THE CLASS OF 1990:

A LONGITUDINAL STUDY OF A FRESHMAN COHORT

AT TEXAS A&M UNIVERSITY-KINGSVILLE

A Dissertation

by

SUSAN DOLLAR

Submitted to the Office of Graduate Studies of
Texas A&M University
in partial fulfillment of the requirements for the degree of

DOCTOR OF PHILOSOPHY

May 2005

Major Subject: Educational Administration

THE CLASS OF 1990:

A LONGITUDINAL STUDY OF A FRESHMAN COHORT

AT TEXAS A&M UNIVERSITY-KINGSVILLE

A Dissertation

by

SUSAN DOLLAR

Submitted to Texas A&M University
in partial fulfillment of the requirements
for the degree of

DOCTOR OF PHILOSOPHY

Approved as to style and content by:

D. Stanley Carpenter, Jr. (Chair of Committee)	Bryan R. Cole (Member)
Christine Stanley (Member)	Gonzalo Garcia, Jr. (Member)
James Scheurich (Head of Department)	

May 2005

Major Subject: Educational Administration

ABSTRACT

The Class of 1990: A Longitudinal Study of a Freshman Cohort at

Texas A&M University-Kingsville. (May 2005)

Susan Dollar, B.S., West Texas State University;

M.Ed., West Texas State University

Chair of Advisory Committee: Dr. D. Stanley Carpenter

Extensive research has been conducted on college student retention and graduation and many studies have found certain characteristics to be predictive of successful completion of college. However, few studies have focused on a target population which is primarily Hispanic.

This study examined the 1990 entering freshmen class of students at Texas A&M University-Kingsville (TAMUK), of which more than 68% were Hispanic. An attempt was made to examine characteristics that would predict success, defined as graduation from TAMUK. Data derived from institutional records and the Texas Higher Education Coordinating Board were examined using descriptive statistics and stepwise multiple logistic regression.

Pre-college characteristics studied included age, gender, ethnicity, marital status, high school GPA (Grade Point Average), high school class rank, high school of origin, county of origin, and American College Test (ACT) and the Scholastic Assessment Test (SAT) scores. In-college characteristics studied included residency status, admission status, enrollment status, number of hours enrolled fall 1990, college major, the Texas

Academic Skills Program (TASP) scores, developmental courses, semester GPA's, academic standing, and finally, attrition, transfer or graduation status.

The fall 1990 entering students were evenly divided between males (53.4%) and females (46.6%), were young (79% were age 19 or less), single (91.4%), and Hispanic (68.2%). Almost half (46%) of the students came from high schools within 50 miles of Kingsville. The mean college entrance exam scores (ACT=16.76 and SAT=766) were well below the national means of 21 and 999, respectively. Of the 1106 entering freshmen, 307 (27.7%) graduated from TAMUK within the 10 years under study. An additional 490 (44.3%) transferred to other state institutions, and 309 (27.9%) dropped out of TAMUK and did not enroll in any other state college or university. The fall-to-spring attrition rate was only 16.5%; however, the fall-to-fall attrition rate was 50.0% at the end of the first year.

Stepwise multiple logistic regression (backward) analysis revealed that only high school GPA and the ACT composite score were statistically significant predictors of graduation.

DEDICATION

This dissertation is dedicated to the men in my life,

because of them,

in spite of them,

and for them.

ACKNOWLEDGMENTS

My deep appreciation is extended to Dr. Stan Carpenter, Dr. Bryan Cole, and Texas A&M University for providing the opportunity to pursue professional and personal growth through the Ph.D. in Higher Education Administration program. Without their vision, commitment, encouragement, and fortitude, the cohort at Texas A&M University-Kingsville would never have become a reality.

To Dr. Stan Carpenter, thank you for your continuous support and encouragement. The "tough love" approach was very effective! I'll always remember that "There are two kinds of dissertations—perfect and complete. Go for complete." You were one of the few professors throughout my many years in school that challenged me and made me believe that, I, too, had something to contribute to higher education.

To Dr. Bryan Cole, many, many thanks for the academically rigorous and exciting courses that you taught. Until the first summer seminar that our cohort took, I had no awareness of the spectrum of quality processes. Having experienced your classes and worked with you through process improvement seminars, my whole approach to management and leadership changed. Whether in the classroom or the boardroom, your teachings and modeling permeate my work.

Thanks, too, to Dr. Christine A. Stanley and Dr. Gonzalo Garcia, who graciously agreed to serve on my committee at the last moment. Dr. Garcia, thank you for your insight and assistance with the statistical analysis. Dr. Stanley, thank you for your comments, kindness, and moral support during the final months!

Throughout the years, our cohorts—Randy, Susie, Dianne, Carol, Jorja, Mary, Joe, Sandy, Erma and Ron—became fast friends. Without the camaraderie and the competition, the love and the laughter, I never would have made it. For this, I thank you all. During our residency, my road warrior buddy, Susie, made the endless drives to College Station more than tolerable, and once on campus, my classmates and professors made it all worthwhile. Experiences like boot camp and residency make one truly appreciate the support of friends and family.

A special note of thanks to Dr. Big Al Tipton. It was a constant whining contest for years, but I finally won out and Alan gave up the data. I will always be grateful to you, Big Al, for putting up with me and for coming through. Another special thanks to Dr. Nestor Sherman. Although you tried (in vain) to teach me statistics, I will always be grateful for your enthusiastic and unwavering belief that someday, I would "get it." Thank you for answering your phone, your faxes, and your e-mail when I needed you! The assistance you provided on the data analysis was invaluable.

To Dr. Kay Clayton, for being such a wonderful mentor, boss, and friend, my heartfelt appreciation and love. Without you, I would never have had the opportunity to pursue this degree nor would I have had the confidence to undertake such an endeavor. It was an honor and a pleasure to work for you and with you.

Long ago, when I was a freshman in college, my very first psychology professor took an interest in my academic career and encouraged me to pursue either 1) the Army, or 2) a Ph.D. Although I thought I had chosen the "easier" route, now I am not so sure! But a sincere thank you goes to Dr. Thomas Cannon, teacher, a mentor, and a friend.

To my many friends, who over the years, listened to me moan and groan, kicked me, picked me up, and held me close—the best times of my life (so far!) occurred with you all during these past years. Lisa, Barbara, Jill, Sue and David, Wayne, Dale and Nancy, Jacki and Pete, Steve and Tracy—thank you. I love and miss you all.

A huge thank you to my wonderful editor, Pam Rowe. Not only were you the very best editor ever, you were a constant source of encouragement and assistance. Thank you for all the many hours of hard work, the phone calls, e-mails, and faxes that you waded through in order to help me complete this manuscript.

Joyce and Henry Bynum started off as my landlords and ended up as family to me and my boys. Thank you for being the best friends and neighbors in the world. You were always there for us and supported me all the way. The many nights you took care of the boys, fed them, watched over them, and made us all feel like family will never be forgotten.

My parents, Don and Jan Dollar, have always encouraged and supported my lifelong educational pursuits, and for that, I am most grateful. Being the first in my family to obtain a college degree was a significant milestone for the whole family and my parents were proud to see their first-born succeed.

To my best friend and partner, Scott—I love you and thank you for making it possible for me to finally finish this degree. Your never-ending support and sympathetic ear have made these last few months of writing so much more bearable. I am looking forward to our uninterrupted evenings on the deck, watching the sun sink, instead of watching the printer print.

And finally, to my three sons, Matthew, Derek, and Braden—it seems like we have been in school all our lives! Thank you for being the wonderful, independent, kind and caring kids that you are. I know there were many things we missed along the way and many times that were tough for everyone. Thank you for your encouragement and love and for believing that we could all get through this. Thank you, too, for picking up the slack and learning to take care of yourselves. You have all grown up to be fine young men, and I am very proud of you. I love you guys. And now that I am finished . . . one down, three to go!

TABLE OF CONTENTS

CHAPTER Page

LIST OF TABLES

TABLE Page

TABLE Page

TABLE Page

CHAPTER I

INTRODUCTION

Recruitment, Retention, Attrition, Graduation—the cornerstones of higher education. Stagnant enrollments and declining graduation rates due to lower numbers of high school graduates in the 1980's affected colleges and universities large and small, public and private. Although total enrollment in higher education increased by 66% between 1970 and 1995, most of that growth reflects a dramatic increase in part-time student enrollment, which has increased three times faster than full-time enrollment (Higher education: The changing marketplace, 1997). Over the past two decades, more attention has been focused on the problems of student retention and attrition, and particularly minority retention and attrition. More students leave their universities than stay to complete their degrees; of the 2.4 million students who entered higher education in 1993, more than 1.1 million left before completing their degree ten years later, and only six out of every ten students that enter a four-year university with the intention of earning a bachelor's degree achieved their goal within six years. (Carey, 2004; Tinto, 1993). A review of drop-out statistics by Lang and Ford (1992) found that attrition rates were at an all-time high for students across the spectrum of the population and participation in higher education was still lower for minorities and low income students (Cuccaro-Alamin, 1996; Altbach, 1991; Carter & Wilson, 1991; Christoffel, 1986;

The style and format for this dissertation follow that of the *NASPA Journal.*

Olivas, 1986b; Santos, 1986; Tracey & Sedlacek, 1984; Wells, 1989). These phenomena have caused administrators of higher education to acknowledge the seriousness of recruitment and retention efforts. Although not every decision to withdraw from a university represents lost or wasted resources, a significant portion of attrition might be reduced by timely and carefully planned intervention strategies by the institution. Those interventions can be most effective if students with a high probability of dropping out can be identified and targeted early in their college experience (Pascarella & Terenzini, 1980; Tinto, 1987). A review of the literature stresses the need for early identification and intervention through counseling or other institutionally developed programs before the departure decision has been made. A study at Kean College found that the majority of students did not leave college as a result of academic dismissal; rather, the major self-reported reasons for departure were personal or economic reasons. Additional studies of 122 colleges and universities found that retention was affected by high school grades, admission test scores, parental socio-economic and educational levels, the availability of financial aid, social integration into the school, and the frequency of informal contact with faculty (Stapleford & Ray, 1996). Particularly for Hispanic students, the importance of the family and the pressures they exerted were significant factors in influencing decisions about whether to stay in school or go to work to help support the family (Sanchez et al., 1992).

