Post Hoc Test for International Undergraduate (IU) Students with 2 Years at Virginia Tech Divided into the Four Combined E/L Background Groups and Four Dependent Variables (N = 86)

Variable	Group 1			Group 2			Group 3			Group 4			Total			Post hoc
	n	*M*	*SD*	*n*	*M*	*SD*	*n*	*M*	*SD*	*n*	*M*	*SD*	*n*	*M*	*SD*	
Pain Factor Subscale Score	7	2.5348	0.4566	19	2.7256	0.6509	15	3.1073	0.3784	45	2.7843	0.3734	86	2.8073	0.4733	1 < 3
Learned Helplessness Subscale Score	7	2.6905	0.4899	19	3.0658	0.7214	15	3.4312	0.3721	45	3.0763	0.4311	86	3.1045	0.5290	1 < 3
Positive Adaptation Subscale Score	7	2.4456	0.2766	19	2.2179	0.6309	15	2.1429	0.3968	45	2.3636	0.3835	86	2.2996	0.4489	1 = 2 = 3 = 4
AEIUSVT Survey Total Score	7	2.3115	0.3259	19	2.1085	0.5898	15	1.8464	0.2668	45	2.0531	0.4568	86	2.0503	0.4632	1 = 2 = 3 = 4

Note. Group 1: English speaking students from developed countries*;* Group 2: English speaking students from underdeveloped countries*;* Group 3: non English speaking students from developed countries; Group 4: non English speaking students from underdeveloped countries.

Table 4.15
One-Way Analysis of Variances for International Undergraduate (IU) Students with 2 Years at Virginia Tech Divided into the Four Combined E/L Background Groups and Four Dependent Variables (N = 86)

Variable and Source	*df*	*SS*	*MS*	*F*	p
Pain Factor Subscale Score					
Between groups	3	2.021	0.674	3.245	0.026*
Within groups	82	17.021	0.208		
Total	85	19.042			
Learned Helplessness Subscale Score					
Between groups	3	2.865	0.955	3.743	0.014*
Within groups	82	20.926	0.255		
Total	85	23.791			
Positive Adaptation Subscale Score					
Between groups	3	0.829	0.276	1.390	0.252
Within groups	82	16.302	0.199		
Total	85	17.131			
AEIUSVT Survey Total Score					
Between groups	3	1.166	0.389	1.866	0.142
Within groups	82	17.288	0.208		
Total	85	18.454			

* Significant at the 0.05 level.

speaking IU students from developed countries) had statistically significant lower pain and learned helplessness scores than group 3 (non English speaking IU students from developed countries) (see Tables 4.14, and 4.15). For IU students with 4 or more years at Virginia Tech, only the omnibus ANOVA test for the positive adaptation subscale score was statistically significant (F (3,45) = 3.991, p = 0.013). Post hoc tests using the HSD test showed that group 3 (non English speaking IU students from developed countries) had a statistically significant lower positive adaptation score than group 1 (English speaking IU students from developed countries) for the positive adaptation subscale score (see Tables 4.16 and 4.17).

Hypotheses H_3, H_{3a}, H_{3b}, H_{3c}, H_{3d}: Is the adaptation process of IU students at Virginia Tech a linear relationship between time and adaptation? And if so, are there differences between the slopes and the intercepts of the regression lines based on the E/L backgrounds of the IU students?

To determine whether there is a linear relationship between time and adaptation for IU students, regression analyses were run. Dummy coding was used to code categorical variables for regression analysis so that membership in a given category was assigned 1, whereas non-membership in the category was assigned 0.

For hypotheses H_{3a}, H_{3b}, H_{3c}, group 1 was used as the reference group (coded 1). For hypothesis H_{3d}, group 2 was used as the reference group to register the effect of an economic background that differs from the host culture. Next, a product variable between each dummy variable and time was created. The four regression analyses which used adaptation as the dependent variable, and time, dummy, and product variables as independent variables were

Table 4.16

Number, Means, Standard Deviation, and Post Hoc Test for International Undergraduate (IU) Students with 4 Years at Virginia Tech Divided into the Four Combined E/L Background Groups and Four Dependent Variables (N = 49)

Variable	Group 1			Group 2			Group 3			Group 4			Total			Post hoc
	n	*M*	*SD*	*n*	*M*	*SD*	*n*	*M*	*SD*	*n*	*M*	*SD*	*n*	*M*	*SD*	
Pain Factor Subscale Score	6	2.8508	0.8372	11	2.6455	0.4936	13	2.7826	0.3233	19	2.8556	0.5853	49	2.7885	0.5342	1 = 2 = 3 = 4
Learned Helplessness Subscale Score	6	3.4306	0.4955	11	2.9972	0.4602	13	3.0228	0.3922	19	3.0619	0.5273	49	3.0822	0.4800	1 = 2 = 3 = 4
Positive Adaptation Subscale Score	6	1.8750	0.5916	11	2.2889	0.4110	13	2.4767	0.3389	19	2.1532	0.2937	49	2.2352	0.4099	1 < 3
AEIUSVT Survey Total Score	6	1.9426	0.6100	11	2.2022	0.3924	13	2.1166	0.2441	19	2.0482	0.4538	49	2.0880	0.4116	1 = 2 = 3 = 4

Note. Group 1: English speaking students from developed countries*;* Group 2: English speaking students from underdeveloped countries*;* Group 3: non English speaking students from developed countries; Group 4: non English speaking students from underdeveloped countries.

Table 4.17
One-Way Analysis of Variances for International Undergraduate (IU) Students with 4 Years at Virginia Tech Divided into the Four Combined E/L Background Groups and Four Dependent Variables (N = 49)

Variable and Source	*Df*	*SS*	*MS*	*F*	p
Pain Factor Subscale Score					
Between groups	3	0.334	0.111	0.375	0.771
Within groups	45	13.364	0.297		
Total	48	13.698			
Learned Helplessness Subscale Score					
Between groups	3	0.861	0.287	1.267	0.297
Within groups	45	10.198	0.227		
Total	48	11.059			
Positive Adaptation Subscale Score					
Between groups	3	1.695	0.565	3.991	0.013*
Within groups	45	6.372	0.142		
Total	48	8.067			
AEIUSVT Survey Total Score					
Between groups	3	0.311	0.104	0.596	0.621
Within groups	45	7.824	0.174		
Total	48	8.135			

* Significant at the 0.05 level.

entered into three successive models. The first model generated the regression line for time on adaptation. Model 2 compared the regression lines of the two groups to determine whether there was a difference between their intercepts. Model 3 compared the slopes of the regression lines to determine whether there was a difference in the slopes of the lines. In each of the four regression analyses, none of the three models were statistically comparable. There was also no difference between the regression lines and slopes for each of the four comparisons. Thus, the data failed to reject all null hypotheses for this set of regression analyses (see Tables 4.18, 4.19, 4.20, 4.21, 4.22, 4.23, 4.24, and 4.25).

A Graphical Representation of the Relationship between Time and Adaptation.

The regression analyses revealed the lack of a significant linear relationship between time and adaptation, and no difference by groups in the relationship between time and adaptation. The graphs in Figures 6, 7, 8, and 9 provide a visual representation of the relationship between time and adaptation by group for the pain, learned helplessness, and positive adaptation subscales, as well as for the AEIUSVT survey total adaptation score. In the graph in Figure 6, the relationship between time and adaptation may be erroneously interpreted as linear for groups 2 and 4, and as curvilinear for groups 1 and 3. The appearance of the relationships in this graph can be attributed to the scale on the y axis, for which the range of means on the adaptation score is from 1.8 to 2.4 points. If the numbers in the scale were closer one to each other, the lines would look flatter, thereby better showing the lack of a statistically significant relationship between time and adaptation.

Table 4.18

Number, Mean, Standard Deviation, and Intercorrelations for Regression Comparison 1 (Group 1 vs. Group 2) and the Adaptation Experience of International Undergraduate Students at Virginia Tech (AEIUSVT) Survey Total Score (N = 104)

Variable	*M*	*SD*	1	2	3	4
Pearson Correlation						
1. Total Adaptation Score	2.0925	0.36218	--	-0.139	0.040	0.020
2. IU Students' Time at VT	21.53	14.560	-0.139	--	-0.131	0.298
3. Comparison 1	0.40	0.493	0.040	-0.131	--	0.741
4. IU Students' Time at VT * Comparison 1	7.7596	12.77778	0.020	0.298	0.741	--
Sig. (1-Tailed)						
1. Total Adaptation Score			--	0.079	0.345	0.419
2. IU Students' Time at VT			0.079	--	0.092	0.001
3. Comparison 1			0.345	0.092	--	0.000
4. IU Students' Time at VT * Comparison 1			0.419	0.001	0.000	--

Note. Group 1: English speaking students from developed countries*;* Group 2: English speaking students from underdeveloped countries.

Table 4.19

Multiple Coefficient of Determination (R^2), the Adjusted R^2, the Standard Error of the Estimate, and Coefficients for Regression Comparison 1 (Group 1 vs. Group 2) and the Adaptation Experience of International Undergraduate Students at Virginia Tech (AEIUSVT) Survey Total Score (N = 104)

Models and Predictor Variables		Model Summary [d]			Coefficients [d]		
		R^2	ΔR^2	*sr*	ß	*t*	p
1	Model	0.019[a]	0.010	0.36041			
	Constant					34.239	0.000
	IU Students' Time at VT				-0.139	-1.421	0.158
2	Model	0.020[b]	0.000	0.36210			
	Constant					29.452	0.000
	IU Students' Time at VT				-0.136	-1.373	0.173
	Comparison 1				0.022	0.218	0.828
3	Model	0.027[c]	-0.002	0.36262			
	Constant					25.915	0.000
	IU Students' Time at VT				-0.198	-1.604	0.112
	Comparison 1				-0.101	-0.572	0.568
	IU Students' Time at VT * Comparison 1				0.154	0.843	0.401

Note.

a. Predictors: (Constant), IU Students' Time at Virginia Tech (VT).
b. Predictors: (Constant), IU Students' Time at VT, Comparison 1 (Group 1 vs. Group 2).
c. Predictors: (Constant), IU Students' Time at VT, Comparison 1, Time * Comparison 1.
d. Dependent Variable: Total Adaptation Score.

Table 4.20

Number, Mean, Standard Deviation, and Intercorrelations for Regression Comparison 2 (Group 1 vs. Group 3) and the Adaptation Experience of International Undergraduate Students at Virginia Tech (AEIUSVT) Survey Total Score (N = 104)

Variable	*M*	*SD*	1	2	3	4
Pearson Correlation						
1. Total Adaptation Score	2.0925	0.36218	--	-0.139	0.040	0.020
2. IU Students' Time at VT	21.53	14.560	-0.139	--	-0.131	0.298
3. Comparison 2	0.40	0.493	-0.040	-0.131	--	0.741
4. IU Students' Time at VT * Comparison 2	7.7596	12.77778	-0.020	0.298	0.741	--
Sig. (1-Tailed)						
1. Total Adaptation Score			--	0.079	0.345	0.419
2. IU Students' Time at VT			0.079	--	0.092	0.001
3. Comparison 2			0.345	0.092	--	0.000
4. IU Students' Time at VT * Comparison 2			0.419	0.001	0.000	--

Note. Group 1: English speaking students from developed countries*;* Group 3: non English speaking students from developed countries.

Table 4.21

Multiple Coefficient of Determination (R^2), the Adjusted R^2, the Standard Error of the Estimate, and Coefficients for Regression Comparison 2 (Group 1 vs. Group 3) and the Adaptation Experience of International Undergraduate Students at Virginia Tech (AEIUSVT) Survey Total Score (N = 104)

Models and Predictor Variables		Model Summary [d]			Coefficients [d]		
		R^2	ΔR^2	*sr*	ß	*t*	p
1	Model	0.019[a]	0.010	0.36041			
	Constant					34.239	0.000
	IU Students' Time at VT				-0.139	-1.421	0.158
2	Model	0.020[b]	0.000	0.36210			
	Constant					29.452	0.000
	IU Students' Time at VT				-0.136	-1.373	0.173
	Comparison 2				-0.022	0.218	0.828
3	Model	0.027[c]	-0.002	0.36262			
	Constant					25.915	0.000
	IU Students' Time at VT				-0.198	-1.604	0.112
	Comparison 2				-0.101	-0.572	0.568
	IU Students' Time at VT * Comparison 2				0.154	0.843	0.401

Note.

a. Predictors: (Constant), IU Students' Time at Virginia Tech (VT).
b. Predictors: (Constant), IU Students' Time at VT, Comparison 2 (Group 1 vs. Group 3).
c. Predictors: (Constant), IU Students' Time at VT, Comparison 2, Time * Comparison 2.
d. Dependent Variable: Total Adaptation Score.

Table 4.22

Number, Mean, Standard Deviation, and Intercorrelations for Regression Comparison 3 (Group 1 vs. Group 4) and the Adaptation Experience of International Undergraduate Students at Virginia Tech (AEIUSVT) Survey Total Score (N = 200)

Variable	*M*	*SD*	1	2	3	4
Pearson Correlation						
1. Total Adaptation Score	2.0844	0.41795	--	0.006	0.032	0.020
2. IU Students' Time at VT	20.27	13.393	0.006	--	-0.041	0.253
3. Comparison 3	0.21	0.408	0.032	-0.041	--	0.786
4. IU Students' Time at VT * Comparison 3	4.0350	9.98057	0.020	0.253	0.786	--
Sig. (1-Tailed)						
1. Total Adaptation Score			--	0.467	0.329	0.392
2. IU Students' Time at VT			0.467	--	0.282	0.000
3. Comparison 3			0.329	0.282	--	0.000
4. IU Students' Time at VT * Comparison 3			0.392	0.000	0.000	--

Note. Group 1: English speaking students from developed countries*;* Group 4: non English speaking students from underdeveloped countries.

Table 4.23

Multiple Coefficient of Determination (R^2), the Adjusted R^2, the Standard Error of the Estimate, and Coefficients for Regression Comparison 3 (Group 1 vs. Group 4) and the Adaptation Experience of International Undergraduate Students at Virginia Tech (AEIUSVT) Survey Total Score (N = 200)

	Models and Predictor Variables	Model Summary [d]			Coefficients [d]		
		R^2	ΔR^2	*sr*	ß	*t*	p
1	Model	0.000[a]	-0.005	0.41900			
	Constant					38.639	0.000
	IU Students' Time at VT				0.006	0.083	0.934
2	Model	0.001[b]	-0.009	0.41985			
	Constant					36.611	0.000
	IU Students' Time at VT				0.007	0.102	0.919
	Comparison 3				0.032	0.446	0.656
3	Model	0.001[c]	-0.014	0.42088			
	Constant					33.606	0.000
	IU Students' Time at VT				0.014	0.175	0.861
	Comparison 3				0.051	0.405	0.686
	IU Students' Time at VT * Comparison 3				-0.024	-0.185	0.853

Note.

a. Predictors: (Constant), IU Students' Time at Virginia Tech (VT).
b. Predictors: (Constant), IU Students' Time at VT, Comparison 3 (Group 1 vs. Group 4).
c. Predictors: (Constant), IU Students' Time at VT, Comparison 3, Time * Comparison 3.
d. Dependent Variable: Total Adaptation Score.