Astin (1977) suggests that in an era when most universities are strapped for revenues, understanding and addressing retention issues may be more cost-effective than recruitment. Institutions of higher education could benefit from expanding their scope of retention activities and, at the same time, incur some savings in recruitment efforts to

replace those students (Lang & Ford, 1992; Witherspoon et al, 1999). In a review of retention literature from 1890 to 1980, it was found that the rates of four-year degree completion were around 45% of the entering students and have remained fairly stable (Flores, 1989). At traditional, four-year universities, the graduation rate has remained fairly steady over the past ten years (1992-2002) at 51%; the freshman-to-sophomore retention rates have also remained fairly constant over the past fourteen years at 74% (ACT, 2002). However, in their study, Davidson and Muse (1994) found that the attrition rate was highest between the freshman and sophomore years. They also found that out-of-state first year attrition was even more significant and that international students progressed and graduated at levels above both in-state and out-of-state students. Non-traditional students tend to show higher drop-out rates than traditional students (Astin, 1977). Levitz and Noel (1989) conducted a study that revealed that one-third of each year's entering first year students do not re-enroll at the same institution after their first year. Supporting this are research studies showing that retention rates have been declining slightly since 1983, from 68% to slightly less than 67% in 1997 (Cravatta, 1997). Almost half of the students who enter a public college or university in Texas do not graduate (Taking a Stand for Texas, 1996). Because operating revenue is, in large part, enrollment-driven, losing students through attrition also has a financial impact upon the institution (Manno, 1995). Attracting and retaining students are, therefore, critical concerns in higher education for many reasons.

Statement of the Problem

Lower South Texas is the poorest and most rapidly growing area of the state (Sharp, 1998). It is also one of the most densely populated Hispanic regions in the United States. Texas A&M University-Kingsville (TAMUK) lies at the entrance to the Rio Grande Valley in the city of Kingsville. The city has a population of approximately 25,000, is the county seat of Kleberg County, and is located 160 miles southeast of San Antonio, forty miles southwest of Corpus Christi, and 120 miles north of Brownsville.

Texas A&M University-Kingsville had its origin in the Teacher College movement that swept Texas in the early 1900's. Shortly after its inception as South Texas State Normal College in 1925, its role was expanded to embrace a wider array of programs typically authorized for comprehensive universities. The historical expansion of the university's role is reflected in the change of its name to Texas College of Arts and Industries in 1929 and to Texas A&I University in 1967, when it became the nucleus of the University System of South Texas. In 1989, Texas A&I University became a part of the Texas A&M University System. The name was once again changed in 1993 to Texas A&M University-Kingsville. In 1995, TAMUK qualified as a "Border Serving Institution" (BSI), meaning that, according to Section 54.060(b) of the Texas Education Code, it can offer in-state tuition rates to a limited number of Mexican national students (Higher Education Opportunities . . . , 1997). In 1992, if a college or university had at least one-quarter of their enrollment classified as Hispanic and more than one-half of their students came from low-income backgrounds, the federal government began designating them as "Hispanic-Serving Institutions (HSI)." More than 240 higher

education institutions have received this designation, with 38 of them located in Texas alone. Texas A&M University-Kingsville is among those 38 institutions. In 1990, Hispanics accounted for 46% of the enrollment in HSI's; that slipped to 45% by 1999 (National Center for Education Statistics [NCES], 2003).

As a regional, four-year Hispanic-Serving Institution, TAMUK is the most comprehensive and only predominantly residential school in South Texas. It offers a large inventory of academic programs at the bachelor's, master's, and doctoral level. Its programs in agriculture, engineering, human sciences, and adult education are unique to the region. The university offers over 56 undergraduate degrees and 61 Master's and Doctoral programs (TAMUK Catalog, 2002-2004).

From the inception of the university until the mid 80's, the student enrollment at TAMUK was almost exclusively White. The early classes at the university were comprised of White, middle class, traditional students. The 1960's saw a huge surge in enrollment, from 3,074 students in 1960 to 8,096 in 1971. A major shift in the ethnicity of the student population occurred over the past two decades. Hispanic enrollment began to increase from 50% in 1986 to over 62% in 2000 (TAMUK Fact Book, 2003). In 1990, the entering freshman class was almost 70% Hispanic. Since then, the ethnicity of the student body has remained constant at approximately 65% Hispanic, 25% White, 3% International, 3% Black, and 4% Other. The majority of students are under the age of 25. As many as 70% of the entering freshmen are first generation college students and over 50% receive some type of financial aid (TAMUK Fact Book, 2003). Students at the university are drawn primarily from a 13 county area in South Texas and the Rio

Grande Valley, an historically under-served population. The institution now serves a multicultural population, including many students from neighboring Mexico.

Many regional institutions such as Texas A&M University-Kingsville are having a difficult time retaining students. Enrollment has been fairly stagnant between 1980-2000, peaking in 1993 at 6570 students, but declining to 5949 in 2000, in spite of increased resources directed at recruitment and retention (TAMUK Fact Book, 2003). There is no clear explanation for the continued lack of enrollment growth and high attrition rates, particularly for entering classes. As an HSI, the mission of TAMUK has changed over the past years, due in part to changes in the administration and in part to better reflect the direction the institution has taken to support higher education for the changing population of South Texas. However, regardless of administrative changes or mission statements, the fact remains that there has not been a formal, longitudinal study of this population and what happens to them after they enroll at the university. The mission statement at the time of the 1990 cohort included the President's Vision Statement, which specifically stated that the university would "foster the growth of a middle class in South Texas" and would "be particularly responsive to the needs of first generation Hispanic students." The Vision Statement also declared that "the institution will serve all students efficiently and be sensitive to first-generation college students" (Texas A&I University [TAIU] Catalog, 1989-1992, p. 18). Hispanic students have, on average, more risk factors, including lower socioeconomic status, parents without a high school diploma, sibling drop-outs, failing a grade in public school, bearing a child while in school, and lower participation in college prep courses in high school (Swail et al., 2004). These sociological facts, coupled with the fiscal facts of enrollment-based

funding and the possibility of performance-based funding in the near future, should compel the university to critically examine who its students are—where they come from and what they look like—in order to best meet their needs and enable them to persist in college.

Both Tinto (1975) and Bean (1986) indicated that no single model of attrition will work well in explaining the drop-out process of individual students at particular institutions unless each institution develops its own specific attrition model and measures of student/institution fit. There is currently no longitudinal database at TAMUK that tracks students from admission to completion (or drop out/withdrawal). Indeed, most attrition research has rarely gone beyond the first year, presumably because studies show that attrition is much higher during that period. There have been no data collected that would provide a clear picture of any entering cohort at TAMUK and its progression through the university. Also, because the entering classes at TAMUK have averaged over 50% Hispanic since 1986, more research is needed on those factors that impact the success or failure of all students, but particularly of Hispanic students.

Purpose of the Study

The purpose of this research was to describe the 1990 freshman class at Texas A&M University-Kingsville and to investigate the varied and complex pre- and in-college characteristics that appear to impact their success. An analysis of the data on the 1990 freshman cohort provided a descriptive profile of the students at Texas A&M University-Kingsville and information about the relationship of variables that appear to predict college success (graduation) for this population. Data on attrition and graduation

rates of those students were collected and analyzed and an attempt was made to determine if there was a relationship between pre-college characteristics, in-college characteristics, and graduation rates over a ten year period.

Research Questions

1. Who were the freshman class of 1990?
    a. What were the pre-college characteristics?
    b. What were the in-college characteristics?
2. What happened to the first year students who entered TAMUK in the fall of 1990?
    a. What percentage successfully completed college and graduated?
    b. What percentage transferred to other institutions?
    c. What percentage did not persist and did not complete a degree at TAMUK?
3. What pre- and in-college characteristics appear to contribute to completion of college for the TAMUK population?

Operational Definitions

- In-College Characteristics: Include admission status, enrollment status, hours enrolled fall 1990, TASP scores, developmental course, academic major, college GPA, number of semesters attended, number of semesters on scholastic probation/academic withdrawal, and final status.

- Attrition: The cessation of enrollment of a student at TAMUK, either voluntarily or involuntarily. Academic probation or withdrawal, departure, drop-out, and non-persister will be used interchangeably. The drop-out nomenclature has been changed to departure (Tinto, 1987). Transfers will be considered as voluntary departures, as they are no longer members of the target population.
- Freshman/First-time Student: Any entering student with fewer than twelve credit hours prior to the beginning of fall 1990.
- Hispanic: Refers to both citizens of the U.S. or immigrants from Mexico, Cuba, Puerto Rico, Central, and South America. In addition, the term "Hispanic" will be used throughout this paper as an umbrella term to encompass anyone of Latino origin, including Mexican, Cuban, Puerto Rican, or South American descent. (Flores-Hughes, 1997; Marin & VanOss Marin, 1991; Mittelstadt, 1996).
- Non-Persisting Student: A student who was officially admitted as an entering first-year student in the fall of 1990 but was no longer enrolled at TAMUK at any point within the ten years under examination.
- Non-Traditional Student: Any student who chooses to wait one or more years after completion of high school before enrolling in college; may also refer to any student who is older, attends part-time, earned a GED, is a single parent, has responsibility for dependents, or works full-time (Kramer, 1994).
- Persister: A student who completed a baccalaureate degree at TAMUK within the ten years under examination.

- Pre-College Characteristics: Include age, gender, ethnicity, marital status, high school GPA, high school class rank, high school of origin, county of origin, residency status, and ACT/SAT scores.
- Success: The dependent variable in this study is graduation from TAMUK within the ten years covered by this study.
- Transfer Student: A student who leaves TAMUK and enrolls at another public state institution.

Limitations

1. This is a single institution study. As such, generalizations to other institutions or populations should be made with extreme caution.
2. The study is limited specifically to the 1990 entering freshman cohort at Texas A&M University-Kingsville.
3. ACT/SAT scores were not available on students over 21 years of age.
4. High school GPA and HS Rank were self-reported.
5. Students who transferred to private or proprietary colleges and universities were not tracked through the Texas Higher Education Coordinating Board (THECB).
6. The study is purely quantitative; data were drawn from existing records. No attempt was made to gather qualitative information from students themselves.

Significance of the Study

There had not been a formal longitudinal study of any freshman class at Texas A&M University-Kingsville. Indeed, few studies have been conducted to identify variables that are associated with the educational achievement of Hispanic university students. In 1988, the American Council on Education (ACE) formally announced its "Minority Initiative", designed to advance minority participation and success in higher education at every level (Minority Initiative Remains Top Priority, 1995). In 2001, an executive order to establish the President's Advisory Council on Educational Excellence for Hispanic Americans was signed by President Bush, with the intent to encourage more research on the needs of Hispanic students, to hold higher education accountable for improving Hispanic graduation rates, and to help educate Hispanic parents regarding access to higher education (Schmidt, 2003). Clark Kerr (as cited in Altbach, 1991) wrote that one of the greatest imperatives facing higher education is to improve the policies and practices that impact minorities and their success in higher education. Interestingly, the year 1990 marked the thirty-sixth anniversary of *Brown vs. the Topeka Board of Education* and the twenty-fifth anniversary of the Higher Education Act of 1965 (Allen & Haniff, 1991; Orfield & Eaton, 1996). These landmark decisions outlawed segregation in public schools and subsequently led Congress to support equal opportunity in higher education, irrevocably changing the face of college campuses.

Texas A&M University-Kingsville did not participate in the Cooperative Institutional Research Project (CIRP) in 1990 and therefore has no quantitative analysis of its student population. Because of enrollment trends, it would be helpful to know who

the students are and what characteristics they possess when they enroll in the institution. Additionally, it is economically sensible and fiscally sound to address ways to retain students rather than continually recruit new ones. The financial impact of student attrition is widespread. When an institution recruits new populations of students or increases the number of entering students, the institution gains added revenue. When an institution reduces attrition and increases the persistence rates of students, the institution receives additional funds. Good institutional practices increase student satisfaction, which translates into higher retention and graduation rates, larger enrollments, and increased institutional revenue (Blimling & Whitt, 1998; Tinto, 1987). Therefore, it is in the institution's best interest to look towards ways of improving student retention and graduation rates.

A review of the literature indicates a lack of studies on the retention and graduation rates of Hispanic students at four-year universities. Evidence suggests that the proportion of Hispanic students completing college has declined. Nationwide, the total number of Hispanic college-age youth (aged 18-24 years) increased by 35.2% between 1980 and 1990, peaking in 1982 (Deskins, 1991; Garcia & Montgomery, 1991). However, the enrollment of this group in higher education declined to 16.2% in 1990, down from a high of 20.4% in 1975 (Snyder & Hoffman, 1992). Degree completion rates of Hispanics, although showing some modest gains over the past ten years, were only 3.4% of all degrees conferred in 1990 (Snyder & Hoffman, 1992). By the year 2000, Hispanics represented 18% of the college-age population, but they accounted for only 9.5% of the actual college-enrolled population. Hispanics earned 9% of all associate degrees and only 6% of all bachelor degrees (NCES, 2003). Nationally, in

1994, only 9% of Hispanics over age 24 held college degrees, compared with 24% of non-Hispanics (Goldberg, 1997). In studies of Hispanic student success in college, there is a need to move beyond the traditional variables associated with college retention and to examine the influences of background and personal variables that may aid in the clarification of factors that appear to promote successful graduation from college. Few such studies have been conducted that identify variables uniquely associated with academic achievement of Hispanic students. This study's descriptive profile of the 1990 first year students provided an opportunity to examine relationships between pre- and in-college characteristics and identify variables that may predict college graduation in order to aid advisors, faculty, administrators, and other college personnel that are dedicated to student success and educational attainment. This study also extended the existing knowledge on attendance, attrition, retention, and graduation rates and provided clear information on the particular population at Texas A&M University-Kingsville. It presents quantifiable data that can be used as a basis for programmatic decisions to improve retention efforts and provides a tool that can be used for future longitudinal studies so that each freshman cohort at Texas A&M University-Kingsville can be tracked annually.

CHAPTER II

REVIEW OF THE LITERATURE

The purpose of this research was to describe the 1990 freshman cohort at TAMUK and to identify factors that appear to impact the successful completion of college. In order to improve prediction of a student's college success, there is a need to extend the range of information considered to be predictors of that success, particularly for Hispanic students. The goal of improving prediction of success has been based, in large part, upon research findings and the investigation of the connection between general background characteristics, high school variables and college variables. This literature review is concerned with factors that appear to impact persistence and non-persistence of college students. As a majority of the freshman cohort at TAMUK is Hispanic, much of the review of the literature will focus on the factors that impact that particular ethnic group.

General Theories of Student Persistence

Over the past twenty years, the body of research on student persistence has grown remarkably. A college education, in addition to providing an employment advantage and significantly higher salaries, has many other benefits besides monetary gains. Persons who attend college tend to have greater intellectual and interpersonal competency, are more tolerant of differing ideas and more open to new ideas, are active members of the community, and value education as an opportunity to gain a deeper

understanding of the world (Astin, 1993; Bowen, 1977; Chickering, 1974; Tinto, 1975). Theories of student persistence and attrition argue that college completion, or lack thereof, is a fundamental measure of student success (Braxton & Brier, 1989). Studies on college attrition and retention in higher education span more than 75 years. A review of the literature suggests that many interrelated factors contribute to persistence and college completion. Early research focused on the financial loss and impact on institutions. Only in the 1960's did psychological and social factors gain importance and retention began to be studied as a function of congruence, or "fit", between the individual student and the institution. Indeed, it was proposed that academic failure in college perhaps was the outcome of a poor fit between the needs and interests of the students and the sociological and psychological demands of the environment. It has been suggested that the high drop-out rates for Hispanics may be due to the schools themselves. Maria Montecel, Executive Director of Intercultural Development Research Association, states that ". . . there is an incompatibility between the characteristics of the students and what schools offer, which results in Hispanic students feeling isolated" (Latino Drop-out Rate . . . , 1997). Current literature suggests that educational background, positive parental encouragement, self-expectation and motivation, social relationships, educational aspirations and career goals, institutional environment including culturally diverse experiences, campus residency status, and contact with faculty and advisors are all factors that influence persistence (Flores, 1989; Pascarella, 2001). Tracey and Sedlacek (1984) proposed that there were several noncognitive variables related to academic success, particularly for minority students. Those variables included a positive self-concept, realistic self-appraisal, the understanding of and the

ability to deal with racism, a preference for long-term goals over short-term or immediate needs, the availability of a strong support person, successful leadership experience, and demonstrated community service. It has even been suggested that what students *do* during college and what experiences they encounter at the institution are more critical to successful outcomes than who they are or where they go to college (Kuh, 2001). Other psychosocial factors, such as the "fit" between the student and the university in both the social and academic environment, coupled with individual background characteristics and high school achievement, have long been studied as to their impact on student success (Flores, 1992). In a comprehensive review of literature focusing on student retention, Kowalski (1977) found that a variety of factors distinguished the persisters from non-persisters:

> Persisting students were more mature, flexible, selective in choosing their school and more certain about educational goals. They had a greater sense of self-awareness, self-motivation, better study habits, self-management, and self-discipline, greater parental support and financial security, less parental pressure, higher aspirations, greater endurance, interest in school, and possessed greater intellectual and academic ability. The non-persisting students frequently suffered from poor motivation, inadequate study habits, uncertain goals, disinterest in school, and immaturity in attitudes and perceptions. They lack self-initiative, have financial difficulties, are poor decision makers, are disorganized and lack intellectual independence. (p. 43)

In an extensive review of the research, Miller (1991) suggests that there are five major schools of thought regarding student persistence:

1. Psychological theories assume that individual personality attributes distinguish persisters from non-persisters in their response to similar educational circumstances. The focus is primarily on personality type and the individual's ability to successfully complete the tasks associated with college attendance. Characteristics of the student's environment or the college are not considered when explaining their departure.
2. Social theories stress the roles of ethnicity, social status, prestige, and the resulting opportunities resulting from college attendance. These theories focus on the role of external forces in the process of student persistence and are not sensitive to the variations in patterns of staying or leaving or to the institution-specific character of retention, nor do they consider the attributes of the individual, the institution, or the society.
3. Economic theories regarding student departure make the assumption that the decision to remain at college is an economic one based on economic benefits perceived to be gained from a college education and individual resources for continuing that education.
4. Organizational theories take the position that student departure depends on the organizational impact on the student's socialization and satisfaction. The effects of size, student/faculty ratio, institutional goals and resources, and bureaucratic structure are considered. These theories offer suggestions as to how to restructure an organization to increase student satisfaction.
5. Interaction theories consider student behavior and the dynamic reciprocal interaction between environments and individuals. The more closely aligned

> an individual is to the student role, the more likely he or she will stay. Retention is based on the "person/role fit", with socialization into the student role central to the retention process. Interactional theories are not well-suited to nonresidential institutions or commuting students (Tinto, 1975). However, Tinto's (1975) concept of persistence withdrawal behavior is based on two concepts: a) persistence is the result of a longitudinal process of person-environment fit; and b) academic and social integration are crucial to persistence behavior.

More recently, various research studies have led to the development of four retention theories that can form the basis for institutional practices and policies that influence student satisfaction and retention (Wyckoff, 1998). First, the "college fit" theory proposes that students bring to college certain skills, attitudes, and expectations, and that the institutions demand certain skills and attitudes before they "reward" students with grades or degrees. Therefore, how a student meets these demands and gains satisfaction from doing so is the degree to which the student "fits" and can be expected to persist. The greater the fit, the higher the likelihood that the student will successfully complete college.

The second theory of student retention proposes that what influences students is the degree to which they become involved in academic work, extracurricular activities, and interaction with faculty. The more their learning and personal development is influenced by these factors and the more they are involved in campus life, the more likely they will persist.

The third theory proposed by Wyckoff is that of student-faculty involvement which focuses on the concept that faculty must serve as socializing agents for the university. This theory assumes that students' motivation for academic performance is influenced by faculty values and norms and that this influence is enhanced when faculty become significant elements in students' experiences. Theoretically, these interpersonal relationships between faculty and students will influence intellectual and social development, foster a stronger link between the student and the university, and generate a sense of autonomy and purpose for students. Together, these influences will lead to a greater commitment to the institution, increased social and academic integration, and therefore increased persistence.

The final theory that supports academic and social integration asserts that the higher the level of integration into the social and academic systems of the university, the less likely a student is to voluntarily withdraw. Integration occurs when the individual shares the attitudes and values of peers and faculty in the institution and abides by the formal and informal structural requirements for membership in that institution (Wyckoff, 1998). Ultimately, it appears that the higher the degree of academic integration (grade performance and intellectual development) and social integration (informal peer group associations, extracurricular activities, interaction with faculty and administrative personnel), the greater the commitment to the institution and thus the greater likelihood of successful completion.