Table 4.24
Number, Mean, Standard Deviation, and Intercorrelations for Regression Comparison 4 (Group 2 vs. Group 4) and the Adaptation Experience of International Undergraduate Students at Virginia Tech (AEIUSVT) Survey Total Score (N = 213)

Variable	*M*	*SD*	1	2	3	4
Pearson Correlation						
1. Total Adaptation Score	2.1032	0.44321	--	0.024	0.098	0.080
2. IU Students' Time at VT	21.80	14.115	0.024	--	0.149	0.446
3. Comparison 4	0.26	0.439	0.098	0.149	--	0.815
4. IU Students' Time at VT * Comparison 4	6.5493	13.64626	0.080	0.446	0.815	--
Sig. (1-Tailed)						
1. Total Adaptation Score			--	0.366	0.077	0.124
2. IU Students' Time at VT			0.366	--	0.015	0.000
3. Comparison 4			0.077	0.015	--	0.000
4. IU Students' Time at VT * Comparison 4			0.124	0.000	0.000	--

Note. Group 2: English speaking students from underdeveloped countries*;* Group 4: non English speaking students from underdeveloped countries.

Table 4.25

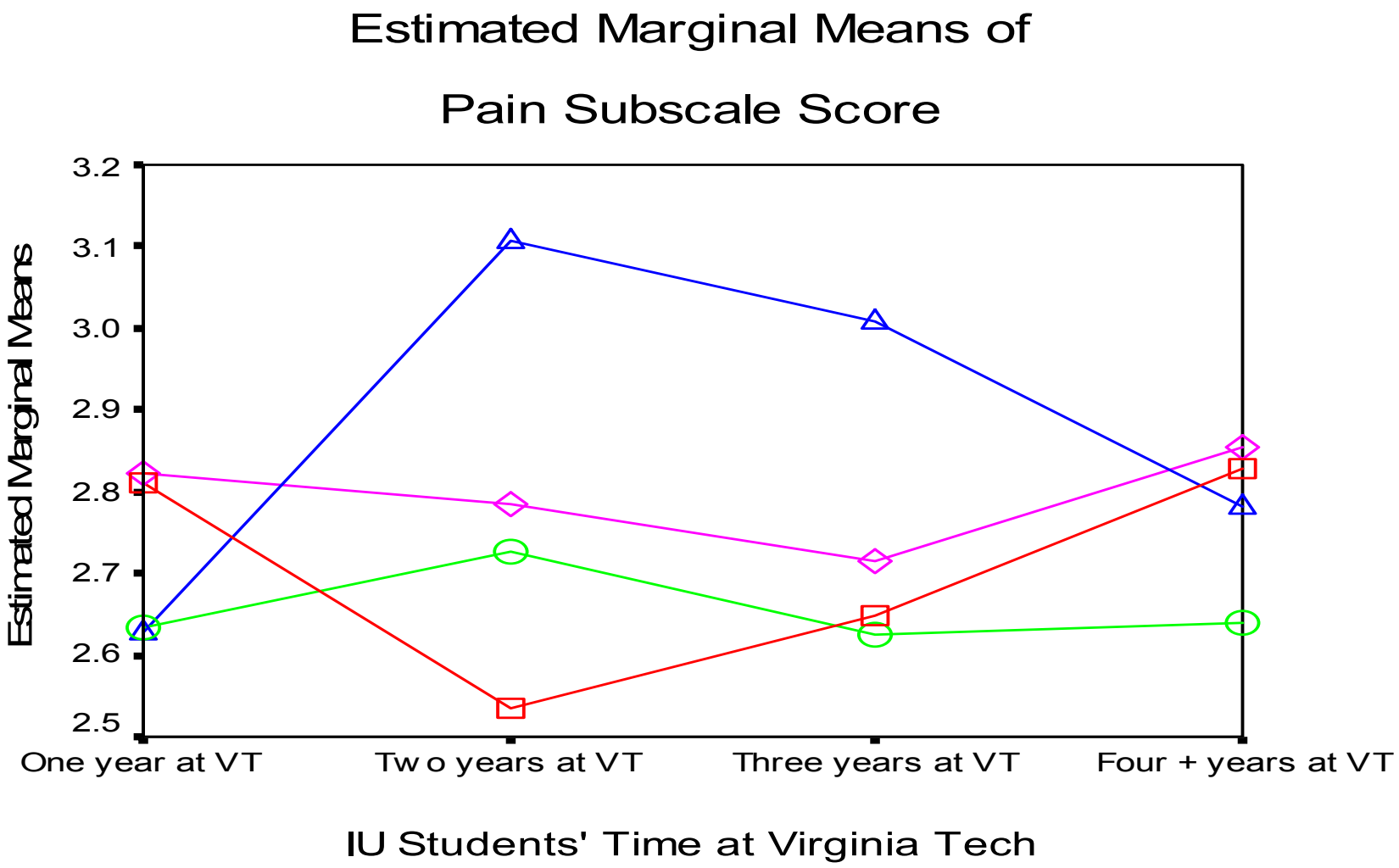
Multiple Coefficient of Determination (R^2), the Adjusted R^2, the Standard Error of the Estimate, and Coefficients for Regression Comparison 4 (Group 2 vs. Group 4) and the Adaptation Experience of International Undergraduate Students at Virginia Tech (AEIUSVT) Survey Total Score (N = 213)

	Models and Predictor Variables	Model Summary [d]			Coefficients [d]		
		R^2	ΔR^2	*sr*	ß	*t*	p
1	Model	0.001[a]	-0.004	0.44413			
	Constant					37.216	0.000
	IU Students' Time at VT				0.024	0.342	0.732
2	Model	0.010[b]	-0.000	0.44314			
	Constant					36.327	0.000
	IU Students' Time at VT				0.009	0.131	0.896
	Comparison 4				0.097	1.395	0.165
3	Model	0.010[c]	-0.004	0.44419			
	Constant					31.843	0.000
	IU Students' Time at VT				0.014	0.166	0.868
	Comparison 4				0.108	0.829	0.408
	IU Students' Time at VT * Comparison 4				-0.015	-0.103	0.918

Note.

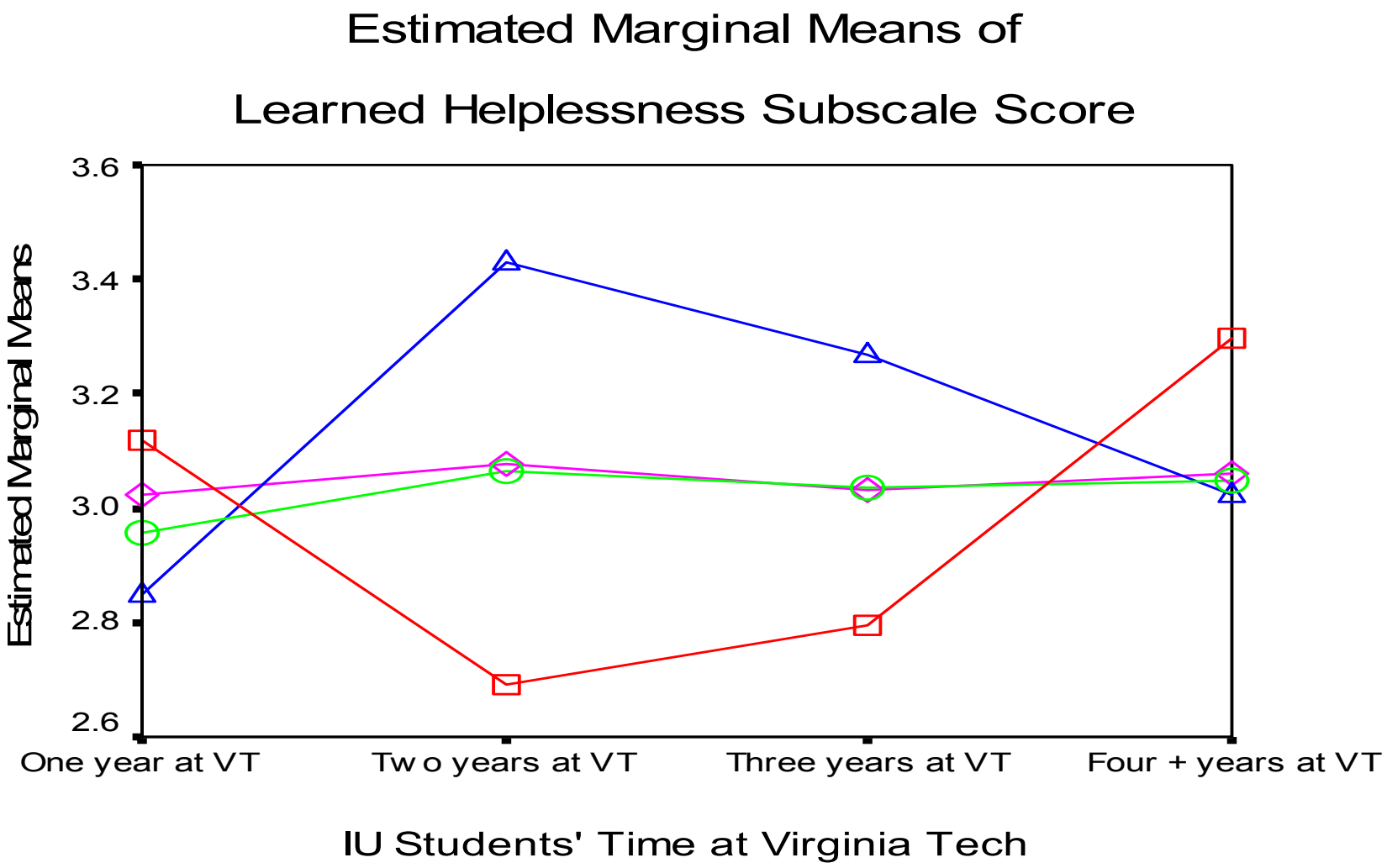
a. Predictors: (Constant), IU Students' Time at Virginia Tech (VT).
b. Predictors: (Constant), IU Students' Time at VT, Comparison 4 (Group 2 vs. Group 4).
c. Predictors: (Constant), IU Students' Time at VT, Comparison 4, Time * Comparison 4.
d. Dependent Variable: Total Adaptation Score.

Figure 6: Graph of relationship between time and adaptation for pain subscale score.



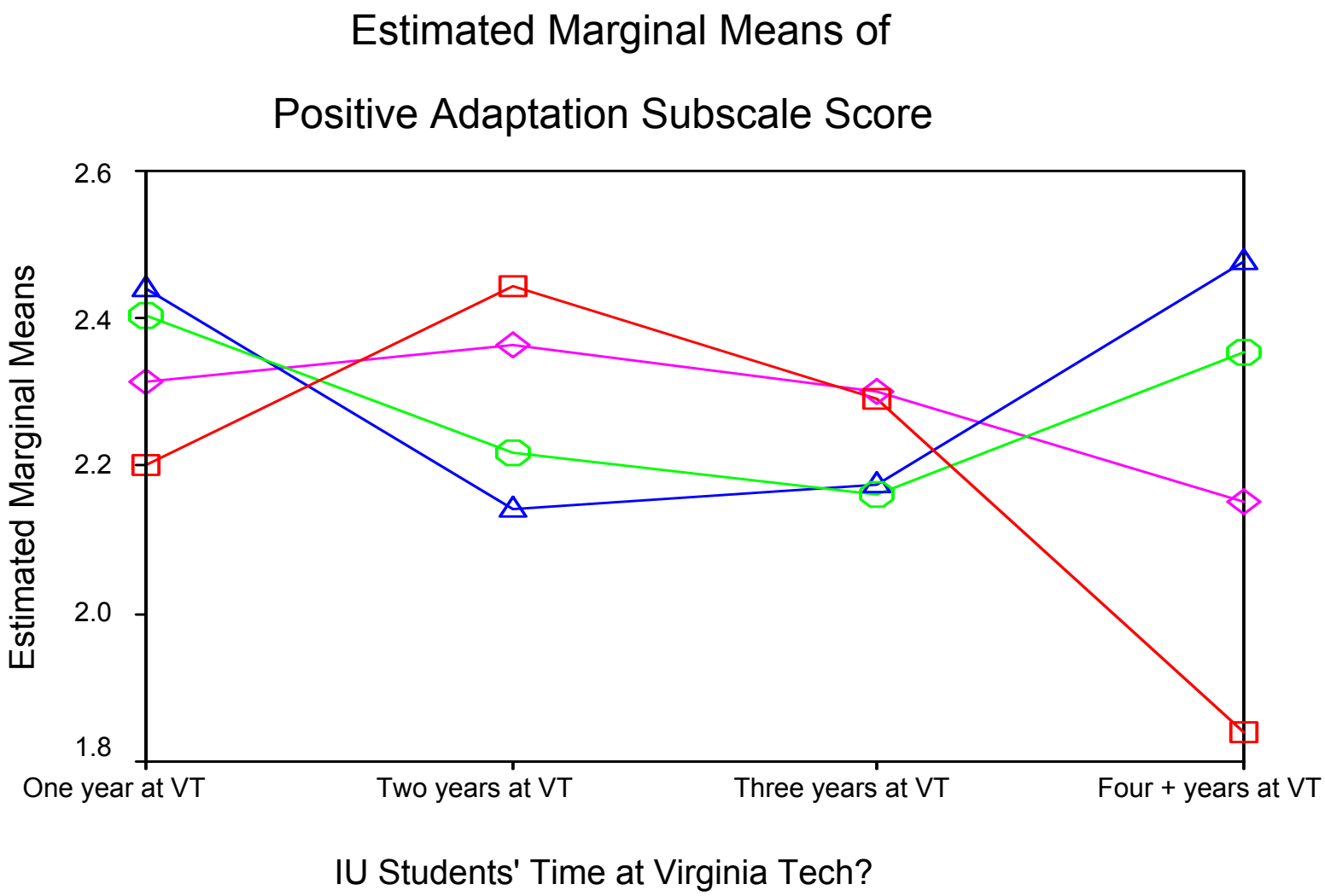
Note. a. Group 1: English speaking students from developed countries --□-- b. Group 2: English speaking students from underdeveloped countries --○—
c. Group 3: non English speaking students from developed countries --◊-- d. Group 4: non English speaking students from underdeveloped countries –Δ--

Figure 7: Graph of relationship between time and adaptation for learned helplessness subscale score.