It has been suggested that what happens to a student after arrival on campus makes more of a difference in what and how much a student learns than the prestige, reputation, or resources of the institution and that the decision to withdraw is more a

function of what occurs after entry (Terenzini & Pascarella, 1994; Tinto, 1993). Bennett and Okinaka (1990) found that the most alienated and least satisfied students drop out; the most satisfied, well-adjusted and least alienated remain. Research also indicates that good institutional practices, such as teacher preparation and skill, are important factors in student retention (Pascarella, 2001). Flores (1989) found that entering characteristics that favored minority persistence included good high school grades, strong study skills, and high self-esteem in terms of academic ability. College environmental characteristics that appeared to facilitate persistence included attending a four-year college or university, living on campus, receiving grants or scholarships, not having to work during college, and attending a relatively prestigious or selective institution. Many studies demonstrate that faculty exert much influence in their out-of-classroom contacts with students. "Instruction" must be understood more broadly to include the important teaching that faculty do both inside and outside their classrooms. Eighty-five percent of a student's waking hours are spent outside a classroom. A large part of the impact of college is determined by the extent and content of student interaction and socialization on campus through faculty members and student peers. According to Terenzini and Pascarella, ". . . the impact of college is more general than specific, more cumulative than catalytic" (1994, p. 34). If undergraduate education is to be enhanced, faculty members, administrators, and student affairs personnel must devise ways to deliver undergraduate education in ways that students learn. There must be an interrelatedness of the in-class and out-of-class influences on student learning (Davidson & Muse, 1994; Witherspoon et al., 1999).

There are four prevailing models regarding student retention and attrition that form the conceptual framework of persistence and non-persistence. Tinto's (1987) "Student Integration Model" relies upon social integration, or the extent to which a student shares the normative attitudes and values of faculty and other students in the institution, and academic integration, which refers to the level of student participation in activities related to intellectual development. Social integration encompasses such activities as peer group interactions, informal faculty interactions, and participation in informal college activities, whereas academic integration involves class attendance, formal faculty contact, and other academic activities such as tutoring. When students enter college, they arrive with varying background characteristics (personal, academic, and family). Tinto (1987) theorizes that students' pre-college traits lead to varying initial levels of institutional and goal commitments. In turn, these commitments interact with the social and academic environment of the university, resulting in varying levels of integration into the institution's academic and social systems. Therefore, the higher degree of integration of the student into the college system, the greater the individual commitment to the institution and to college completion.

Bean (1986) proposed a "Student Attrition Model" of the college student drop-out syndrome that emphasizes student selection for, as well as socialization to, certain behaviors and attitudes that have a direct effect on attrition. He suggests that desirable student outcomes may result from the selection of students or the self-selection of students who already possess desirable outcomes. In his model, academic social/psychological, and environmental factors affect the drop-out syndrome. Academic factors include preparation (high school grades, rank, and entrance exam

scores), while social/psychological factors include educational goals, alienation, faculty contact, perceived usefulness of a college degree, and social life. Environmental factors address financial concerns, outside friends, and the opportunity to transfer to another school. Similar to Tinto's theory that includes social and academic integration, Bean supports the environmental factors as having the power to negatively influence institutional fit and commitment. He also stresses the idea that peers are the primary agents of socialization and have the greatest impact on the attitudes of other students.

Weidman's (1986) model of undergraduate socialization incorporates both social and psychological influences on student behavior, and involves non-cognitive changes such as values, life style preferences, career choices, and aspirations. He defines undergraduate socialization as the acquisition of knowledge, skills, and attitudes that are valued by the society of which the student is a member and proposes joint socialization influences of student background characteristics, normative influences exerted by the social and academic systems of the institution, and the mediating influences of parental influence and non-college reference groups within the student's community. His model takes into account the effect of the external environment on student change. The student enters college with certain background characteristics, experiences a variety of socializing influences within the college, and various normative pressures from outside, assesses progress toward personal goals within the context of these pressures, and adjusts or maintains those goals. He hypothesizes that non-college influences—parents, outside peers, and community—continue to exert pressure on students.

Lastly, Astin (1984) provides a "Theory of Student Involvement" that regards retention as a function of student involvement in the academic and social systems of the

institution. Through this involvement, students develop and learn, thus solidifying their commitment to the institution and to their goals. The five major principles of his theory include 1) involvement requiring investment of psychological and physical energy; 2) involvement as a continuous process; 3) involvement with qualitative and quantitative features; 4) learning is directly proportional to the quantity and quality of involvement; and 5) educational effectiveness of policies and practices is related to the capacity to induce involvement of students. Unlike other theories which stress what happens *to* the student, Astin stresses the extent of energy put into the college experience *by* the student.

When examining the longitudinal nature of student departure, Tinto (1986) turned to the field of anthropology and the work of Dutch anthropologist Arnold van Gennep. van Gennep's studies of tribal rituals focused on the movement of individuals from membership in one group to another. In his classic study, *The Rites of Passage*, van Gennep (1960) argues that the transmission of relationships is marked by three distinct stages: separation, transition, and incorporation. Tinto offers this as a way of thinking about the longitudinal process of student persistence. College students must separate themselves from past communities, which may be extremely difficult or accepted as the normal course of maturation, depending on the character of those communities and their views of college attendance. In order to become fully integrated into the college community, students must disassociate socially and physically from the communities of their past. Students who continue to live at home during college may not have to disassociate equally, yet they also may not be able to fully integrate academically and socially into the campus. The second stage of a college career is transition—the passage between the old and the new, between the associations of the

past and the hoped-for associations of the future. Although they have begun the separation process, they have not yet established bonds within the new community, and thus are more vulnerable, being strongly bound to neither group. This period of transition can pose serious threat to a student who faces isolation and a sense of loss. Many students withdraw during this period, unable to withstand and cope with the many stresses of transition. Without institutional intervention, students may flounder and ultimately withdraw, perhaps because of their unwillingness to tolerate the stress, or because of their lack of commitment to their educational goals. In these first two stages, institutions can intervene and assist students in dealing with the problems that are inherent at the beginning of a college career. The third stage, incorporation, involves learning and accepting the new norms and behavioral patterns of the college setting. This is best accomplished through social integration involving faculty, staff, and other students. Failure to establish these social contacts may lead to a heightened sense of isolation and ultimate departure from school. Unlike incorporation into traditional societies, students in college are not always provided with formal rituals and ceremonies that ensure such contacts and many of them are unable to establish such contacts on their own. A variety of formal and informal mechanisms can be put into place to establish repetitive contact with other members of the institution, including residence hall associations, student organizations, extracurricular programs, and faculty/advisor/mentor programs.

It is interesting to note that none of these theories included ethnicity as a variable nor did any include the concept of race/ethnic consciousness—whether an individual identifies with a certain ethnic group and the extent to which the individual is involved

with and practices those cultural norms—and its effect on persistence (Haro et al., 1994; Muniz, 1994). What constitutes social and academic integration for White students may not be the same for minority students. Given the charge by the Texas Higher Education Coalition in their report, *The Competitive Edge*, to increase the first year student retention rate by 20%, it behooves the university to develop and implement well-planned retention strategies that address the needs for *all* students (Wright, 1996).

During the freshman year, it is theorized that social relationships may be more important than academic memberships. Much of Tinto's research (1986, 1987, 1993, 1997, 1998) focuses on the fact that an institution's capacity to retain students is directly related to its ability to reach out and make contact with students and integrate them into the social and intellectual fabric of institutional life. It hinges on the establishment of a healthy, caring environment which enables individuals to find a niche in the social and intellectual communities of the institution. Institutions of higher education can no longer allow students to take courses as detached, passive individual units, with faculty that are remote, unapproachable, and regarded as the infinite source of wisdom. Particularly for freshmen, meeting people and making friends are a major preoccupation during the first year. A learning community in the classroom can foster relationships and offer a supportive peer group that can help students balance the many responsibilities they face. Peer groups developed within the classroom also afford the opportunity to bridge the social and academic divide, allowing students to understand and appreciate differences and to have an active, engaged role in constructing their own knowledge. It also allows faculty to work together in teams and to model learning for students through analyzation and syntheses. In his analysis of the Coordinated Study Program at Seattle Central

Community College, Tinto (1997) found support for the basic tenets of learning communities: 1) participation in a collaborative, shared learning experience enabled students to develop a network of support that bonded them to the social community of the college while engaging them in academic life; 2) students were positively influenced by participating in a setting where learning came from a variety of sources and perspectives that added an intellectual richness to their experience; 3) student perceptions of their intellectual gain as well as gains in their GPA's were greater; and 4) it was possible to promote student involvement and achievement in a setting that did not lend itself to student commitment (community college, commuter school, non-traditional population with multiple obligations outside of school).

The completion of the first year of college is a major milestone for students. In 1989-90, 44% of the first-year students at four-year universities failed to complete the first year or did not return for the second year. The students who left were shown to be more likely to have had parents without college degrees, had delayed their entry into college, earned low grades during their first year, and worked more than 35 hours per week while in school (Choy, 2002). By studying persistence from the first to second year of colleges, researchers can better predict student departure and identify steps that could be taken to reduce attrition (Muniz, 1994). [It should be noted that individual institutional retention rates typically understate postsecondary persistence. Retention statistics are generally based on single-institution reports; however, when students who transfer, stop out and return, or graduate from other institutions, the total postsecondary retention rate is considerably higher than the institutional retention rate] (Carey, 2004; Choy, 2002).

The Changing Face of Higher Education

The college students of today are a diverse group. In the past, the traditional college students enrolled immediately after high school, were dependent upon their parents for financial support, and either did not work or worked very little. Today, only 40% of university students fit the traditional profile. Between 1980 and 1994, the largest growth in college enrollment came from students who can best be described as nontraditional: 44% were over twenty-five, 55% were female, 55% were working, and 43% were attending part-time (Levine & Cureton, 1998b). Less than one in six could be described as traditional: between 18-24 years of age, attending college full-time while living on campus. By 2001, over 30% of all college students were minorities; 20% were born outside of the United States or had a foreign-born parent; and 11% spoke another language besides English while growing up (Choy, 2002).