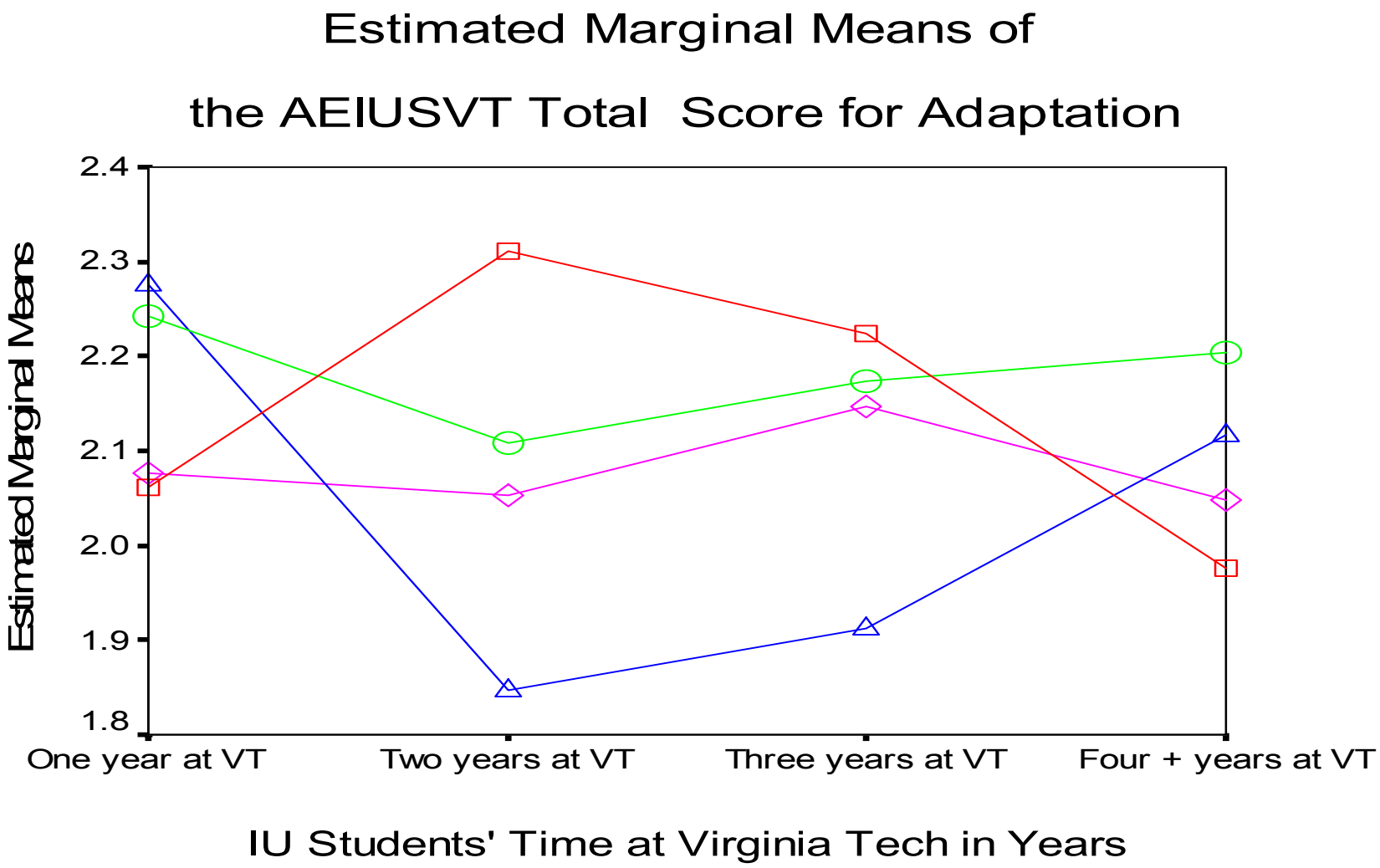
Note. a. Group 1: English speaking students from developed countries --□-- b. Group 2: English speaking students from underdeveloped countries --○—
c. Group 3: non English speaking students from developed countries --◊-- d. Group 4: non English speaking students from underdeveloped countries --Δ—

Figure 8: Graph of relationship between time and adaptation for positive adaptation subscale score.



Note. a. Group 1: English speaking students from developed countries --□--
b. Group 2: English speaking students from underdeveloped countries --○—
c. Group 3: non English speaking students from developed countries --◊--
d. Group 4: non English speaking students from underdeveloped countries --Δ—

Figure 9: Graph of relationship between time and adaptation for *Adaptation Experience of International Undergraduate Students at Virginia Tech (AEIUSVT)* total score for adaptation.



Note. a. Group 1: English speaking students from developed countries --□--
b. Group 2: English speaking students from underdeveloped countries --○—
c. Group 3: non English speaking students from developed countries --◊--
d. Group 4: non English speaking students from underdeveloped countries --Δ—

Differences Based on Linguistic Backgrounds.

The ANOVA analyses revealed group differences in the adaptation variables for students with 2 and 4 years at Virginia Tech. The non English speaking students from developed countries with 2 years at Virginia Tech had significantly higher amounts of pain and learned helplessness than English speaking students from developed countries (see Tables 4.14 and 4.15). Conversely, between the two groups of students from developed countries in their fourth year, English speaking students had significantly lower amounts of positive adaptation than non English speaking students (see Tables 4.16, and 4.17). The representations of the relationships in the graphs in Figure 6 (pain), Figure 7 (learned helplessness) and Figure 8 (positive adaptation) corroborate the findings that suggested a difference in adaptation between students from developed countries based on their linguistic background in their second and fourth year at Virginia Tech.

Exploratory Analysis

Counter to expectations, the relationship between time and adaptation was not statistically significant for this sample collected at Virginia Tech. This result has two possible explanations. First, the relationship between time and adaptation could be a curvilinear one, as suggested by Lysgaard (1955). Secondly, there may be variables other than time that better predict adaptation. Therefore, a follow up analysis was conducted to explore each of these possibilities to determine if they produced any significant results.

Relationship of time and adaptation. This analysis focused on analyzing departures from linear regression based on the idea that the relationship between IU students' adaptation and time

Table 4.26

Number, Mean, Standard Deviation, and Intercorrelations for Curvilinear Regression Model: IU Students' Time at VT and the Adaptation Experience of International Undergraduate Students at Virginia Tech (AEIUSVT) Survey Total Score (N = 313)

Variable	*M*	*SD*	1	2	3	4	5	6
Pearson Correlation								
1. Total Adaptation Score	2.0987	0.41701	--	-0.020	0.000	0.014	0.024	0.030
2. IU Students' Time at VT	21.99	14.116	-0.020	--	0.954	0.857	0.745	0.641
3. $Time^2$ (Time Square)	687.9904	831.52919	0.000	0.954	--	0.970	0.902	0.823
4. $Time^3$ (Time Cubic)	26509.460	46776.18228	0.014	0.857	0.970	--	0.979	0.931
5. $Time^4$ (Time to the fourth power)	1162562.5	2786049.4876	0.024	0.745	0.902	0.979	--	0.986
6. $Time^5$ (Time to the fifth power)	55861250	175204546.26	0.030	0.641	0.823	0.931	0.986	--
Sig. (1-Tailed)								
1. Total Adaptation Score			--	0.359	0.497	0.403	0.337	0.296
2. IU Students' Time at VT			0.359	--	0.000	0.000	0.000	0.000
3. $Time^2$ (Time Square)			0.497	0.000	--	0.000	0.000	0.000
4. $Time^3$ (Time Cubic)			0.403	0.000	0.000	--	0.000	0.000
5. $Time^4$ (Time to the fourth power)			0.337	0.000	0.000	0.000	--	0.000
6. $Time^5$ (Time to the fifth power)			0.296	0.000	0.000	0.000	0.000	--

Note. Group 2: English speaking students from underdeveloped countries*;* Group 4: non English speaking students from underdeveloped countries.

Table 4.27
Curvilinear Regression Model: IU Students' Time at Virginia Tech and the Adaptation Experience of International Undergraduate Students at Virginia Tech (AEIUSVT) Survey Total Score (N = 313)

	Models and Predictor Variables	Model Summary [e]			Coefficients [e]		
		R^2	ΔR^2	*sr*	ß	*t*	p
1	Model	0.000[a]	-0.003	0.41759			
	Constant					48.286	0.000
	IU Students' Time at VT				-0.020	-0.361	0.718
2	Model	0.004[b]	-0.002	0.41742			
	Constant					31.984	0.000
	IU Students' Time at VT				-0.222	-1.176	0.240
	IU Students' Time at VT^2 (Time Square)				-0.211	1.119	0.264
3	Model	0.005[c]	-0.005	0.41807			
	Constant					17.548	0.000
	IU Students' Time at VT				-0.324	-0.560	0.576
	IU Students' Time at VT^2 (Time Square)				0.439	0.356	0.722
	IU Students' Time at VT^3 (Time Cubic)				-0.134	-0.187	0.852

(Table 4.27: *Continue.*)

	Models and Predictor Variables	Model Summary [e]			Coefficients [e]		
		R^2	ΔR^2	*sr*	ß	*t*	p
4	Model	0.005[d]	-0.008	0.41865			
	Constant					11.743	0.000
	IU Students' Time at VT				-0.718	-0.606	0.545
	IU Students' Time at VT^2 (Time Square)				1.832	0.475	0.635
	IU Students' Time at VT^3 (Time Cubic)				-2.835	-0.406	0.685
	IU Students' Time at VT^4 (Time to the fourth power)				0.702	0.381	0.703

Note.

a. Predictors: (Constant), IU Students' Time at Virginia Tech (VT).
b. Predictor: IU Students' Time at VT * IU Students' Time at VT (Time Square).
c. Predictor: IU Students' Time at VT * IU Students' Time at VT * IU Students' Time at VT (Time Cubic).
d. Predictor: IU Students' Time VT * IU Students' Time at VT * IU Students' Time at VT * IU Students' Time at VT (Time at the fourth power).
e. Dependent Variable: Total Adaptation Score.

is a nonlinear one. Second to fifth power terms were created for time and entered as separate models in a forced order regression. All the models were not statistically significant; therefore, the results showed that the relationship is not curvilinear. Also, for this sample, the relationship between time and adaptation did not seem to be strong (r = -0.020) (see Tables 4.26 and 4.27). There must be other factors that explain adaptation, because the models using time and E/L backgrounds did not explain a significant amount of variance in adaptation.

An alternative model of adaptation. Based on the literature, an alternative regression model to explain IU students' adaptation was specified (group 1 > 2, 3, and 4). The model tested whether time at Virginia Tech, number of months at an ELI, and adequacy of support while studying at Virginia Tech explained a statistically significant amount of variance in adaptation over and above background variables, including gender, marital status, family financial status, and age. For the categorical background variables, it was hypothesized that the female gender and being married would be associated with a higher adaptation level. Higher family financial status and age were also hypothesized to be associated with a higher adaptation level. For the variables in model 2, greater amounts of time and support were hypothesized to be related to a higher adaptation level.

Although the variance explained by the demographic variables was not statistically significant (1.8%), all of the variables together explained a significant amount of variance in adaptation - 10.5%. The only variable that was significant is adequacy of support IU students received at Virginia Tech ($\beta = 0.227$ $p = 0.000$). Thus, adequacy of support received at Virginia Tech is the only variable in the model that explains a significant amount of variance in adaptation. These results suggest that further analyses need be done to determine the role of support in adaptation

for international undergraduate students (see Tables 4.28 and 4.29).

Table 4.28

Number, Mean, Standard Deviation, and Intercorrelations for Categorical Variables in Section B of the Adaptation Experience of International Undergraduate Students at Virginia Tech (AEIUSVT) survey (N = 306)

Variable	*n*	*M*	*SD*	1	2	3	4	5	6	7	8	9
Pearson Correlation												
1. Total Adaptation Score	306	2.0962	0.41864	--	-0.006	0.029	-0.107	-0.31	-0.018	0.033	0.239	0.068
2. Gender	306	0.3399	0.47444	-0.006	--	0.027	-0.154	-0.143	0.013	-0.032	0.011	0.218
3. Marital Status	306	0.0065	0.08071	0.029	0.027	--	0.036	0.035	0.062	0.038	-0.009	0.040
4. Family Financial Status	306	3.62	0.865	-0.107	-0.154	0.036	--	-0.119	-0.091	0.013	-0.082	-0.275
5. Age	306	4.68	1.920	-0.031	-0.143	0.035	-0.119	--	0.413	0.155	-0.063	0.119
6. IU Students' Time at VT	306	22.01	14.311	-0.018	0.013	0.062	-0.091	0.413	--	-0.049	0.046	0.028
7. Attendance at an ELI	306	0.44	1.203	0.033	-0.032	0.038	0.013	0.155	-0.049	--	0.046	-0.053
8. Adequacy of Support	306	2.08	0.746	0.239	0.011	-0.009	-0.082	-0.063	0.046	0.046	--	0.084
9. Groups (IU students classified by their E/L Backgrounds).	306	1.9510	1.11070	0.068	0.218	0.040	-0.275	0.119	0.028	-0.053	0.084	--

(Table 4.28: *Continue.*)

Variable	*n*	*M*	*SD*	1	2	3	4	5	6	7	8	9
Sig. (1-Tailed)												
1. Total Adaptation Score	306			--	0.457	0.308	0.030	0.292	0.375	0.284	0.000	0.117
2. Gender	306			0.457	--	0.316	0.004	0.006	0.411	0.289	0.426	0.000
3. Marital Status	306			0.308	0.316	--	0.266	0.273	0.138	0.254	0.436	0.242
4. Family Financial Status	306			0.030	0.004	0.266	--	0.018	0.056	0.408	0.077	0.000
5. Age	306			0.292	0.006	0.273	0.018	--	0.000	0.003	0.135	0.019
6. IU Students' Time at VT	306			0.375	0.411	0.138	0.056	0.000	--	0.196	0.210	0.312
7. Attendance at an ELI	306			0.284	0.289	0.254	0.408	0.003	0.196	--	0.211	0.180
8. Adequacy of Support	306			0.000	0.426	0.436	0.077	0.135	0.210	0.211	--	0.071
9. Groups (IU students classified by their E/L Backgrounds).	306			0.117	0.000	0.242	0.000	0.019	0.312	0.180	0.071	--

Table 4.29
Regression Summary for Categorical Variables in Section B of the AEIUSVT survey (N = 306)

	Models and Predictor Variables	Model Summary [c]			Coefficients [c]		
		R^2	ΔR^2	*sr*	ß	*t*	P
1	Model	0.018[a]	0.002	0.41824			
	Constant					15.927	0.000
	Gender				-0.044	-0.727	0.468
	Marital Status				0.034	0.588	0.557
	Family Financial Status				-0.107	-1.783	0.076
	Age				-0.058	-0.985	0.326
	Groups (IU students classified by their E/L Backgrounds).				0.54	0.879	0.380
2	Model	0.070[b]	0.045	0.40908			
	Constant					12.504	0.000
	Gender				-0.035	-0.594	0.553
	Marital Status				0.035	0.630	0.529
	Family Financial Status				-0.092	-1.558	0.120
	Age				-0.032	-0.495	0.621
	Groups (IU students classified by their E/L Backgrounds).				0.036	0.597	0.551
	IU Students' Time at VT				-0.025	-0.403	0.687
	Attendance at an ELI				0.027	0.465	0.642
	Adequacy of Support				0.227	3.996	0.000***

Note. a. Predictors: (Constant), My age is, Marital Status, Family financial status, Gender.
b. Predictors: (Constant), My age is, Marital Status, Family financial status, Adequacy of support, I attended at an ELI for, IU Students' Time at Virginia Tech (VT).
c. Dependent Variable: Total Adaptation Score.
*** Significant at the 0.001

Chapter 5

Discussion and Implications

This chapter provides conclusions based on the responses of the participants to the questions on the Adaptation Experience of International Undergraduate Students at Virginia Polytechnic Institute and State University (Virginia Tech) Survey (AEIUSVT survey) administered at Virginia Tech, as well as a comparison of them to other researchers' findings in the same field. This chapter also provides a discussion of possible policy recommendations and program implementations to better serve the educational and social needs of international undergraduate (IU) students who come to study at Virginia Tech. Finally, this chapter looks at the implications of this study for IU students who come to study at institutions of higher education in the United States of America (U.S.).

Overview of Study

Lysgaard's u-shaped curve model (1954) had been used to explain the adjustment process of IU students in the U.S., even though there are three major drawbacks to this model as an explicator of international students' adjustment. First, the model is based only on the experience of Norwegian Fulbright students. The second drawback is that the sample Lysgaard used does not represent the current diverse and cosmopolitan IU student population in today's American colleges and universities. The third drawback relates to the measurement and operationalization of adjustment as described by Lysgaard, who measured the satisfaction levels of students when they were in the U.S. While it may be conceivable that satisfaction levels begin high, drop, and then rise again, it is questionable whether the adjustment can follow this pattern, because the labeling of satisfaction as adjustment is misspecified and misleading. Nevertheless, most U.S.

colleges and universities rely on this model to measure adaptation of IU students.

This study, which has examined the IU students' adaptation process and the effects of economic and language backgrounds (E/L backgrounds) on their adaptation to institutions of higher education in the U.S., had three main purposes. The first was to measure Virginia Tech IU students' adaptation process over time to find out the nature of the relationship by determining whether there was a linear relationship between adaptation and time. The second was to examine the effects of combined economic and linguistic backgrounds on the adaptation process of international students at Virginia Tech. The third was to determine the u-shaped curve model's application and effectiveness for explaining the adaptation experience of IU students from different E/L backgrounds.

This study used an online survey to gather data on the variables of interest. The researcher used an e-mail to invite all 595 IU students at Virginia Tech to participate in the study. The e-mail explained the purpose, the importance, and the requirements of the study. All the invited participants were provided with the web page address where the survey was posted and were asked to participate in the study. Of the possible 595 possible participants, 318 filled out the survey.

Limitations

This study used the student country of origin, as classified by the World Bank Development Indicators Database (WBDID) 2002 (World Bank, 2002), to determine the IU students' economic background. Using the WBDID 2002 as proxy for measuring of individual IU students' economic status or background can be ambiguous, because not all the IU students

who come from an underdeveloped country come from poor families—78.3% of IU students said they had sufficient financial funds to support themselves while at Virginia Tech. Conversely, not all IU students from developed countries come from rich families. Also, it is important to take into account special characteristics common to underdeveloped countries, including living styles, technology, communications, and so forth, that difference them from developed countries. These special characteristics should be considered while analyzing IU students' adaptation experience. Therefore, the best possible way to take into account these special characteristics of IU student from underdeveloped countries while analyzing their adaptation experience is by using the WBDID 2002 as a proxy for economic backgrounds. Nevertheless, using the World Bank Development Indicators database 2002 as proxy for measuring individual IU students' economic backgrounds can be risky and misleading, because it does not give IU students' financial status in terms of assets. Therefore, these results should be interpreted with caution.

Discussion of the Findings

This section provides a discussion of the findings, their implications and their relationship to prior research. The discussion starts with hypothesis 3 that relates to the relationship between time and adaptation. It continues with hypotheses 1 and 2 which relate to the effect of combined E/L background on the IU students' adaptation experience.

Adaptation and Time

The third research hypothesis examined whether the adaptation experience of IU students at Virginia Tech was a linear relationship between time and adaptation. It also suggested that there would be differences in the slopes and the intercepts of the regression lines among Virginia

Tech IU students based on their E/L backgrounds. However, the results suggested that the relationship between time and adaptation was not a linear one. There were no differences in the slopes and the intercepts of the regression lines among Virginia Tech IU students based on their E/L backgrounds.

The literature review suggested that the relationship between time and adaptation could be a curvilinear relationship as in Lysgaard's (1954) u-shaped curve model. The data were analyzed for a curvilinear relationship between time and adaptation experience of IU students using curvilinear regression models in an exploratory section of the analysis. However, these analyses did not provide a justification for a curvilinear relationship between time and adaptation. This is a significant finding, because it means this commonly used method of explaining IU students' adaptation does not provide a valid explanation of the adaptation process.

These findings are interesting because the literature review and common logic suggested that there ought to be a relationship between time and IU students' adaptation experience. Oberg's (1960) adaptation model suggested that cultural shock and cross-cultural adjustment progress through four stages, all of which involved time. Winkelman (1994), who also provided a model for cultural shock adaptation consisting of four stages, maintained that the cultural shock stages were "sequential and cyclical" and included four phases involving time. Other researchers (Adler, 1975; Pedersen, 1995) have outlined five-stage models of cultural shock that involved time. The most important transition model was Tinto's (1987) model of transition, which stated that there were three stages of transition in domestic students' college careers. These stages also involved and happened in time. In 1954, Lysgaard developed the u-shaped curve model, the most

famous of the transition models attempting to explain the special transition process of international students when they come to colleges and universities in the U.S. This model used three stages that happened over time. Finally, Gullahorn and Gullahorn (1963) proposed an extension to the u-shaped curve model with their w-shaped curve hypothesis that involves adaptation over time.

Thus, all previous literature suggested that there is a relationship between IU students' adaptation experience and time, and described adaptation as a developmental process. Yet, the findings of this study did not justify either a linear or a curvilinear relationship between time and the adaptation experience of IU students at Virginia Tech. In fact, it provided evidence that conflicted with the previous assumptions and models based on time.

Adaptation and Linguistic Characteristics

The first and second research hypotheses examined the difference in the adaptation experience of IU freshmen and seniors at Virginia Tech based on E/L backgrounds. The results suggested that there was no difference in the adaptation process based on the IU students' economic backgrounds. The results also suggested that there was no difference based on linguistic backgrounds among IU students' adaptation experiences in their first year and their third year at Virginia Tech. However, the results did suggest some differences based on linguistic background (English vs. non English speaking IU students) for their second and fourth years at Virginia Tech.

These findings are interesting because even though a relationship between IU students' adaptation experience at Virginia Tech and their time at Virginia Tech could not be found, a

small difference between non English speaking students and English speaking students was found in the second and fourth years at Virginia Tech. These differences indicate that non English speaking IU students have a lower level of adaptation for those periods than English speaking IU students in their second and fourth years at Virginia Tech. These differences might be attributed to what is known in student developmental theory as the "sophomore slump," a condition attributed to students' lack of commitment to school, absenteeism, educational goals, extracurricular activities, and perceptions of faculty-staff interaction with the students (Wilder, 1993). It might be possible that during the second year these IU students feel more comfortable about their surroundings, but their lack of linguistic skills makes their commitment to school and their interaction with peers, faculty, and staff more difficult. These problems might contribute to the slump in their adaptation experience.

The slump seen in the fourth year might also be attributed to the lack of English skills. The last year of college can be a very confusing time for any student. Students are about to leave the comfortable and familiar surroundings of the college environment they have grown to enjoy and know they have to think about finding a job or making a decision to go to graduate school. A lot of their time is taken up with creating resumes, going to job interviews, preparing for actual graduation, and so forth. Since IU students go through this process too, it could be possible that the non English speaking students feel less confident about surviving this process because of their lack of English skills. Therefore, a difference shows up at this level for the positive adaptation subscale and the pain subscale.

Adaptation and IU Students' Adequacy of Support Received while at Virginia Tech

In a follow-up analysis of the data, the researcher found a relationship between the IU

students' adaptation experience at Virginia Tech and their perceived level of support and assistance or assistance received to help them meet their needs while at Virginia Tech. This finding is interesting because none of the other categorical characteristics analyzed in this study (gender, marital status, family financial status, age, IU students' time at Virginia Tech in months, and IU students' number of months in an English Language Institute) had a relationship to the IU students' adaptation experience. Only perceived support had a significant correlation with IU students' adaptation. Nevertheless, these results were not surprising, because much of the literature review focused on the importance of support for the adaptation experience of IU students.

Ramsay et al. (1999) indicated that international students needed more special and specific attention when it came to academics, and Manese et al. (1988) pointed out that an introduction to counseling services and continual staff outreach might be particularly important for international students. Boyer and Sedlacek (1988) highlighted the importance of social integration of international students to their academic success in American institutions of higher education. Others noted the relationship between social activities and social networks, which helped with the socialization of international students into the community, and positive academic success (Kenny & Stryker, 1996; Saidla & Parodi, 1991). Abe et al. (1998) found that when international students persisted at maintaining an increased interaction with American students, they also saw themselves adapting very well to American life. In contrast, those who saw themselves as having a high level of social support in the home country were more distressed after arriving in the new country. Isolated international students reported more problems related to cultural, academic, and social adjustment than did students who had a long and stable relationship with domestic students (Heikinheimo & Shute, 1986; Saidla and Grant, 1993; Saidla

and Parado, 1991; Surdam & Collins, 1984). In contrast, Adelman (1988) found that social support was linked with positive adaptation—as this study has found—as well as positive physical and mental health in international students (Furukawa et al., 1998; Hayes & Lin, 1994).

Many international students choose to interact primarily with other students from their home country to cope with adaptation, because these subgroups offer advice on coping, serve as temporary surrogates for the home society, and compensated for the feelings of social and personal isolation. However, research has indicated that interaction with the host culture created situations in which international students can more successfully adjust to the American culture. The students who sought out social support feel less alienated and more socially involved; consequently, they achieved greater social adjustment (Adelegan, 1985; Berry, 1980; Dillard & Chisolm, 1983; Goodman, 1996; Marion, 1986; Price, 2002; Searle & Ward, 1990; Wong-Reiger, 1984). Therefore, as Saidla and Grant (1993) have argued, it is increasingly important for faculty, staff, and administrators to assist international students in making a successful adjustment to the host culture.

Although past research has demonstrated the importance of a fairly stable and supportive relationship with a host national in the international student's psychological adjustment, the small amount of data the AEIUSVT survey collected on the question about the adequacy of support and assistance received at Virginia Tech (See Appendix D: the AEIUSVT survey, section B, #9b) provided the researcher with only enough information to recognize that there was a relationship between the support IU students received while at Virginia Tech and their adaptation experience. The data did not allow the researcher to elaborate on the kind, the amount, and the timing of the support IU students have received while at Virginia Tech for a more

complete understanding of this relationship.

Perhaps the most important finding of this study was that none of the hypotheses were supported, even though recognized research was used to develop the foundation for this study. The small suggestions gleaned from the research point to the need to focus more on support systems that aid IU students as they try to be successful and comfortable in a foreign environment. This focus might lead to the development and testing of new ways to look at the adaptation process, perhaps in terms of the relationship between time and support systems.

Implications for Future Practice, Research, and Policy

Although the relationship of the present study to prior research is contradictory in parts, there are implications for practice, research, and policy. In terms of future practice, the findings may be useful for student affairs administrators, faculty, staff, multicultural affairs administrators, and students.

The findings have several implications for student affairs administrators. They suggested that there is a difference in the students' adaptation experience based on their linguistic background in their second and fourth years. This difference was compared to the "sophomore slump." Student affairs professionals might focus programmatic efforts to help IU students understand this slump faze that they might experience in their sophomore and senior years. Student affairs professionals can concentrate their efforts on support programs and linguistic programs that can help the IU students' adaptation experience. Also non English speaking IU students can benefit from the findings. Knowing that they might experience a "sophomore slump" can help them better understand their adaptation experience. This might move them to

find the support they need to help them through these difficult times. This support would also help their adaptation experience.

The data from this study can benefit those administrators who work in multicultural affairs. The study has highlighted two major findings: (a) a difference in adaptation was found between students with 2 and 4 years at Virginia Tech based on their linguistic background differences, (b) a correlation analysis suggested a relationship between Virginia Tech IU students' adaptation and the support they received while at Virginia Tech. This information can help these multicultural affairs administrators to develop better programs that concentrate on non English speaking IU students' during their sophomore and senior years, and to develop programs that provide direct support to IU students, especially from their American peers.

Faculty and staff can also benefit from the findings of the study. Knowing that support can help IU students' adaptation experience, faculty and staff could be more aware of the IU students around them and provide them with the support they might need.

This study also has significance for future research. The results suggested a difference in IU students' adaptation experience in their second and fourth years of study based on their linguistic characteristics. Another study might apply the AEIUSVT survey to a group of international graduate students to compare the results with those obtained in this study.

This study explored the adjustment process of IU students based on the number of years they had been at Virginia Tech. Longitudinal research on a single cohort of international students over 4 or 5 years would also prove illuminating, because it would provide clearer data about the transition process of international students at American colleges and universities. Also since this

study has focused only on international undergraduate students, other studies can try to examine the adjustment process of international graduate (IG) students in institutions of higher education in the U.S.

This study found that the lack of language skills caused a difference in the adaptation experience of sophomore and senior IU students. Another study could find out why this does not happened with freshmen and juniors and whether the lack of language skills cause certain difficulties that can cause a significant differences in IU students' adaptation experience.

Other studies could explore the adjustment process of IU students in other types of higher education institutions. This study focused on the IU students at Virginia Tech, a doctoral research university. Other studies could apply the AEIUSVT to other types of institutions, such as a small liberal arts college, to compare the results with the ones at Virginia Tech. Actually, the most useful and important study would be the relationship between adaptation and support systems and whether a small, more close-knit community affects the adaptation experience. Would adaptation be easier, and faster, or would it be similar to that at a larger institution?