Higher education does not appear to be as central to the lives of today's college student as it did for earlier generations. Students come from diverse backgrounds, wide age ranges, and complex lives, juggling the competing obligations of work and family responsibilities, which often interfere with their college studies. Education is just one of the myriad activities in which students are involved and often more pressing obligations such as family and work overshadow the academic experience. Non-traditional students maintain significant outside roles and responsibilities; their college experience is often characterized by shallow connections with the university and extensive connections with the workplace and home (Richardson & Skinner, 1991; Kerka, 1989). There is an increased need to assist students in balancing the multiple and complex demands of their lives. The "work-family-school conflict" is a real and growing phenomenon that

institutions of higher education must face (Hammer et al., 1998). Additionally, first generation college students, welfare recipients, and children of divorced parents face significant barriers to entering and completing college (Haworth, 1998).

Alexander Astin (1990) suggests that one of the difficulties faced in higher education is a fundamental conflict in institutional values. Basically, he says, most organizations operate upon two sets of values: 1) the explicit, official institutional "mission" printed in catalogs and quoted to the public, and 2) the implicit values upon which we actually operate—those values that underlie major policies and decisions about the allocation of resources, the hiring practices, the admission of students, the establishment of curriculum, the pedagogical choices, the establishment of programs and procedures. As an example, he cites the case of a community college, whose highest priority is on enrolling as many students as possible, with relatively little emphasis on what happens to them once enrolled. Thus, while the explicit value of a community college favors teaching and learning, the implicit value reveals much greater emphasis on keeping enrollments as high as possible. The consequence of such a contradiction is a high drop-out rate, especially among those students least prepared for college. He goes on to propose that when attempting to serve minority students, serious inconsistencies arise out of these two sets of values. As most implicit values remain unstated, it becomes difficult to confront discrepancies between word and deed directly. Given the struggle between "reputation" and "resources," Astin believes that most universities do not address their central mission—that of educating the student, of helping them enhance their scholarly and intellectual development, and making a positive difference in their lives. He proposes that one way to overcome these contradictions is to examine the

institutional identity and identify its true educational mission. Only then can a university address the important issues of the quality of student life and the effectiveness of its educational program. He believes that the ability to serve the needs of minority students will depend heavily upon our values, implicit and explicit.

Higher education has been challenged to play a leadership role in statewide workforce preparedness (Rodriguez & Ruppert, 1996). To increase minority participation in higher education in the 21st century, the focus should be on achievement—not just on the numbers of Hispanic students who enroll but the number who graduate (De Los Santos & Rigual, 1994). The National Task Force on Minority Achievement in Higher Education issued a report in 1990 that recommended two goals: 1) minority enrollment should be at least proportional to the minority population per state; and 2) minority graduation rates should be comparable to other students (Policies for Change, 1990).

Demographics

The 1970 census was the first to include a separate question specifically on Hispanic origin, although it was asked of only a 5% sample of households. Between 1980 and 1990, the population in the U.S. grew to 249 million people, an increase of 9%. In that same decade, the Hispanic population grew by 53%, from 14.6 million to 22.4 million (Hernandez et al., 2001). According to the 1990 Census, Hispanics constituted approximately 9% of the total population. In 1990, the White fertility rate (live births per 1,000 women) was 12.9, which was less than half that of the fertility rate for Hispanics (26.0). By 2000, the Hispanic population numbered 35.3 million (U.S.

Census Bureau, 1993). If the current trends continue, Hispanics will become the United State's largest minority group, increasing by over 257% between 1996-2030 (Murdock et al., 1996). Of the projected total net change in population in Texas, 87% will be due to the increase in minorities. In Texas alone, Hispanics will constitute 53.1% of the population by 2030 (Murdock, 2003). It is interesting to note that the U.S. Hispanic population is highly concentrated in certain regions of the country. Nearly 90% live in 10 states; 43.5% live in the West and 32.8% live in the South. By 2000, 31.1% of California's population and 18.9% of Texas' population were Hispanic (U.S. Census Bureau, 1993). Interestingly, the Hispanic population is also younger that the average population of the United States. While 27.5% of the general population was under 18 in the year 2000, 35% of the Hispanics were under 18. The median age for the entire U.S. was 35.3 years, while for Hispanics, it was 25.9 years (U.S. Census Bureau, 1993).

In 1988, three-fifths of Hispanic students attended school in Texas and California (Wells, 1989). By 2002, half the nation's Hispanics lived in those two states (Schmidt, 2003). During the 1997-1998 school year, minority students made up 55% of the 3.9 million students in Texas public schools, the eighth consecutive year that minorities comprised 50% or more of the public school population. The number of minority students is growing at a rate eight times faster than that of White students. Additionally, of those total students, 48% are classified as economically disadvantaged. Current population projections indicate that the number of Hispanics in this pool will increase from about 13% in 1995 to 20% by 2020 (Sterling, 1998).

In 1976, academia began following a "color-blind" doctrine espoused by the federal administration and began dismantling equal opportunity and affirmative action

programs nationwide, resulting in decreased minority enrollments (Deskins, 1991). In Texas, the number of minority students in higher education has decreased since a 1996 decision—known as the Hopwood ruling—led to the abandonment of affirmative action programs (Suhler, 1999; Applebome, 1997; Lum, 1997). The Center for Demographics and Socioeconomic Research and Education at Texas A&M University examined the effects of Hopwood at Texas public universities. The report concluded that "All things being equal, minority students are as likely to be admitted as Anglos" Of course, the difference is that all things are *not* equal. According to Dr. Steve Murdock, the former director of the center, minority students are much less likely to fall into the categories of high income and academic preparation. He predicts that unless drastic changes are made, it will take at least 80 years for Black and Hispanic students to graduate from college at the same rate as their White peers (Murdock, 1997). Overall, the enrollment of Texas residents in higher education is projected to increase from 738,255 in 1990 to 877,600 in 2005, to 1,110,757 in 2030, a net increase of 9,300 students every year (Murdock et al., 1996).

Cultural Norms and Values

In addition to socio-demographic factors, it is important to consider the cultural norms and values of an Hispanic population. The traditional strength and cohesion of *la familia* is universal. Inherent in the Hispanic culture are cooperation, pride, family and loyalty (Muniz, 1994; Schwartz, 2001). Of greatest importance is the family loyalty, including a strong support system, a hierarchical order among siblings, and an inherent duty to care for family members (Griggs & Dunn, 1996; Schmidt, 2003). Although

individual Hispanics may have very disparate characteristics, Marin & VanOss Marin (1991) found that members of this group share some common cultural and familial values, including:

1. *allocentrism*—collectivism that is associated with personal interdependence, conformity, willingness to sacrifice for the welfare of the group, and high levels of trust within the group (as opposed to the "typical" American values that emphasize competition, individualism, and personal achievement).
2. *simpatia*—the need for behaviors that promote smooth, pleasant social relationships, involving the avoidance of conflict and the emphasis of positive behaviors.
3. *familialism*—the individual's strong identification with and attachment to nuclear and extended families, with strong feelings of loyalty, solidarity, and reciprocity, including the perceived obligation to provide material and emotional support to family members, and the reliance upon family members for help and support. However, it should be noted that there is a delicate balance between familial support and familial pressure.
4. *power distance*—the measure of interpersonal power or influence that exists between two individuals, in which deference and respect are shown to those perceived to be more important, including conformity and obedience to and support of autocratic or authoritarian persons or organizations. Power distance also involves the fear of disagreeing with those in a position of power.

5. *personal space*—the preference for shorter distances between persons, including the feeling of comfort when physically close to others.
6. *time orientation*—the tendency to be present-oriented, including a more flexible attitude towards time and punctuality, as opposed to the "typical" American value of "future-orientation," which emphasizes planning for the future and delaying gratification, as well as punctuality and efficiency. Additionally, present-oriented persons tend to value the quality of interpersonal relationships much more highly than the length of time in which they take place.

Melendez and Petrovich (1989) elaborated on these common cultural expectations and behaviors, noting that Hispanic students view authority figures with much respect, often keeping a respectful distance between themselves and their professors. They may feel that openly disagreeing with or questioning an authority figure is a sign of disrespect, their silence and politeness thereby leading to what professors may interpret as a lack of interest or independent thinking. Additionally, the Hispanic culture promotes tolerance of differences of opinions, thus avoiding debate or questioning. Hispanics tend to take a great deal of time to get to know people and build relationships that involve loyalty and sacrifice for friends and family. Building and maintaining relationships is a source of individual and familial support, cooperation, and trust (Hernandez et al., 2001). Culturally different expectations of these relationships may complicate the task of integration and lead to a sense of isolation for Hispanic students. White students tend to be motivated by external and impersonal rewards such as grades, status, and potential economic benefits, while Hispanic students are motivated

on a more personal level. Also, White students (and professors) tend to be much more task-oriented, dispensing with any exchange of pleasantries or personal information. Hispanic students tend to be more group-oriented and less competitive, seeking the good of the group over individualism and self-sufficiency. Such a strong sense of other-directedness conflicts with the mainstream White emphasis on individuality (Griggs & Dunn, 1996). Competition and individual achievement have been the cornerstones of American education and thus represent considerable cultural hurdles for Hispanic students who have been raised to value group belonging and cooperation. Even in body language, there are significant cultural differences. In the White culture, looking directly at a person when speaking is expected and connotes honesty and assertiveness. In the Hispanic culture, continuous eye contact is regarded as sign of challenge or seduction. Thus one can see the potential for conflict in the classroom between the intent gaze of a White professor (who thinks the student is not paying attention or is uninterested) and the Hispanic student (who may be embarrassed or feel threatened). All of these basic cultural values must be understood and taken into consideration when working with a student population that is largely Hispanic (Melendez & Petrovich, 1989).

Developmental Education

More and more students are entering institutions of higher education under prepared. Beginning in the mid 70's, developmental courses were offered at the majority of four-year universities, including the more selective institutions (Lavin & Hyllegard, 1996). Seventy-five percent of all U.S. colleges now offer some form of remedial education, and 30% of all entering first year students (55% at minority

institutions) enroll in at least one remedial course (Manno, 1995). This incurs a huge remediation cost for taxpayers as well as those who pay to attend college. Many students enter the university under prepared and face academic obstacles that often hinder or prevent them from successfully completing college. Of the faculty surveyed by the Carnegie Foundation in 1989, three-fourths reported that students are seriously under prepared in basic skills and nearly 64% believed that "today's students are ill-suited for academic life" (Dey et al., 1991, p. 3). A study undertaken by the Harvard Graduate School of Education found that 73% of the deans surveyed reported an increase in the number of students requiring developmental courses at two-year colleges (81% of the students) and four-year colleges (64% of the students) (Levine & Cureton, 1998b). A recent study by the U.S. Department of Education found that one in five entering freshmen attending a public four-year institution required at least one remedial course and that they were much less likely to graduate (Carey, 2004).

In 1997, the Texas Legislature capped state funding for developmental courses in universities at 18 semester hours (six courses). In that same year, 90% of TAMUK's entering first year students required developmental courses and 60% of them left the university after two semesters (Sharp, 1998). College entrance exams such as the ACT and SAT are often used to predict the need for remediation in college. Students who score less than 16 on the ACT will require extra help and even those who score up to 19 show minimal readiness for college level courses (McQueen, 1999).

Due to their lack of academic preparedness, many students can be classified as at-risk for successful completion of a college degree. Studies have found that at-risk students who score low on motivation stated that they tend to be in college because it

was expected by their parents, it was better than taking a full-time low-paying job, it gave them a continued socialization opportunity, and it often afforded them the chance to participate in team sports. These low-motivation students were also uninterested in learning, frequently missed classes, and did not have a clear major or career goal (Forster et al., 1999). Students such as these would be best served by a comprehensive assessment and a program designed to help them understand the personal benefits of a college education, as well as a program focused on career exploration and development. It is likely that a large proportion of resources will continue to be spent on the remediation of under prepared students.

Significant changes in higher education in Texas have taken place over the past decade. The fall of 1989 was an eventful one for the state. The 70th Legislature established the Texas Academic Skills Program (TASP) as an early assessment and academic support program for all students entering Texas public institutions of higher education. Students were required to take the TASP test to determine if they have the reading, writing, and mathematics skills, as defined by higher education faculty, to be successful in college. Students found to have academic skill deficiencies in these areas must participate in continuous remediation programs until skill mastery is demonstrated by passing all sections of the TASP test (TASP, 1996). Thus, the fall of 1989 was the first time that students were faced with additional testing and mandatory placement into remediation courses.

The growth in the state of Texas' developmental education programs has been phenomenal. State appropriations for remediation increased an incredible 345% between 1988 and 1998. Yet pass rates on the TASP have declined, from 78% passing

all three sections of the test in 1990, to only 50% passing all sections in 1995, with only 44% of the border students passing all sections (Sharp, 1998).

Factors Impacting Students: Pre-college Characteristics

As students prepare to enter higher education, they bring with them characteristics developed over their lifetime, either through environment or genetics. Some traits, such as ethnicity and gender, are innate. Other characteristics, such as high school GPA and rank, are developed as the student progresses through primary and secondary education. Both sets of characteristics impact the student as he or she heads off to college. Levine and Cureton (1998b) found the generation that entered college in the early 1990's to have strikingly different characteristics than previous generations of college students. In general, this group of students, born in the mid-70's and entering college in record numbers in the 1990's, has grown up in a time of rapid and profound change. They are more uncertain about their future, are less well-prepared academically, are disenchanted with the nation's political and social policies, are more individualistic, and are locally rather than globally focused.

Ethnicity

In 1980, the U.S. Census Bureau reported that there were 14.6 million Hispanics, representing 6.4% of the national population (Orum, 1985). Eighteen years later, in 1998, the Bureau reported that there were 29.7 million Hispanics, representing 11.0% of the population. Immigration and relatively high birth rates will push the number of Hispanic residents to more than 36 million by 2005. In that year, Hispanics will

outnumber Blacks by one-half million, becoming the largest minority group in America (Hispanics to be Largest U.S. Minority, 1998).

Little has been written about the specific problems of minority student access and retention in higher education (Christoffel, 1986). Initial research on college attrition focused on models of drop-outs describing personal, environmental, and social factors. More recent research has focused on successful retention programs and university staffing patterns. It has been found that minority drop-out rates are similar to Whites, after controlling for socio-economic factors, but in reality, many minority students are *not* similar to Whites with regard to socioeconomic factors, and often come to higher education with many problems that predict potential drop-out risk (first generation, low income, poor academic preparation, etc). Kane (1994) found that Black students attending historically Black universities were more likely to graduate from college than Black students attending other universities. This finding suggests that the racial climate on campus may have an important bearing on retention. Given this supposition, one could infer that the retention for Hispanics would be high at TAMUK, given the large number of Hispanic students, but such is not the case.

In 1989-90, minority students constituted 20% of the enrollment in four-year universities (Choy, 2002). A study of Latino students found several factors that were important to college persistence: the role of the family, the influence of peers, mentors, gender, finances, campus climate, and retention programs (Haro et al., 1994). In a comprehensive review of the literature regarding persistence and non-persistence of Hispanic students, (Flores, 1989) found that there were several major influences, including:

- Initial enrollment in two-year colleges
- Lower parental SES
- Lower high school achievement
- Lower scholastic attitude
- Poor secondary school preparation, including lack of college preparatory classes
- Lower academic expectations
- Anxiety over ability to pay for college education
- Family pressures
- Dissatisfaction with living on campus
- Little informal contact with university faculty (p. 145)

To assist Hispanic students who often feel alienated, discouraged, and overwhelmed, institutions need to implement support systems that have been shown to impact retention, including ethnic organizations and cultural service centers (Flores, 1994). Multicultural activities, including organizations and clubs for minority students, can provide social and academic integration and serve as bridges between community and school (Neisler, 1992). University-sponsored, community-based tutoring and mentoring programs have been found to be highly successful in attracting and retaining students (Blandin, 1994). Institutional policies that encourage students to become involved on campus (participation in student organizations, intramural sports, on-campus housing, etc.) can serve as mechanisms by which students become actively involved, and thus socially integrated, into the university (Wyckoff, 1998).

Gender

Until the year 1979, men constituted the majority of students on college campuses. However, since then, their numbers have dropped to just 44% of the undergraduate students nationwide, with Hispanic men enrolling in lower numbers than Hispanic women (Fonda, 2000). Between 1977 and 1997, enrollment for Hispanic males in higher education increased by 152% and for Hispanic females, the increase was a whopping 327% (NCES, 1998). In a study of Hispanic college students, Flores (1989) found that gender issues impacted persistence. Female students faced certain environmental and societal pressures that affected their motivation to stay in school. She found evidence to support the notion that women develop concepts, achievement motivation, and aspirations in keeping with role expectations, rather than in keeping with their abilities. A review of the literature regarding gender and college success found that although women have achieved equality in attendance rates with that of men, their retention and completion rates are lower. Women appear more likely to withdraw for personal or non-academic reasons such as marriage, family, or work-related factors, where men are more likely to depart due to academic reasons (Schwartz, 2001; Tinto, 1987; Vives, 2001).

In the fall of 1990, females accounted for 53.8% of all first-time full-time college students (Dey et al., 1991). However, women belonging to minority groups are grossly under represented in graduation rates from higher education (Cardoza, 1991). Of the 954,000 Hispanic college students in 1992, 55% were female (De Los Santos & Rigual, 1994). Despite some modest gains, Hispanic females still face many obstacles in their pursuit of higher education, including financial constraints, limited family support or

outright opposition, too many hours on the job and too little time to study, and interruptions to attend to family matters (Flores, 1994). Hispanic women show greater difficulty in reconciling the prevailing Hispanic values of family obligations first and the belief in the necessity of acquiring an education (Schwartz, 2001). It has been found that minority women were least likely to persist in college and that Hispanic women have the lowest completion rate of all populations (Chaćon et al., 1986; Muniz, 1994). Many Hispanic females are challenged by poverty, sexual harassment, lack of English skills, peer pressure, teen pregnancy, early marriages, family demands, and the prevailing attitude that Hispanic women should not be "too educated" (Gamboa, 2001; Schwartz, 2001; Vives, 2001). Cardoza (1991) refers to Hispanic women as "triple minorities"—being a woman, being a member of a minority group, and very often being a member of the lowest socioeconomic stratum. The conflict that may arise between the traditional roles of wife and mother and the attainment of a college degree may be even greater, due to the emphasis placed on the family in the Hispanic culture. Hispanic females often find less support at home or in school for high academic achievement (Romo, 1998).

In 1980, the number of Hispanic females 16 and older in the U.S. was 4.9 million; by 1991, that number had risen to 7.2 million (Trejo, 1996). These women represent a sizable new share of workers contributing to the economy. However, studies have found that Hispanic females are less likely to be enrolled in rigorous academic courses in high school and are over-enrolled in vocational tracks (Trejo, 1996). This is reflected in the college completion rates for Hispanic women; only 6.9% complete a college education, compared to 17.6% for White females (Trejo, 1996). Additionally, these women are over-represented in low-paying jobs which often do not provide health

benefits. Thus is created a spiral of low wages, less access to health services and therefore, less medical attention, and further sinking into poverty levels. Hispanic females lag behind every other ethnic group on most economic and educational measures of success (Schwartz, 2001).

In their book *The Maria Paradox: How Latinas Can Merge Old World Tradition with New World Self-Esteem*, Gil and Vasquez (1996) discuss the phenomena of *mariamismo* in the Hispanic culture—the ideal that women are to strive to become the perfect wife and mother, often at the expense of their own education. *Mariamismo* conditions women to be submissive, passive, and subordinate in their relationships—hardly the characteristics that encourage self-development and promote persistence through higher education. Past studies have shown that the number of hours spent on domestic labor (child care, cooking, cleaning) had a sharply negative impact on the completion of college for Hispanic women; Hispanic females who choose to delay marriage and childbearing have a greater chance of persisting in college (Chaćon et al., 1986). Females put in more hours of domestic labor, which in turn reduced the amount of time they had to spend on their studies. Hispanic parents often send messages to their daughters to develop their skills around the home; education is important but is secondary to becoming a mother (Gil & Vasquez, 1996). Many women in the Hispanic culture feel torn and trapped by these cultural conditions. In a 1977 study, female Hispanic students reported consistently higher stress levels than male Hispanic students and also reported significantly less parental support for their college attendance (Chaćon et al., 1986). Cardoza (1991), in her study of 1200 Hispanic females drawn from the *High School & Beyond* longitudinal survey, found that educational aspirations were the

most important factor on college persistence for these women. Additionally, it appears that having a role model for young Hispanic women is of great importance (Cardoza, 1991; Schwartz, 2001). Other studies have shown that female college students of *all* ethnic backgrounds tend to have lower educational aspirations than males, and although they tend to perform at higher academic levels than men while in college, they are less likely to persist in college (Astin, 1977). Since a college education is a prerequisite to social and financial mobility for women, is it important to examine the support and positive reinforcement given to Hispanic females. It is equally important to devote more attention, particularly during the high school years, to preparing young women for college and encouraging them to engage in more college preparatory activities, and to support their departure from traditional female roles.