Although this study was limited to a focus on IU students at Virginia Tech, a doctoral research university in the U.S., future studies might examine this model in terms of American students who study abroad to explore how the model applies in a non English speaking host country. Furthermore, since this model assumed that the students were coming to a developed country with a high level of education and income, another study might explore the model in host countries that do not have a high level of income such as Venezuela, Mexico, Russia, Bulgaria, India, Bangladesh or Indonesia.

This study found that there is a relationship between IU students' adaptation and support received. Even though other studies have focused on relationship between international students and domestic students, a future study could analyze the significance of the support that domestic students could offer to international students to the international students' adaptation experience.

Finally, future studies could concentrate on exploring the relationship between IU and IG students' adaptation experience and the students' support system. These studies could explore what type of support contributes the most to the adaptation experience of IU and IG students. These types of studies can also be duplicated at other institutions, and the study could be a longitudinal one that follows a cohort of students for a period of time to better understand the relationship between IU and IG students' adaptation experience and students' support systems.

Summary

Although this study did not meet its original expectations of providing evidence for a linear relationship between time and IU students' adaptation process or a significant relationship between the effects of combined E/L backgrounds, it did produce some interesting findings. It determined that the u-shaped model is not an accurate method of explaining the adaptation experience of IU students from different E/L backgrounds. It noted what can be understood as a sophomore slump for non-English undergraduate students in their second and fourth years at Virginia Tech that can possibly be attributed to their lack of English skills. It also highlighted the importance of support systems to the adaptation process of IU students and opened the door to future studies that should concentrate on the relationship between IU students' adaptation experience and the support they receive while at an institution of higher education in the U.S.

References

Abe, J., Talbot, D. M., & Geelhoed, R. J. (1998). Effect of peer programs on international student adjustment. *Journal of College Student Development, 39*(6), 539-547.

Adelegan, F. O., & Parks, D. J. (1985). Problems of transition for African students in an American university. *Journal of College Student Personnel, 26*(6), 504-508.

Adelman, M. B. (1988). Cross cultural adjustment: A theoretical perspective on social support. *Journal of College Student Personnel, 26*, 183-204.

Adjei, J. A. (1991). *The major adjustment problem areas for international students at four universities in the state of Mississippi*. Unpublished doctoral dissertation. Mississippi State University at Starkville.

Adler, P. (1975). The transitional experience: An alternative view of cultural shock. *Journal of Humanistic Psychology, 15*(4), 23-40.

Aubrey, R. (1997). Counseling issues with international students. *Canadian Journal of Counseling, 31*(1), 259-274.

Balas, A. (2000). Using participation to assess students' knowledge. *College Teaching, 48*(4), 122.

Ballard, B. (1987). Academic adjustment: The other side of the export dollar. *Higher Education Research and Development, 6*, 109-119.

Berry J. W. (1976a). *Human ecology and cognitive style: Comparative studies in cultural and psychological adaptation*. New York: Sage/Halsted.

Berry, J. W. (1976b). *Individual adaptation to change in relation to cultural complexity and psychological differentiation.* Paper presented to the American Anthropological Association, Arlington, Virginia.

Berry, J. W. (1980). Acculturation as variety of adaptation. In A. Padilla (Ed.). *Acculturation: Theory models, and some new findings* (pp. 9-25). Boulder, CO: Westview Press for the American Association for the Advancement of Science.

Borg, W. R., & Gall, M. D. (1989). *Educational research: An introduction* (5th ed.). New York: Longman.

Boyer, S. P., & Sedlacek, W. E. (1988). Noncognitive predictors of academic success for international students: A longitudinal study. *Journal of College Students Development, 29*(3), 218-223.

Brislin, R. W. (1981). *Cross-cultural encounters: Face to face interaction.* New York: Pergamon.

Brooks, J. H., II, & DuBois, D. L. (1995). Individual and environmental predictors of adjustment during the first-year of college. *Journal of College Students Development, 36*, 347-360.

Brown, M., Gipps, C., McAlister, S., & McCallum, B. (1992). *Intuition or evidence*. Oxford, England: Oxford University Press.

Bulthuis, J.D. (1986). The foreign student today: A profile. In K. R. Pyle (Ed.), *Guiding the development of foreign students* (pp. 19-27). (New Directions for Student Services, No. 36). San Francisco: Jossey-Bass.

Cadieux, R. A. J., & Wehrly, B. (1986). Advising and counseling the international student. In K. R. Pyle (Ed.), *Guiding the development of foreign students* (pp. 51-63). (New Directions for Student Services, No. 36). San Francisco: Jossey-Bass.

Campos-Flores, A., Smith, V. E., Breslau, K., Samuel, A., & Clemetson, L. (2000, September 18). The new face of race. *Newsweek 136*(12), 38-42.

Central Intelligence Agency (2002). *The World Factbook 2002*. Retrieved September 5, 2002, from http://www.cia.gov/cia/publications/factbook/

Charles, H., & Stewart, M. A. (1991). Academic advising of international students. *Journal of Multicultural Counseling and Development, 19*(4), 173-180.

Chiu, M. L. (1995). Adjustment factors of the sojourner. *Journal of Social and Clinical Psychology, 2,* 334-336.

Church, A. T. (1982). Acculturation and the sojourner. *Psychological Bulletin, 88,* 350-361.

David, K. (1972). Intercultural adjustment and application of reinforcement theory to problems of "culture shock." *Trends, 4,* 1-64.

David, L. F. (2001). The impact of international education. *Dissertation Abstracts Online*, DAI, 62, no. 04A (2001): p. 1340. The University of Wisconsin - Madison; 0262.

David, T. M. (Ed.) (1993/1994). *Open Doors.* New York: Institute of International Education.

David, T. M. (Ed.). (2002). *Open doors.* New York: Institute of International Education.

DeArmond, M. M. (1983). Mental health and international students. *National Association for*

Foreign Students Affairs' (NAFSA) Newsletter, 137-150.

Dillard, J. M., & Chisolm G. B. (1983). Counseling the international student in a multicultural context. *Journal of College Student Personnel, 24,* 101-105.

DSS (2001). *The online research: The good, the bad and the ugly of online research.* Retrieved October 20, 2002, from http://www.dssresearch.com/library/ general/online.asp

Dunnett, S. C. (Ed.). (1991). *Needs of foreign students from developing nations at United States colleges and universities.* Washington, DC: National Association for Foreign Student Affairs (NAFSA).

Fisher, M. J., & Ozaki, R. H. (1985). *A Comprehensive wellness program for international students* (Report No. 1985-00-00). East Lansing, MI: National Center for Research on Teacher Learning. (ERIC Document Reproduction Service No. ED279940).

Fraenkel, J. R., & Wallen, N. E. (1996). *How to design and evaluate research in education* (3rd ed.). New York: McGraw-Hall.

Furukawa, T., Sarason, I. G., & Sarason, B. R. (1998). Social support and adjustment to a novel social environment. *International Journal of Social Psychiatry, 44*(1), 56-70.

Gabriel, L. R. (1973). Characteristics of foreign students on an American campus. *Journal of the National Association of Women Deans and Counselors, 36,* 184.

Gatfield, T. (1999). Examining student satisfaction with group projects and peer assessment. *Assessment and Evaluation in Higher Education, 24*(4), 365-378.

Gleason, J. B. (1993). *The development of language.* New York: Macmillan.

Goodman, A. E. (1996, February 16). What foreign students contribute. *The Chronicle of Higher Education, 42,* A52.

Gullahorn, J. T., & Gullahorn, J. E. (1963). An extension of the u-curve hypothesis. *The Journal of Social Issues, 3,* 33-47.

Halpern, D. (1993). Minorities and mental health. *Social Science and Medicine, 36*(1), 597-607.

Hayes, R. L., & Lin, H. (1994). Coming to America: Developing social support systems for international students. *Journal of Multicultural Counseling and Development, 22,* 7-16.

Heikinheimo, P. S., & Shute, J. C. M. (1986). The adaptation of foreign students: Student views and institutional implications. *Journal of College Student Personnel, 27,* 399-407.

Herskovits, M. J. (1982). *Cultural relativism.* New York: Random House.

Hey-Kyung, K. (2001). *Open doors: Report on international education exchange.* New York: Institute of International Education.

Higbee, H. D. (1961). *The status of foreign student advising in United States universities and colleges.* East Lansing, MI: Michigan State University, Institute of Research in Overseas Programs.

Ho, M. K. (1973). Cross-cultural career counseling. *Vocational Guidance Quarterly, 21,* 186-190.

Hoffa, B. (2000). *Exploring cultural differences: Study abroad handbook.* Unpublished

manuscript, University of Mississippi at Oxford.

Holmbeck, G. N., & Wandri, M. L. (1993). Individual and relational predictors of adjustment in first-year college students. *Journal of Counseling Psychology, 40,* 73-78.

Jochems, W. (1991). Effects of learning and teaching in a foreign language. *European Journal of Engineering Education, 16,* 309-316.

Jochems, W., Rijins, Y., Smid, H. J., & Verweij, A. (1993). *The academic progress of foreign students of computer science at Delft University of Technology. University of Delft*, (Report No. 93-160). Delft, The Netherlands: Faculty of Technical Mathematics and Informatics.

Johnson, D. C. (1971). Problems of foreign students. *International Education and Cultural Exchange, 7,* 61-68.

Johnson, M. M. (2001, October 1). *Thinking Clearly about Foreign Students and Terrorism.* National Association of Foreign Students Affairs' (NAFSA) Press Release. Retrieved June 15, 2002, from http://www.nafsa.org/content/

Keller, M. J. (1979). Factors related to the withdrawal of students from Miami University. Survey report (Student Life Research). Oxford, OH: Student Life Research Service.

Kenny, M. E., & Stryker, S. (1996). Social network characteristics and college adjustment among racial and ethnically diverse first-year students. *Journal of College Students Development, 37,* 649-658.

Klineberg, O., & Hull, F. W., IV. (Eds.). (1979). *At a foreign university: An international study*

of adaptation and coping. New York: Praeger.

Klinger, M. R. B. (1998). Foreign students in America: The very beginnings. *International Educator, 7,* 24.

Knudson, R. B. (1956). *Attitudes of international students toward their experience at Iowa State College.* Unpublished master's thesis, Ames, Iowa: Iowa State College (Currently: Iowa State University).

Kou, A.E., & Tsa, W.T. (1996). International students' coping mechanism. *Journal of Counseling Psychology, 35,* 102-150.

Lapsley, D. K., Rice, K. G., & Shadid, G. E. (1989). Psychological separation and adjustment to college. *Journal of Counseling Psychology, 36,* 286-294.

Leawell, J. P. (2001). *Coping skills patterns of international college students.* Unpublished master's thesis, Tennessee State University, Nashville.

Lee, M. Y., Abd-Ella, M., & Burks, L. A. (1981). *Needs of foreign students from developing nations at U.S. colleges and universities.* Washington, DC: National Association for Foreign Students Affairs (NAFSA).

Lesser, S. O., & Peter, H. W. (1957). Training foreign nationals in the United States. In R. Likert, & S. P. Hayes (Eds.). *Some applications of behavioral research* (pp. 160-206). Paris: UNESCO.

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

Lin, J. G., & Yin, J. K. (1997). Asian international student adjustment: Issues and program suggestions. *College Student Journal, 31*(4), 473-479.

Lysgaard, S. (1954, May). *A study of intercultural contact: Norwegian Fulbright grantees visiting the United States.* Oslo, Norway: Institution for Social Research.

Lysgaard, S. (1955). Adjustment in foreign society: Norwegian Fulbright grantees visiting the United States. *International Social Science Bulletin, 7*(1), 45-51.

Manese, J. E., Sedlacek, W. E., & Leong, F. T. L. (1988). Needs and perceptions of female and male international undergraduate students. *Journal of Multicultural Counseling and Development, 15*(16), 24-29.

Marion, P. B. (1986). Research on foreign students at colleges and universities in the United States. In K. R. Pyle (Ed.), *Guiding the development of foreign students* (pp. 83-87). (New Directions for Student Services, No.36). San Francisco: Jossey-Bass.

Maxwell, M. J. (1974). Foreign students and American academic ritual. *Journal of Reading, 17*(4), 301-305.

McClellan, S. A., Cogdal, P. A., Lease, S. H., & Lodono-McConnell, A. (1996). Development of the multicultural assessment of campus programming (MAC-P) questionnaire. *Measurement and Evaluation in Counseling and Development, 2*(1), 86-99.

Meg Mei-Chih, L. (2001). *International students and university support services: Utilization and perceived effectiveness.* Unpublished doctoral dissertation, State University of New York at Buffalo.

Meloni, C. F. (1986). Adjustment problems of foreign students in the U.S. colleges and universities. *Eric Clearinghouse on Languages and Linguistics*, 3-4.

Miller, M. H. (1971). The cross-cultural student-lessons in human nature. *Bulletin of the Menninger Clinic, 34*(2), 128.

Mizuachi, I., & Dolan, T. (1994). The problems facing Japanese children at school in England. *Cambridge Journal of Education, 24*(1), 123-134.

National Association of Foreign Students Advisors (NAFSA) (1998). Quick studies: A brief history of the 20th century and NAFSA selected milestones along the way to the golden anniversary. *International Educator, 7,* 16-41.

National Association of Foreign Students Advisors' (NAFSA) Press Release (2001, September 13). *International Educators Stress Need for Tolerance, Understanding During National Tragedy.* Retrieved June 15, 2002, from http://www.nafsa.org/content/whatsnew/pressreleases/septrel.html

National Association of Foreign Students Affairs (NAFSA) (1978). Foreign students reach 203,000 last year. *NAFSA Newsletter, 29*, 1.

Noels, K. A., Pon, G., & Clement, R. (1996). Language identity and adjustment: The role of linguistic self-confidence in acculturation process. *Journal of Language and Social Psychology, 15*(3), 246-264.

Nora, A. (1993). Two-year colleges and minority students' educational aspirations: Help or hindrance? *Higher Education: Handbook of Theory and Research, 9,* 212-247.

Oberg, K. (1954). *Cultural Shock*. Paper presented to the women's club of Rio de Janeiro, Brazil.

Oberg, K. (1960). Cultural shock: Adjustment to new cultural environment. *Practical Anthropology, 7,* 177-182.

Padilla, A. M. (Ed.). (1980). *Acculturation: Theory, models and some new findings.* Boulder, CO: Westview Press for the American Association for the Advancement of Science.

Parr, G., Bradley, L., & Bingi, R. (1992). Concerns and feelings of international students. *Journal of College Students Development, 33,* 20-25.

Pedersen, P. B. (1991). Counseling international students. *Counseling Psychologist, 19*(1), 10-58.

Pedersen, P. B. (1995). *The five stages of cultural shock.* Westport, CT: Greenwood Press.

Penn, J. R., & Durham, M. L. (1978). Dimensions of cross-cultural interaction. *Journal of College Student Personnel, 19*(3), 264-267.

Price, S. R. (2002). *Thesis on first-year experience*. Unpublished master's thesis, Virginia Polytechnic Institute and State University, Blacksburg, Virginia.

Pruitt, F. (1978). The adaptation of African students to American society. *International Journal of Intercultural Relations, 2,* 90-116.

Quimbita, G. (1989). *Internationalizing the community college: Example of success.* (ERIC Digest). Los Angeles. (ERIC Clearinghouse for Junior Colleges No. EDO-JC-89-08).

Quintrell, N., & Westwood, M. (1994). The influence of a peer-pairing program on international

students' first-year experience and use of student services. *Higher Education Research and Development, 13,* 49-57.

Ramsay, S., Barker, M., & Jones, E. (1999). Academic adjustment and learning processes: A comparison of international and local students in first-year University. *Higher Education and Research Development, 18,* 129-144.

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

Robinson, O. C. (1978, June 7). *Address to National Association for Foreign Student Affairs (NAFSA).* Paper presented at the annual conference, Ames, Iowa.

Robinson, T. L., & Ginter, E. J. (Eds.). (1999). Racism: Healing its effects [Special issue]. *Journal of Counseling & Development, 77*(1), 17-23.

Rose, J. K. (1983). *Policy and practice in the administration of foreign student finances.* Washington DC: National Association for Foreign Student Affairs (NAFSA).

Saidla, D. D., & Grant, S. (1993). Roommate understanding and rapport between international and American roommates. *Journal of College Students Development, 34*(5), 335-40.

Saidla, D. D., & Parado, R. (1991). International and American roommate relationships. *College Student Affairs Journal, 10*(3), 54-69.

Sakurako, M. (2000). Addressing the mental health concerns of international students. *Journal of Counseling and Development, 78*(2), 137-148.

Sandhu, D. S., & Asrabadi, B. R. (1994). Development of an acculturative stress scale for

international students: Preliminary findings. *Psychological Reports, 75,* 435-448.

Sandhu, D. S., Porter, P. R., & McPhee, S. A. (1996). Assessing cultural adaptation: Psychometric properties of the cultural adaptation pain scale. *Journal of Multicultural Counseling and Development, 24,* 15-25.

Sax, L. J., Astin, L. W., Korn, W., & Mahoney, K. M. (1996). *The American freshmen: National Norms for fall 1996.* Los Angeles: Higher Education Research Institute.

Schmidt, R. W. (1983). Interaction, acculturation, and the acquisition of communicative competence: A case study of an adult. In N. Wolfson, & E. Judd, (Eds.). *Sociolinguistics and language acquisition* (pp. 137-174). Rowley, MA: Newbury House.

Schram, J. L., & Lauver, P. J. (1988). Alienation in international students. *Journal of College Students Development, 29*(2), 146-150.

Searle, W., & Ward, C. (1990). The prediction of psychological and socio-cultural adjustment during cross-cultural transitions. *International Journal of Intercultural Relations, 14,* 449-461.

Sheehan, O. T. O., & Pearson, F. (1995). Asian international and American students' psychometric properties of the cultural adaptation pain scale. *Journal of Multicultural Counseling Development, 24,* 15-25.

Shorter, S. N., & Creamer, D. G. (1985). Effects of a desegregation policy on social and academic integration of college students. *College Student Affairs Journal, 6*(1), 19-28.

Sjogren, C., & Shearer, B. L. (1973). Is your institution really ready to admit foreign students?

Are you? *College and University, 48,* 601-619.

Smith, H. (1993). Working with overseas students. *Overview, 1*(1), 8-11.

Snoke, J., & Long, R. (1998). *Developing and managing a collaborative conversation.* Paper presented at Partners Program Presentation at NAFSA Region VIII Conference, Pittsburgh, PA.

Sodowsky, G. R., & Plake, B. S. (1992). A study of acculturation differences among international people and suggestions for sensitivity to within-group differences. *Journal of Counseling and Development, 71,* 53-59.

Spalding, R. C. (1982). *Basic statistical analysis* (3rd ed). Englewood Cliffs, NJ: Prentice Hall.

Spaulding, S., & Flack, M. J. (1979). *The world's students in the United States: A review and evaluation of research on foreign students.* New York: Praeger.

Spindler, G. (1974). *Education and cultural process: Toward anthropology of education.* New York: Holt, Rinehart and Winston.

Spindler, G. (1987). *Education and cultural process, anthropological approaches.* Prospect Heights, IL: Waveland Press.

Spindler, G., & Spindler, L. (1982). *Doing the ethnography of schooling.* New York: Holt, Rinehart and Winston.

Stalker, J. C. (1997, Summer). My language, my culture: International variations in standards for English. *New Directions for Teaching and Learning, 70,* 7-16.

Surdam, J. C., & Collins, J. R. (1984). Adaptation of international students: A cause for concern. *Journal of College Students Personnel, 25,* 240-245.

Suskie, L. A. (1996). *Questionnaire Survey Research: What Works. Resources for Institutional Research, Number Six*. (Report No. 1992-00-00). East Lansing, MI: National Center for Research on Teaching. (ERIC Document Reproduction Service No. ED350915)

Thomas, K., & Althen, G. (1989). Counseling foreign students. In P. B. Pedersen, J. G. Draguns, W. J. Lonner, & J. E. Trimple (Eds.) *Counseling across cultures* (3rd ed.) (pp. 205-241). Honolulu, HI: University of Hawaii Press.

Tinto V. (1987). *Leaving college: Rethinking the causes and cures of student attrition.* Chicago: University of Chicago Press.

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

Title XII Office (1983). *Students from developing countries: Their educational experience at the University of Delaware* (Publication No. 6). Newark, DE: Author.

Tompson, H. B., & Tompson, G. H. (1996). Confronting diversity issues in the classroom with strategies to improve satisfaction and retention of international students. *Journal of Education for Business, 72*(1), 53-58.

Vogt, W. P. (1999). *Dictionary of statistics and methodology: A nontechnical guide for the social sciences.* Thousand Oaks, CA: Sage.

Wilder, J. S. (1993, spring). The sophomore slump: A complex developmental period that

contributes to attrition. *College Student Affairs Journal, 12*(2), 18-27.

Winkelman, M. (1994, November/December). Cultural shock and adaptation. *Journal of Counseling & Development, 73*(2), 121-126.

Wong-Reiger, D. (1984). Testing a model of emotional and coping responses to problems in adaptation: Foreign students at a Canadian university. *International Journal of Intercultural Relations, 8,* 153-184.

World Bank (2002). *The world development indicators 2002.* Retrieved September 5, 2002, from http://www.worldbank.org/data/onlinedatabases/onlinedatabases.html

Yang, B., Teraoka, M., Eichenfield, G. A., & Audas, M. C. (1994). Meaningful relationships between Asian international and U.S. college students: A descriptive study. *College Student Journal, 28*(1), 198-215.

Zhang, N., & Rentz, A. L. (1996). Intercultural adaptation among graduate students from the People's Republic of China. *College Student Journal, 30*(30), 321-328.

APPENDIX A

Regulations Affecting International Students in the United States[1]

1. Any F-1 or J-1 Student visa holder must take a full-load of classes each semester (12 credit hours).

2. All international students must be making satisfactory progress toward their degree.

3. Any student unable to enroll in classes (suspension, blocked) or resigned from the University must depart the U.S. immediately or will be in violation of visa status and may be subjected to a 3 - 10 year bar from entering the U.S.

4. Only Designated School Officials (DSO) can allow a student to drop below full load for compelling medical or academic reasons or unusual difficulty in language during the first year.

5. All international students must have the required health insurance coverage by a company licensed to do business in the U. S.

6. Students may work on campus up to 20 hours per week during academic session and 40 hours per week during breaks. They may not work off campus without special permission.

7. All international students must file U.S. income tax forms regardless of whether or not they earn income.

8. All international students wishing to travel outside the U.S. must receive written recommendation from DSO.

9. Any student who changes his/her major must report this change to DSO.

10. Extensions to program of study must be applied for prior to the completion date on their record and can only be approved for significant reasons.

11. Change of address must be reported to DSO for entry into the records of Homeland Security within 10 days.

---

[1] Kim V. Beisecker, Director of the Cranwell International Center, Virginia Polytechnic Institute & State University (personal communication, December 5, 2003).

APPENDIX B

Authorization from the Institute for Social Research in Oslo, Norway to Use "A study of intercultural contact: Norwegian Fulbright grantees visiting the United States" by Sverre Lysgaard, 1959.

Institutt for samfunnsforskning
Institute for Social Research

Besøksadresse: Munthes gate 31
Postadresse:
Postboks 3233 Elisenberg
N-0208 Oslo

Telefon: + 23 08 61 00
Telefaks: + 23 08 61 01
Internett: www.isaf.no/isf
Foretaksnr.: 974760991
Bankgiro: 7038 05 02206

AUTHORIZATION

We hereby give Mr. Aristides Maza Duerto permission to use the publication

A study of intercultural contact – Norwegian Fulbright grantees visiting the United States by Sverre Lysgaard, (Oslo: Institute for Social Research, 1959),

in his dissertation.

Oslo, 12. December 2003.

Sven Lindblad

Head Librarian

APPENDIX C

Authorization from Daya Singh Sandhu to Use "The Cultural Adaptation Pain Scale (CAPS)"

UNIVERSITY of LOUISVILLE

DEPARTMENT OF EDUCATIONAL AND COUNSELING PSYCHOLOGY
• College Student Personnel
• Community Counseling
• Counseling Psychology
• Expressive Therapies
• School Counseling

College of Education and Human Development
University of Louisville
Louisville, Kentucky 40292

Office: 502-852-6884
Fax: 502-852-0629

January 29, 2004

Aristides Maza Duerto
211 S. Knollwood Dr.
Apartment 2205
Blacksburg, VA 24060

Sub: Permission to use the Cultural Adaptation Pain Scale

Dear Aristides:

Thank you for your interest in my work. I sincerely appreciate it. Please accept this letter as a written permission to use my *Cultural Adaptation Pain Scale* in your doctoral dissertation research. Please don't hesitate to contact me if you need additional information. I can be reached at (502) 852 -6646 (office) or (502) 493-0367 (home). I wish you the best of luck and hope that you share the results of your study with me when it is completed.

Sincerely,

[redacted]

Daya Singh Sandhu Ed.D., NCCC, LPCC
Professor and Chair

APPENDIX D

Adaptation Experience of International Undergraduate Students at Virginia Tech Survey (The AEIUSVT Survey)[2]

This instrument is designed to assess the degree of adaptation of individuals from various backgrounds as they come in contact with new or different social contexts.

All information in this survey will be kept anonymous, and information will not be used to identify individual respondents. The information in section "B" will be used for statistical analysis based on aggregate responses only.

Section A:

Please click on the response option that best represents your view or your current condition on each item as an international undergraduate student at Virginia Tech. Use the scale: Strongly agree (SA); Agree (A); Disagree (D); Strongly Disagree (SD); Not Applicable (N/A).

PLEASE REMEMBER TO PRESS THE SUBMIT BUTTON BEFORE CLOSING THE SURVEY.

In general, (I feel that):

1. Many opportunities are denied to me.
☐ SA ☐ A ☐ D ☐ SD ☐ N/A

2. My choices for success in life are limited.
☐ SA ☐ A ☐ D ☐ D ☐ N/A

3. I am treated the same as others in social situations.
☐ SA ☐ A ☐ D ☐ D ☐ N/A

4. I am looked on as inferior by some people.
☐ SA ☐ A ☐ D ☐ D ☐ N/A

5. I am often not taken seriously.
☐ SA ☐ A ☐ D ☐ D ☐ N/A

[2] Adapted from Sandhu et al. (1996) CAPS.

(APPENDIX D. *Continued*)

6. I am not accepted by some people.
☐ SA ☐ A ☐ D ☐ SD ☐ N/A

7. I am considered less capable than I really am.
☐ SA ☐ A ☐ D ☐ SD ☐ N/A

8. Others try to make me feel inferior.
☐ SA ☐ A ☐ D ☐ SD ☐ N/A

9. Meaningful communication with others is a problem for me.
☐ SA ☐ A ☐ D ☐ SD ☐ N/A

10. My achievements are not considered very important.
☐ SA ☐ A ☐ D ☐ SD ☐ N/A

11. I experience more loneliness than others.
☐ SA ☐ A ☐ D ☐ SD ☐ N/A

12. I don't feel others are biased toward me.
☐ SA ☐ A ☐ D ☐ SD ☐ N/A

13. I have been denied opportunities I deserve.
☐ SA ☐ A ☐ D ☐ SD ☐ N/A

14. I suffer from prejudice and unequal treatment.
☐ SA ☐ A ☐ D ☐ SD ☐ N/A

15. I am required to do more than others to prove my abilities.
☐ SA ☐ A ☐ D ☐ SD ☐ N/A

16. I feel I have a clear identity in this culture.
☐ SA ☐ A ☐ D ☐ SD ☐ N/A

17. I lose enthusiasm in trying to succeed when I know that I have to face extra obstacles.
☐ SA ☐ A ☐ D ☐ SD ☐ N/A

18. I don't have as many choices as others around me.
☐ SA ☐ A ☐ D ☐ SD ☐ N/A

(APPENDIX D. *Continued*)

19. I am angry about the stereotypes people have about me.
☐ SA ☐ A ☐ D ☐ SD ☐ N/A

20. Trying hard to get ahead does not work for people like me.
☐ SA ☐ A ☐ D ☐ SD ☐ N/A

21. I feel adequate to function in this society.
☐ SA ☐ A ☐ D ☐ SD ☐ N/A

22. I don't have much control over my life generally.
☐ SA ☐ A ☐ D ☐ SD ☐ N/A

23. I feel I don't have as much support as others.
☐ SA ☐ A ☐ D ☐ SD ☐ N/A

24. I feel a sense of community with others around me.
☐ SA ☐ A ☐ D ☐ SD ☐ N/A

25. I feel I am integrated in the present culture.
☐ SA ☐ A ☐ D ☐ SD ☐ N/A

26. I experience conflict with the cultural values of other groups.
☐ SA ☐ A ☐ D ☐ SD ☐ N/A

27. I'm treated as a second rate citizen.
☐ SA ☐ A ☐ D ☐ SD ☐ N/A

28. I feel sad living in my present surroundings.
☐ SA ☐ A ☐ D ☐ SD ☐ N/A

29. I feel I can get ahead in life as well as anyone else.
☐ SA ☐ A ☐ D ☐ SD ☐ N/A

30. I feel uncomfortable with people's cultural values in this society.
☐ SA ☐ A ☐ D ☐ SD ☐ N/A

31. I feel I have to lead a dual life in this society.
☐ SA ☐ A ☐ D ☐ SD ☐ N/A

(APPENDIX D. *Continued*)