In the Hispanic culture, the oldest son is often expected to forgo higher education and assume his obligation to work in support of his family (Rendon & Valadez, 1993). In many inner-city and working class neighborhoods, becoming an "adult" is often linked to getting a job and earning an income after high school, rather than pursuing higher education (Richardson & Skinner, 1991). Male Hispanic adolescents often drop out of school to bring a much-needed paycheck into the household (Schwartz, 2001). Additionally, while over 80% of the Hispanic males of working age are in the labor force, low wages and seasonal employment often relegate them to the ranks of the poor. This poverty is persistent and increasing, due to low levels of education (Hernandez et al., 2001). Given these cultural influences, it is important to consider the impact of gender upon Hispanic male students as well as Hispanic female students.

Age

In a review of the literature on student attrition and retention, age did not appear to affect persistence in college. Both Tinto (1987) and Astin (1977) reported that older students tended to make better grades and were more committed to their educational goals, despite more external commitments. Chaćon et al. (1986) found that older students were more likely to come from lower SES backgrounds and were more likely to report difficulty with their academic work. Additionally, these older students tended to have many more fixed obligations in terms of work responsibilities and domestic duties. However, these differences have not been fully explored, nor have differences between the ages of male and female undergraduate been examined.

More than half of the Hispanics currently enrolled in college are over the age of 25 and require educational services that integrate schooling with family and work responsibilities (Smolkin, 1999). Adult students face many factors that impact college persistence, among them role conflict, time management, family and work problems, economics, and logistics (Kerka, 1989). It has been suggested in other research that adult students would benefit from a three-stage intervention program: 1) Moving In—through an entry Education Center that coordinates the full range of services and programs available; 2) Moving Through—an adult learning support center; and 3) Moving On—culminating programs that assist with evaluation of career and life plans, assistance with exit procedures, and referral to transition groups (Kerka, 1989).

Marital Status

Flores (1992) found no difference between persisters and non-persisters with regard to marital status, as most first year students were single. However, Chaćon et al. (1986), found a strong relationship between being married, having children, and putting in many hours of domestic labor, thus detracting from time spent on studies, and ultimately, resulting in an increased chance of academic failure.

Socio-Economic Status

There appears to be little agreement in the literature on the significance of socioeconomic factors such as income level and parental educational attainment on rates of persistence and non-persistence. Mediating variables, such as motivation and ability, appear to operate in differential relationships between a student's socioeconomic status and persistence (Flores, 1989). However, a recent study that tracked 25,000 teenagers over six years found that—more than race, ethnicity, sex, or test scores—family income was the major factor that determined expectations and future education of the teens (Honan, 1996). The study, conducted by the University of Chicago, found that 48% of those in the lowest income group attended two-year community colleges and only 37% attended four-year institutions. A longitudinal study found that only 7% of all low income students obtain a bachelor's degree by age 26 (Carey, 2004). Nielsen (1986) reported that the two major determinants of educational expectations were ability and the socioeconomic status of the family. On the other hand, a review of the research by Santos (1986) found that family income was the least important influence on college attendance. Flores (1992) found significant differences between non-persisters, who

reported parental incomes under $20,000, and persisters, who reported parental incomes between $20,000 and $25,000.

The poverty rate for Hispanics is high; they continue to lag behind other ethnic groups in income (Hernandez et al., 2001; Wells, 1989). The desperate poverty facing many Hispanic youth puts pressure on them to drop out of school and find a job; indeed, supporting the family and contributing to its welfare is one of the most pressing cultural values. This need to support the family often takes precedence over the desire to attend college. Additionally, the ability of minority students to be able to afford a college education declines as college costs rise and availability of financial aid declines (Solmon & Wingard, 1991). Many of these students cannot afford the luxury of attending school and deferring an income-generating job when their parents and siblings live in poverty. Valdivieso and Davis (1988) report that fewer Hispanic families have the earning power afforded by two working parents. Married couple families account for only 70% of all Hispanic families, compared to 80% of non-Hispanic families, and nearly 25% are headed by a single female, compared to 16% of non-Hispanics. The poverty rate of Hispanic married-couple families was 18.5% in 1992, which was up by 6% from 1979. The poverty rate among Hispanic female head-of-households has reached almost 50% (Hernandez et al., 2001). Lower family incomes and larger numbers of persons per household are two of the many factors that hinder Hispanic participation in higher education (De Los Santos & Rigual, 1994). And although Hispanics participate in the labor force in large numbers, they are often relegated to low-wage jobs with few opportunities for upward mobility, thus perpetuating the cycle of poverty (Hernandez et al., 2001).

In the state of Texas in 1990, 47% of the households had incomes below $25,000; that is projected to increase to over 53% by 2030. Additionally, 16.2% of those households were ranked below the poverty level; that is expected to increase by 165% in 2005 (Murdock, 2003). In 1999, Texas ranked 33rd in the nation in per capita income, at $19,617, and ranked 30th in the nation in median household income, at $39,927. Median income for Whites was $47,162, for Hispanics, $29,873, and for Blacks, $29,305. Over 52% of all households in the Corpus Christi region have an income less than $35,000. In 2000, 14.4% of all households in Texas lived below the poverty level; that is projected to increase to 16.6% by 2040 (Murdock, 2003).

In 1990, the per capita income in the 43-county border region of Texas was $15,570, compared to the state average of $20,162 (Sharp, 1998). In Lower South Texas, the per capita income was just $13,200—almost 40% less than the state average. Families of approximately 60% of high school drop-outs have incomes below $15,000; 40% of Hispanic children—and 72% of Hispanic single females raising children—live in poverty (Valdivieso & Davis, 1988). Statewide, in 1990, 47% of all Texas households had incomes below $25,000; that is expected to increase to 53.7% by 2030 (Murdock et al., 1996). Nationwide, 28% of Hispanic families live below the poverty level, compared with 7% for Whites (Goldberg, 1997). In Texas, the 16.2% of households that lived in poverty in 1990 is expected to increase to 19.6% by 2030 (Murdock et al., 1996). Nearly 15% of all Hispanic households have 6 or more persons, compared to 3.4% for non-Hispanic households (U.S. Census Bureau, 1993). The unemployment rate for the border regions ranges from 5.8% in Corpus Christi, to 8.9% in El Paso, 11.1% in Brownsville-Harlingen, and 14.8% in McAllen-Edinburg-Mission (Unemployment

Rates in the Coastal Bend, 1998). Historically, border college students study close to home; nearly three out of four students enroll in universities close to home (Sharp, 1998). Given this economic and geographic propensity, TAMUK will almost certainly have a high proportion of students from a lower socio-economic status.

Parental Education Level—First Generation

Research indicate that a student's likelihood of attending a four year college increases with the level of the parent's education. A majority of national studies have found that both parental education level and family income strongly influence the decision to attend college. However, Flores (1992) found no significant difference regarding parental educational attainment and persisters or non-persisters in college. On the other hand, Bowen (1977) found that parental education was a better predictor of college attendance than parental income. First generation students, whose parents have no education beyond high school, have been found to be twice as likely to leave college before their second year compared to students with at least one college-educated parent (Choy, 2002). Another study conducted by the NCES found that students whose parents had a high school diploma but no college degree were almost twice as likely to drop out of college as students whose parents had a college degree (Reisberg, 1999). Even with one parent who completed a college education, students were much more likely to report high educational expectations at an earlier age and the appropriate high school coursework as preparation for higher education. In 1992, one-third of all the high school graduates had one or more parents who had earned a college degree; of these students, 93% were enrolled in higher education within two years of high school graduation, most

often at a four-year institution. Of the students whose parents did not go beyond high school, only 59% were enrolled in higher education and over half of these students were enrolled in community colleges. Additionally, if parents possess a college education, they are much better prepared to assist their students along the path to college and are much more active participants in the process (Choy, 2002; Lavin & Hyllegard, 1996; Reisberg, 1999).

Even by the year 2000, the educational statistics in Texas remained alarming. Texas ranked 45th in the nation for the percent of its population age 25 and over that had graduated from high school and 27th in the percentage of college graduates age 25 or older. Ninety percent of the Hispanic population over 25 years of age in Texas had less than a college education; 52% had less than a high school education, while 22% had completed high school, 18% had some college, and only 10% had obtained a college degree. In the Coastal Bend region, the educational attainment rates remain dismal. Of the total population in this area, 28% of the adults over age 25 did not complete high school. Almost 25% completed high school and an additional 22.3% had attended college but did not graduate. Only 5% had obtained an associate's degree, while 15.6% had obtained a bachelor's degree and 7.6% had completed an advanced degree (Murdock, 2003).

White college students tend to have parents with more education than Hispanics, including more years in college and higher high school completion rates (Duran, 1986). It's not that Hispanic parents do not value higher education; one study found that nine out of ten Hispanic parents expect their children to attend college. However, Hispanic students are much less likely to have parents who attended college. Of the Hispanic

freshmen at four-year institutions, more than two out of five are first-generation, compared to one out of five White freshmen (Schmidt, 2003). Valdivieso and Davis (1988) noted that Hispanic parents in the 25-34 age group were over three times more likely to have not completed high school as non-Hispanics, and only 12% had completed four or more years of college. Interestingly, a 1994 study at the University of Texas concluded that Mexican-Americans whose families had lived in the United States for three generations or more received slightly less schooling than did their parents (Goldberg, 1997).

Low educational attainment of the parents, along with lack of access to education, have been cited as reasons for continued high drop-out rates of Hispanics (Hispanic Drop-out Rates Remain High, 1997). A majority of national studies indicates a strong positive relationship between the education of the parents and the measured intelligence, academic achievement, and extracurricular participation of students in college.