32. I feel a sense of helplessness.
☐ SA ☐ A ☐ D ☐ SD ☐ N/A

33. It hurts me to think that I'm treated differently because of my background.
☐ SA ☐ A ☐ D ☐ SD ☐ N/A

34. Others act as if they are better than I am.
☐ SA ☐ A ☐ D ☐ SD ☐ N/A

35. I feel my status in society is considered "low" by others because of my cultural background.
☐ SA ☐ A ☐ D ☐ SD ☐ N/A

36. I have a feeling of alienation.
☐ SA ☐ A ☐ D ☐ SD ☐ N/A

37. It hurts me when negative images about my culture are presented in the media.
☐ SA ☐ A ☐ D ☐ SD ☐ N/A

38. I feel that some groups have hostility towards me.
☐ SA ☐ A ☐ D ☐ SD ☐ N/A

39. I feel pressure to conform.
☐ SA ☐ A ☐ D ☐ SD ☐ N/A

40. I feel uncomfortable in participating in social activities.
☐ SA ☐ A ☐ D ☐ SD ☐ N/A

41. People will not exchange greetings with me.
☐ SA ☐ A ☐ D ☐ SD ☐ N/A

42. I feel uncomfortable when I have to communicate with authority figures.
☐ SA ☐ A ☐ D ☐ SD ☐ N/A

43. I feel that despite all my efforts I will not be able to succeed in this society.
☐ SA ☐ A ☐ D ☐ SD ☐ N/A

44. I feel that if I try to work hard, I'll have a good future.
☐ SA ☐ A ☐ D ☐ SD ☐ N/A

(APPENDIX D. *Continued*)

45. It makes me work harder when others have an unfair advantage.
☐ SA ☐ A ☐ D ☐ SD ☐ N/A

46. It is useful to have high hopes in this society.
☐ SA ☐ A ☐ D ☐ SD ☐ N/A

47. I feel I have deep roots in this country.
☐ SA ☐ A ☐ D ☐ SD ☐ N/A

48. I feel that my gender is more important to me than my culture.
☐ SA ☐ A ☐ D ☐ SD ☐ N/A

49. I'm bothered when persons from minority groups take unfair advantage (to advance themselves).
☐ SA ☐ A ☐ D ☐ SD ☐ N/A

50. Cultural identity is important to my sense of self.
☐ SA ☐ A ☐ D ☐ SD ☐ N/A

Section B:

Please respond to these general information questions:

1. My academic class standing is (Check only one):
☐ Freshman ☐ Sophomore ☐ Junior ☐ Senior

2. What year and month did you begin your studies at Virginia Tech? (Example: August, 1999)

3. I am
☐ Male ☐ Female

4. My marital status is:
☐ Single ☐ Married ☐ Divorced/Separated ☐ Widowed

(APPENDIX D. *Continued*)

5. How would you describe your family's financial status in your home country?

☐ High ☐ Middle-high ☐ Middle ☐ Middle-low ☐ Low

6. I have sufficient financial funds to support myself in the United States while at Virginia Tech.

☐ YES ☐ NO

7. Did you attend an English Language Institute (ELI) in the United States before coming to Virginia Tech?

☐ If "YES" please continue to question number 7a

☐ If "NO" Please continue to question number 8

7a. I attended an ELI for:

☐ 1 to 3 months

☐ 4 to 6 months

☐ 7 to 9 months

☐ 10 to 12 months

☐ 13 to 15 months

☐ 16 to 18 months

☐ More than 18 months

8. I was required to take the TOEFL exam to be admitted to Virginia Tech

☐ Yes ☐ No

9. From time to time, people need to rely on or ask others for assistance in personal, social and academic areas such as getting a doctor, getting visa paperwork, help with homework, assistance with personal problems, etc.

9a. Have you ever sought help or assistance for a personal or academic need while at Virginia Tech?

☐ No ☐ Yes, once ☐ Yes, more than once

9b. Thinking about your needs while at Virginia Tech, how adequate is the support and/or assistance you have received to help you meet your needs?

☐ More than adequate ☐ Adequate

☐ Inadequate ☐ I have received no support

(APPENDIX D. *Continued*)

10. My country of origin (as declared to Virginia Tech) is:

- ☐ Albania
- ☐ Algeria
- ☐ Australia
- ☐ Bahamas
- ☐ Bahrain
- ☐ Bangladesh
- ☐ Belgium
- ☐ Benin
- ☐ Bolivia
- ☐ Bosnia-Herzegovina
- ☐ Botswana
- ☐ Brazil
- ☐ Burundi
- ☐ Cameroon
- ☐ Canada
- ☐ China
- ☐ Colombia
- ☐ Costa Rica
- ☐ Croatia
- ☐ Cyprus
- ☐ Denmark
- ☐ Dominican R.
- ☐ Ecuador
- ☐ Egypt
- ☐ El Salvador
- ☐ Ethiopia
- ☐ Finland
- ☐ France
- ☐ Germany
- ☐ Ghana
- ☐ Greece
- ☐ Hong Kong
- ☐ Hungary
- ☐ Iceland
- ☐ India
- ☐ Indonesia
- ☐ Iran
- ☐ Israel
- ☐ Italy
- ☐ Ivory Coast
- ☐ Jamaica
- ☐ Japan
- ☐ Jordan
- ☐ Kazakhstan
- ☐ Kenya
- ☐ S. Korea
- ☐ Kuwait
- ☐ Latvia
- ☐ Lebanon
- ☐ Madagascar
- ☐ Malaysia
- ☐ Mexico

(APPENDIX D. *Continued*)

- ☐ Morocco
- ☐ Nepal
- ☐ Netherlands
- ☐ New Zealand
- ☐ Nicaragua
- ☐ Niger
- ☐ Nigeria
- ☐ Norway
- ☐ Pakistan
- ☐ Panama
- ☐ Paraguay
- ☐ Peru
- ☐ Philippines
- ☐ Poland
- ☐ Portugal
- ☐ Romania
- ☐ Russia
- ☐ Saudi Arabia
- ☐ Senegal
- ☐ Singapore
- ☐ South Africa
- ☐ Spain
- ☐ Sri Lanka
- ☐ St. Kitts & Nevis
- ☐ St. Vincent & Grenada
- ☐ Sudan
- ☐ Sweden
- ☐ Switzerland
- ☐ Syria
- ☐ Taiwan
- ☐ Thailand
- ☐ Tunisia
- ☐ Turkey
- ☐ United Arab Emirates
- ☐ United Kingdom
- ☐ Venezuela
- ☐ Vietnam
- ☐ Zambia
- ☐ Zimbabwe
- ☐ Other: _____

11. My age is:

- ☐ Under 17 years old
- ☐ 17 years old.
- ☐ 18 years old.
- ☐ 19 years old.
- ☐ 20 years old.
- ☐ 21 years old.
- ☐ 22 years old
- ☐ 23 years old
- ☐ 24 years old
- ☐ 25 years old
- ☐ Over 25 years old.

(APPENDIX D. *Continued*)

Thank you very much for your input. Your effort is appreciated.

Please remember to press the submit button before closing the survey.

If you have any questions please write to Aristides Maza Duerto

APPENDIX E

E-mail Message Sent through the Cranwell International Center to Potential International

Undergraduate Students Inviting Them to Answer the Online Survey

From: Kim V. Beisecker [kbeiseck@vt.edu] Sent: Thursday, March 13, 2003 11:34 AM
To: cranwell_ugrad@listserv.vt.edu, Subject: important survey

In order to better understand the services needed for international undergraduate students at Virginia Tech, it is important that we understand how each student adapts to the changes of studying here. Please take a few minutes to answer this survey!

Kim

Dear international undergraduate student:

My doctoral dissertation is a study of the adaptation process of international undergraduate students to their academic and social environment at Virginia Tech. It is important to learn of your experiences for my study and I have tried to make your participation as easy as possible.

In addition to assisting me to complete my doctoral studies, this research is intended to make known to educational leaders at Virginia Tech important information about the adjustment process of international undergraduate students to the Virginia Tech environment that can be used to improve educational services for international undergraduate students at the university. Your responses will be kept anonymous. No names of respondents will be used in the analysis of the study and all responses will be destroyed one year from the completion of my study.

I know that your time is valuable; therefore, the survey is designed to take only a few minutes to complete—perhaps 10 minutes. Your privacy is respected; therefore, no questions are asked that invade personal aspects of your life.

Responses from all members of the sample for this study are important if my study is to be as valuable to my learning as it can be and if the results are to be trusted and useful for decision making by educators who want to improve educational services to international students. Please help to insure the value of this study by completing your survey which can be accessed at *http://survey.vt.edu/survey/entry.jsp?id=1019490886963*. Simply double-click on this link to reach the survey. When completed, clicking the Submit button at the end of the survey will transmit your responses to me.

If you have any questions, please e-mail me at *aduerto@vt.edu*.

Thank you for your participation. I am looking forward to learning about your adjustment experiences at Virginia Tech.

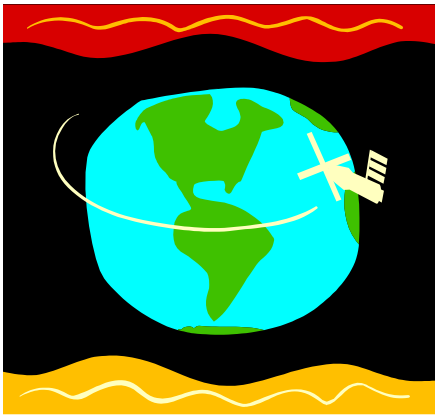
Yours truly,

Aristides Maza Duerto

APPENDIX F

Fliers Distributed at the International Week.

FRONT VIEW OF THE FLIER



Are you a VT UNDERGRADUATE international student?

"YES"

Your participation may help improve VT international undergraduate students' services

Please take a few minutes to complete this survey:

http://survey.vt.edu/survey/entry.jsp?id=1019490886963

Thank you!!

BACK VIEW OF THE FLIER

My name is Aristides Maza. I am an international doctoral student in the Higher Education and Student Affairs Program at Virginia Tech. My doctoral dissertation is studying how international undergraduate students adapt to their academic and social environment at Virginia Tech. The participation of international undergraduate students in this study is very important.

Feedback from you and other international undergraduate students will provide administrators and faculty important information that may improve the funding and availability of educational services for international undergraduate students at Virginia Tech.

Everyone's responses will be kept anonymous. No names will be used in the analysis of the study and all surveys will be destroyed one year from the completion of my study. Your privacy and the privacy of all international undergraduate students are respected. Therefore, no questions are asked that invade personal aspects of your life. I know that your time is valuable; therefore, I have tried to make your participation as easy as possible. A test of the survey showed that most participants finished it within 15 minutes. You can access the survey via the web at the page on the front of this flyer. Please type this into your browser to reach the survey. Also, please note that after completing the survey, you must click the "Submit" button at the end of the survey so the responses will be recorded in the database. If you have any questions, please e-mail me at

aduerto@vt.edu

Thank you for your participation. I am looking forward to learning about your adjustment experiences at Virginia Tech.

Yours truly,
Aristides

APPENDIX G

Two Sample Copies of the Follow up E-mail Messages Sent to Potential Participants from Group 1.

Dear British Friends:

My name is Aristides Maza. I am a Venezuelan doctoral student in the Higher Education and Student Affairs program at VT. My doctoral dissertation is a study about how international undergraduate students adapt to their academic and social environment at VT; therefore, the participation of all UK students at VT is very important.

UK students at VT are the group of students most similar to the domestic—US citizen—students. These special characteristics allow me to have a group of students, who are not US citizens with extremely similar characteristics to those of the US citizens, to compare against the rest of the international undergraduate students at VT.

Moreover, you represent the culture and people of England and the unique characteristics of your adaptation experience will provide me the information data I need to convert my study into information that administrators and faculty could use to improve the availability and funding of educational services for international undergraduate students at VT and especially for the British students at VT.

A test of the survey showed that most participants finished it within 10 minutes. You can access the survey via the web at:

http://survey.vt.edu/survey/entry.jsp?id=1019490886963

To reach the survey please copy and paste this into your browser. Also, you must click on the "Submit" button at the end of the survey so the responses will be recorded in the database. No personal information will be recorded and I am the only person who will have ever access to the data that is collected.

If you have any questions, please e-mail me at aduerto@vt.edu

Thank you for your participation.

Yours truly,

Aristides Maza

(APPENDIX G. *Continued*)

Dear Friends from Singapore:

My name is Aristides Maza. I am a Venezuelan doctoral student in the Higher Education and Student Affairs program at VT. My doctoral dissertation is about how international undergraduate students adapt to their academic and social environment at VT; therefore, the participation of the three VT students from Singapore is very important.

You represent the culture and the people of Singapore. Your participation will ensure that the unique characteristics that made you and the Culture of Singapore special will provide me the information data I need to convert my study into information that administrators and faculty could use to improve the availability and funding of educational services for international undergraduate students at VT and especially for the VT students from Singapore.

A test of the survey showed that most participants finished it within 15 minutes. You can access the survey via the web at:

http://survey.vt.edu/survey/entry.jsp?id=1019490886963

To reach the survey, copy and paste this into your browser. You must click on the "Submit" button at the end of the survey so the responses will be recorded in the database. No personal information will be recorded and I am the only person who will ever have access to the data that is collected.

If you have any questions, please e-mail me at aduerto@vt.edu

Thank you for your participation.

Yours truly,

Aristides Maza

APPENDIX H

Three Sample Copies of the Follow up e-mail Messages to Potential Participants from Groups 2, 3, and 4

Dear Indian Friends:

My name is Aristides Maza. I am a Venezuelan doctoral student in the Higher Education and Student Affairs program at VT. My doctoral dissertation is a studying about how international undergraduate students adapt to their academic and social environment at VT. The participation of all Indian students at Virginia Tech is very important.

The Indian students are a very important group of students at VT making up the largest group of international undergraduate students on campus. You represent the Indian culture and its people; therefore, your participation will ensure that the unique characteristics that make you and your culture special will provide me the information data I need to convert my study into information that administrators and faculty could use to improve the availability and funding of educational services for international undergraduate students at VT and especially for Indian students at VT.

A test of the survey showed that most participants finished it within 10 minutes. You can access the survey via the web at:

http://survey.vt.edu/survey/entry.jsp?id=1019490886963

Please copy and paste this into your browser to reach the survey. You must click the "Submit" button at the end of the survey so the responses will be recorded in the database. No personal information will be recorded and I am the only person to have access to the data that is collected.

If you have any questions, please e-mail me at aduerto@vt.edu

Thank you for your participation.

Yours truly,

Aristides Maza

(APPENDIX H. *Continued*)

Dear Korean Friends:

My name is Aristides Maza. I am a Venezuelan doctoral student in the Higher Education and Student Affairs program at VT. My doctoral dissertation is a studying about how international undergraduate students adapt to their academic and social environment at VT. The participation of all Korean students at VT is very important.

The Korean students are a very important group of students at VT making up the second largest group of international undergraduate students on campus. You represent the Korean culture and its people; therefore, your participation will ensure that the unique characteristics that make you and the Korean culture special will provide me the information I need to convert my study into information that administrators and faculty could use to improve the availability and funding of educational services for international undergraduate students at VT, and especially for Korean students at VT.

A test of the survey showed that most participants finished it within 15 minutes. You can access the survey via the web at:

http://survey.vt.edu/survey/entry.jsp?id=1019490886963

Please copy and paste this link into your browser to reach the survey. You must click the "Submit" button at the end of the survey so the responses will be recorded in the database. No personal information will be recorded and I am the only person with access to the data that is collected.

If you have any questions, please e-mail me at aduerto@vt.edu

Thank you for your participation.

Yours truly,

Aristides Maza

(APPENDIX H. *Continued*)

Dear Chinese Friends:

My name is Aristides Maza. I am a Venezuelan doctoral student in the Higher Education and Student Affairs program at Virginia Tech. My doctoral dissertation is a studying about how international undergraduate students adapt to their academic and social environment at Virginia Tech. The participation of all Chinese students at Virginia Tech is very important.

The Chinese students are a very important group of students at VT. You make up one of the largest groups of international undergraduate students on campus and you represent the Chinese culture and its people. Your participation will ensure that the unique characteristics that make you special will provide me the information data I need to convey my study into information that administrators and faculty could use to improve the availability and funding of educational services for international undergraduate students at Virginia Tech.

I know that your time is valuable, and a test of the survey showed that most participants finished it within 15 minutes. You can access the survey via the web at:

http://survey.vt.edu/survey/entry.jsp?id=1019490886963

To reach the survey please copy and paste this into your browser. Please, after completing the survey, you must click the "Submit" button at the end of the survey so the responses will be recorded in the database. No personal information will record and I am the only person who will ever have access to the data that is collected.

If you have any questions, please e-mail me at aduerto@vt.edu

Thank you for your participation.

Yours truly,

Aristides Maza

APPENDIX I

Two Sample Copies—Half Spanish and Half English—of the Follow up e-mail Messages to

Potential Participants from Spanish Speaking Countries

Mis Querido Amigo Dominicano:

¡Tú eres el único dominicano de pregrado en VT y me gustaría que me ayudaras representando a tu país!

My name is Aristides Maza. I am a Venezuelan doctoral student in the Higher Education and Student Affairs program at VT. My doctoral dissertation is about how international undergraduate students adapt to their academic and social environment at VT; therefore, the participation of the only VT students from the Dominican Republic is very important.

You represent the culture and the people of the Dominican Republic. Your participation will ensure that the unique characteristics that make you and the Culture of the Dominican Republic special will provide me the data I need to convert my study into information that administrators and faculty could use to improve the availability and funding of educational services for international undergraduate students at VT and especially for VT students from the Dominican Republic in the future.

A test of the survey showed that most participants finished it within 15 minutes. You can access the survey via the web at:

http://survey.vt.edu/survey/entry.jsp?id=1019490886963

To reach the survey, copy and paste this into your browser. You must click the "Submit" button at the end of the survey so the responses will be recorded in the database. No personal information will be recorded and I am the only person who will ever have access to the data that is collected.

If you have any questions, please e-mail me at aduerto@vt.edu

¡Muchísimas Gracias de parte de un compañero latino!

Aristides Maza

(APPENDIX I. *Continued*)

Mis Queridos Amigos Españoles:

¡A aquellos que no hay representado su país!

¡Ayúdenme a Graduarme!

My name is Aristides Maza. I am a Venezuelan doctoral student in the Higher Education and Student Affairs program at VT. My doctoral dissertation is about how international undergraduate students adapt to their academic and social environment at VT; therefore, the participation of the only two VT students from Spain is very important.

You represent the culture and the people of Spain. Your participation will ensure that the unique characteristics that make you and the culture of Spain especial will provide me the information I need to convert my study into information that administrators and faculty could use to improve the availability and funding of educational services for international undergraduate students at VT and especially for the Spanish students at VT.

A test of the survey showed that most participants finished it within 15 minutes. You can access the survey via the web at:

http://survey.vt.edu/survey/entry.jsp?id=1019490886963

To reach the survey, copy and paste this into your browser. You must click the "Submit" button at the end of the survey so the responses will be recorded in the database. No personal information will be recorded and I am the only person who will ever have access to the data that is collected.

If you have any questions, please e-mail me at aduerto@vt.edu

¡Muchísimas Gracias de parte de un compañero latino!

Aristides Maza

APPENDIX J

The Institutional Review Board (IRB) at Virginia Tech for Research Involving Human Subjects Form.

Virginia Tech
VIRGINIA POLYTECHNIC INSTITUTE AND STATE UNIVERSITY

Institutional Review Board
Dr. David M. Moore
IRB (Human Subjects) Chair
Assistant Vice Provost for Research Compliance
CVM Phase II - Duckpond Dr., Blacksburg, VA 24061-0442
Office: 540/231-4991; FAX: 540/231-6033
e-mail: moored@vt.edu

28 February 2003

MEMORANDUM

TO: Don Creamer ELPS 0302
Aristides Maza Duerto ELPS 0302

FROM: David M. Moore

SUBJECT: IRB EXEMPTION APPROVAL – "Effects of Combined Economics and Linguistic Background on the Adjustment Process of Undergraduate International Students at Va Tech– IRB # 03-119

I have reviewed your request to the IRB for exemption for the above referenced project. I concur that the research falls within the exempt status. Approval is granted effective as of February 28, 2003.

cc: file
M. D. Alexander 0302

APPENDIX K

Frequency Tables for the 50 Items in the Section A of the AEIUSVT survey ($N = 318$)

Items	*M*	*SD*	Responses to Items										*n*
			SD		D		A		SA		Missing		
			n	*P*	*n*	*P*	*n*	*P*	*n*	*P*	*n*	*P*	
1. Many opportunities are denied to me.	1.99	0.88	59	18.60%	120	37.70%	97	30.50%	27	8.50%	15	4.70%	303
2. My choices for success in life are limited.	2.00	0.87	107	33.60%	115	36.20%	80	25.20%	13	4.10%	3	0.90%	315
3. I am treated the same as others in social situations.	2.61	0.86	33	10.40%	103	32.40%	134	42.10%	45	14.20%	3	0.90%	315
4. I am looked on as inferior by some people.	2.29	0.87	64	20.10%	109	34.30%	115	36.20%	19	6.00%	11	3.50%	307
5. I am often not taken seriously.	1.99	0.83	94	29.60%	138	43.40%	65	20.40%	13	4.10%	8	2.50%	310
6. I am not accepted by some people.	2.31	0.84	59	18.60%	108	34.00%	125	39.30%	15	4.70%	11	3.50%	307
7. I am considered less capable than I really am.	2.05	0.83	85	26.70%	134	42.10%	75	23.60%	13	4.10%	11	3.50%	307
8. Others try to make me feel inferior.	2.01	0.83	89	28.00%	140	44.00%	65	20.40%	14	4.40%	10	3.10%	308
9. Meaningful communication with others is a problem for me.	1.90	0.85	116	36.50%	124	39.00%	60	18.90%	13	4.10%	5	1.60%	313
10. My achievements are not considered very important.	1.75	0.67	111	34.90%	163	51.30%	25	7.90%	5	1.60%	14	4.40%	304
11. I experience more loneliness than others.	2.08	0.93	96	30.20%	123	38.70%	66	20.80%	28	8.80%	5	1.60%	313
12. I don't feel others are biased toward me.	2.54	0.79	28	8.80%	102	32.10%	129	40.60%	26	8.20%	31	9.70%	285
13. I have been denied opportunities I deserve.	2.26	0.84	54	17.00%	135	42.50%	86	27.00%	23	7.20%	20	6.30%	298
14. I suffer from prejudice and unequal treatment.	1.95	0.75	88	27.70%	158	49.70%	56	17.60%	8	2.50%	8	2.50%	310
15. I am required to do more than others to prove my abilities.	2.31	0.88	62	19.50%	115	36.20%	108	34.00%	25	7.90%	8	2.50%	310
16. I feel I have a clear identity in this culture.	2.77	0.82	21	6.60%	80	25.20%	146	45.90%	52	16.40%	19	6.00%	299
17. I lose enthusiasm in trying to succeed when I know that I have to face extra obstacles.	2,17	0.85	76	23.90%	121	38.10%	100	31.40%	14	4.40%	7	2.20%	311
18. I don't have as many choices as others around me.	2.45	0.86	47	14.80%	108	34.00%	127	39.90%	30	9.40%	6	1.90%	312
19. I am angry about the stereotypes people have about me.	2.57	0.90	38	11.90%	104	32.70%	115	36.20%	48	15.10%	13	4.10%	305
20. Trying hard to get ahead does not work for people like me	1.77	0.74	119	37.40%	146	45.90	35	11.00%	7	2.20%	11	3.50%	307

(APPENDIX K: *Continued.*)

Items	*M*	*SD*	Responses to Items										*n*
			SD		D		A		SA		Missing		
			n	*P*	*n*	*P*	*n*	*P*	*n*	*P*	*n*	*P*	
21. I feel adequate to function in this society.	2.99	0.81	16	5.00%	51	16.00%	149	46.90%	81	25.50%	21	6.60%	297
22. I don't have much control over my life generally.	1.72	0.77	141	44.30%	122	38.40%	41	12.90%	6	1.90%	8	2.50%	310
23. I feel I don't have as much support as others.	1.99	0.82	99	31.10%	125	39.30%	81	25.50%	8	2.50%	5	1.60%	313
24. I feel a sense of community with others around me.	2.87	0.71	11	3.50%	65	20.40%	179	56.30%	47	14.80%	16	5.00%	302
25. I feel I am integrated in the present culture.	2.77	0.76	15	4.70%	82	25.80%	154	48.40%	43	13.50%	24	7.50%	294
26. I experience conflict with the cultural values of other Groups.	2.30	0.83	53	16.70%	130	40.90%	107	33.60%	20	6.30%	8	2.50%	310
27. I'm treated as a second rate citizen.	2.25	0.89	62	19.50%	126	39.60%	84	26.40%	27	8.50%	19	6.00%	299
28. I feel sad living in my present surroundings.	1.96	0.89	106	33.30%	130	40.90%	51	16.00%	21	6.60%	10	3.10%	308
29. I feel I can get ahead in life as well as anyone else	3.23	0.79	8	2.50%	44	13.80%	127	39.90%	131	41.20%	8	2.50%	310
30. I feel uncomfortable with people's cultures in this society.	2.09	0.84	76	23.90%	150	47.20%	61	19.20%	21	6.60%	10	3.10%	308
31. I feel I have to lead a dual life in this society.	2.33	0.89	57	17.90%	116	36.50%	99	31.10%	29	9.10%	17	5.30%	301
32. I feel a sense of helplessness.	1.90	0.78	103	32.40%	137	43.10%	59	18.60%	7	2.20%	12	3.80%	306
33. It hurts me to think that I'm treated differently because of my background.	2.39	0.87	51	16.00%	95	29.90%	116	36.50%	23	7.20%	33	10.40%	285
34. Others act as if they are better than I am.	2.32	0.90	59	18.60%	124	39.00%	96	30.20%	31	9.70%	8	2.50%	310
35. I feel my status in society is considered "low" by others because of my cultural background.	2.08	0.86	84	26.40%	134	42.10%	69	21.70%	19	6.00%	12	3.80%	306
36. I have a feeling of alienation.	2.23	0.83	61	19.20%	128	40.30%	96	30.20%	17	5.30%	16	5.00%	302
37. It hurts me when negative images about my culture are presented in the media.	3.22	0.87	18	5.70%	34	10.70%	112	35.20%	137	43.10%	17	5.30%	301
38. I feel that some groups have hostility towards me.	2.38	0.86	47	14.80%	126	39.60%	101	31.80%	30	9.40%	14	4.40%	304
39. I feel pressure to conform.	2.17	0.79	58	18.20%	139	43.70%	81	25.50%	13	4.10%	27	8.50%	291
40. I feel uncomfortable in participating in social activities.	1.98	0.81	93	29.20%	139	43.70%	66	20.80%	11	3.50%	9	2.80%	309

(APPENDIX K: *Continued.*)

Items	*M*	*SD*	Responses to Items										*n*
			SD		D		A		SA		Missing		
			n	*P*	*n*	*P*	*n*	*P*	*n*	*P*	*n*	*P*	
41. People will not exchange greetings with me.	1.65	0.70	140	44.00%	136	42.80%	22	6.90%	6	1.90%	14	4.40%	304
42. I feel uncomfortable when I have to communicate with authority figures.	2.10	0.88	83	26.1%	137	43.1%	67	21.10%	23	7.20%	8	2.50%	310
43. I feel that despite all my efforts I will not be able to succeed in this society.	1.64	0.68	142	44.7%	135	42.5%	24	7.50%	4	1.30%	13	4.10%	305
44. I feel that if I try to work hard, I'll have a good future.	3.44	0.66	3	0.9%	21	6.6%	123	38.70%	163	51.30%	8	2.50%	310
45. It makes me work harder when others have an unfair advantage.	2.68	0.86	21	6.6%	103	32.4%	108	34.00%	53	16.70%	33	10.40%	285
46. It is useful to have high hopes in this society.	3.18	0.75	10	3.1%	34	10.7%	155	48.70%	108	34.00%	11	3.50%	307
47. I feel I have deep roots in this country.	1.93	0.81	94	29.6%	136	42.8%	47	14.80%	13	4.10%	28	8.80%	290
48. I feel that my gender is more important to me than my culture.	1.84	0.78	103	32.4%	126	39.6%	42	13.20%	8	2.50%	39	12.30%	279
49. I'm bothered when persons from minority groups take unfair advantage (to advance themselves).	2.64	0.87	25	7.9%	99	31.1%	107	33.60%	49	15.40%	38	11.90%	280
50. Cultural identity is important to my sense of self.	3.40	0.69	5	1.6%	21	6.6%	126	39.60%	152	47.80%	14	4.40%	304

Note. SD = Strongly Disagree
D = Disagree
A = Agree
SA = Strongly Agree