Hispanic people are the least educated group of people in the United States. In 1989, a 25-34 year old Hispanic was almost five times as likely not to have completed high school, and only 6% of this group had completed four or more years of college (Valdivieso, 1990; Orum, 1985). Six years later, in 1995, more than one-half the Hispanic drop-outs reported having less than a 10^{th} grade education (Hispanic Drop-out Rates Remain High, 1997). These are the parents of the next generation of Hispanic students. This is the age group most likely to have school age children and if they have had a poor experience in education themselves, that may be reflected in how they raise their children. Hispanic families may be less well equipped to support their children's

academic goals, given the short-term economic needs of an immediate paycheck versus the long-term goal of a college education (Schwartz, 2001). Often, particularly for Hispanic females, the parents expect students to live at home, commute to the local community college, and help out around the home on evenings and weekends (Reisberg, 1999).

First generation college students face many barriers because they know little about admissions and financial aid procedures, have little support from their families, and are often poorly prepared (Haworth, 1998). Other studies found that first generation students who actually enroll in college are less likely than children of college graduates to complete their degree, often due to lack of support from significant others, lower parental income, lack of other siblings in college, lower high school grades and test scores, and less frequent enrollment in college preparatory courses in high school. Additionally, first generation students were more likely to choose public, non-selective, and two year institutions, and were less likely to live on campus. It appears that students who have family members that have a college education may serve as role models and encourage college attendance. First generation students were found to be less skilled academically than peers whose parents went to college. They showed less skill in math, reading, and critical thinking at the beginning of their college career and showed less improvement than their peers during the first year of college. Additionally, they were more likely to have family and work obligations, enrolled in fewer hours, devoted less time to their studies, and reported less encouragement and support from their family and friends. Those same students were predominantly female and Hispanic (Brown & Burkhardt, 1999; Nunez, 1998; Terenzini, et al., 1996). Flores (1989) found that there

was a significant relationship in persistence of students whose fathers encouraged them to do well and whose mothers continually checked school progress. It has been found that Hispanic mothers, who exert powerful influence over their daughters' education and career choices, may not even talk with them about pursuing higher education, due to their own low educational attainment and socioeconomic status (Romo, 1998). It appears that the interest and expectations that parents have for their children may bear a higher relationship to college attendance and may be the most influential characteristic of the family that will facilitate the student's completion of college (Flores, 1989).

The First Generation Student Success Program at University of La Verne (California) has shown remarkable success—of participants in its program, 86% enrolled the following year (compared to 75% of all freshmen) (Reisberg, 1999). The first generation program stresses parental involvement and provides each student with a mentor. Workshops designed to teach students and their families about the college admissions process, costs, financial aid, degree requirements and career opportunities, are offered in Spanish, with the hopes of motivating the students to persist and helping their parents understand and come to terms with the decision to pursue higher education. Considering the demographic realities and geographic propensity of students, TAMUK could benefit from similar programs aimed at first generation students.

Primary Language in the Home

Many of the educational problems that Hispanic students face begin in their childhood, when they may receive little exposure to the English language (Schmidt, 2003). Duran (1986) found that one of the most critical barriers to academic success is

language. He suggests that limited English ability in academic settings may be manifested in lack of familiarity with vocabulary, reading skills, writing skills, and oral comprehension and speaking skills. Additionally, students who reported that English was not their first language earned lower college admissions test scores. According to The Center for U.S. Mexican Studies (Goldberg, 1997), limited English proficiency is the single most important obstacle to upward mobility among Mexican immigrants. Between 1982-1992, the proportion of students entering higher education from second-language backgrounds more than doubled (Adelman, 2004). Without a command of English, it is difficult to survive, much less thrive, in the American culture. Language problems have been found to be associated with failure to complete high school (Hispanic Drop-out Rates Remain High, 1997). A Rand Corporation study found that Hispanic immigrants come to America speaking less English than their Asian or European counterparts (Goldberg, 1997). Marin & VanOss Marin (1991) found that 63% of the Hispanic population in the U.S. speak Spanish at home, and 25% speak little or no English. In contrast, a study by Nielsen and Lerner (as cited in Nielsen, 1986) found that English proficiency had no effect on student educational expectations; however, the extent to which a student knew Spanish and used it in the home had a substantial positive effect. Muniz (1994) also found that bilingualism had a positive effect on aspirations and educational achievement.

HS GPA and Class Rank

The prediction of academic performance in college has often been based on high school grade average (commonly called HSGPA) and class rank. Historically, high

school GPA alone has been found to be the best overall predictor of college GPA (Astin, 1990, Chissom & Lanier, 1975; Larson & Scontrino, 1976; Neal, 2002). However, Tinto (1987) found that high school grades accounted for only about 12% of the variance in staying or leaving; 88% of the variance was left unaccounted for. Much of the past research that concentrated on predicting college students' college grades from high school grades and admission test scores is mixed and inconclusive. Duran (1986) suggests that the bulk of current research shows that high school grades and admissions test scores do not do as good a job in predicting Hispanic's college grades as they do for non-minority students. High school GPA and rank represent a cumulative and stable character; they reflect a history of academic achievement rather than a one-shot evaluation. However, high school grades have inherent limitations, as do admission test scores. They are incapable of indicating whether student performance has been moderated by the quality of education received and the opportunity to learn in a classroom setting. Brown et al. (1980) found that a significant number of Hispanic and White students reported that "money worries," "family obligations," "poor place to study," and "parental disinterest" were impediments to high school work, but Hispanic students were 15-20% more likely than Whites to respond that these factors were serious detriments. Lower high school GPA's imply that Hispanic students are less likely to meet college admission standards (Duran, 1986). In a study of educationally under prepared Black students in an urban community college, it was found that high school average did not consistently predict academic success (Carroll, 1988). In a study of a commuter-type university, White and Moseley (1995) found that the best predictor of success (graduation from college within four or five years) was the number of academic

courses taken in high school and the GPA of those classes. High school class rank was found to be the second best predictor, while the total high school GPA was the third best predictor. However, the literature is inconclusive regarding class rank; although it appears to be related to the prediction of college GPA, as a measure of persistence, the relationship is less clear and warrants further investigation.

High School Drop-out Rate/College Entrance Rates

The post-war baby boom (1946-1964) led to an unprecedented increase in the number of young people of college age. However, in the late 1950s, the birth rate began to decline, and as a result, the growth in the number of 17 and 18 year olds ceased and remained somewhat constant until 1982, when it began to decline sharply (Solmon & Wingard, 1991). During the post-baby boom period, although there were overall decreasing birthrates, minority birthrates and immigrant birthrates increased. Thus, we saw an increasing number of minority students at all levels of schooling. Yet high school completion patterns do not reflect population trends; there are dramatic differences in high school completion rates according to race and ethnicity. Between 1990 and 2000, 347,000 to 544,000 10^{th}-through 12^{th}-grade students left high school every year (NCES, 2002). The high school completion rate for Blacks is near 76% but for Hispanics, it is only 59%. More strikingly, the rate of high school completion for Hispanic males has risen by only 1% over the past twenty years, while it has increased from 57% to 65% for Hispanic females (ACE News, 2003). Compounding the problem is the fact that Hispanic students are held back at least one grade at the rate of 13%,

compared to 9% for Whites, and 18% for Blacks. The high school expulsion rate for Hispanics is 20%, compared to 15% for Whites and 35% for Blacks (NCES, 2003).

In 1990, Hispanics had a 32.4% high school drop-out rate, as compared to 9% for Whites, and 13.2% for Blacks (U.S. Census Bureau, 1993). In 1992, the national high school completion rate for Hispanics was only 57.3% (De Los Santos & Rigual, 1994). By 2000, the high school drop-out rate for Hispanics was 28%, compared to 7% for Whites and 13% for Blacks (NCES, 2003). Richardson and Bender (1987) have referred to this as the "pipeline problem"—the large number of minority students who drop out of high school makes it difficult to track them into higher education. The percentage of minority high school graduates is lower than that of Whites, and therefore, the progression rates for minorities into college is lower (Solmon & Wingard, 1991; Altbach, 1991; Olivas, 1986b, Santos, 1986). By 2000, of all Hispanics, ages 18-24, only 64% have completed high school, compared to 92% of Whites and 84% of blacks (NCES, 2003). The extremely high drop-out rates of minorities, coupled with very low post-secondary participation rates, indicate that the fastest growing segment of the population will also be the fastest growing pool of unskilled and low-skilled labor (Hernandez et al., 2001).

It is well documented that Hispanics have the highest high school drop-out rate of any ethnic group in America (Bennett & Okinawa, 1990; Blandin, 1994; Haro et al., 1994; Wells, 1989). In 1974, the high school completion rate for Hispanics was 48.9%; by 1985, it had increased to only 49.8% (Solmon & Wingard, 1991). In 1986, the drop-out rate for Hispanics was 33-50%, and half of those drop-outs did not finish the ninth grade (Sosa, 1990). In 1990, the high school drop-out rate in Texas was 12.5%; only

22.1% of the population over age 25 had a college degree (Sharp, 1997). By 2001, the high school drop-out rate in Texas had risen to 13%—one of the highest rates in the United States (Vives, 2001). While White and Black students are graduating from high school in increasing numbers, there is a continued high drop-out rate of 30% for Hispanics, a rate that has held steady for over 20 years (Hispanic Drop-out Rates Remain High, 1997; Latino Drop-out Rate . . . , 1997; NCES, 2002; Office of Educational Research and Improvement [OERI], 1996). By 2000, Hispanics, ages 16-24, had a total drop-out rate of 27.8%; first-generation Hispanics had a rate of 14.6%; second generation had a rate of 15.9%, and Hispanics born outside of the United States had a drop-out rate of 44.2% (NCES, 2002). Additionally, Hispanic females leave high school at much higher rates than any other group (Gamboa, 2001; Vives, 2001).

College Aspiration and Preparation

The least educated ethnic group in America is the Hispanic population. Only 11% of all Hispanic adults over the age of 25 have obtained a bachelor's degree, compared with 27% of Whites, 17% of Blacks, and 47% of Asians (Schmidt, 2003). An Educational Testing Services study found that only 55% of Hispanic eighth-graders expect to earn a college degree, as compared to 68% of Whites and 64% of Blacks (Smolkin, 1999). Much of the under representation of Hispanics in higher education can be attributed to their preparation in elementary and middle schools and the lack of a curricula that would prepare them for rigorous academic work in college. One factor that has been found to be significant is the tracking into college preparatory courses versus occupational courses. By choosing college preparatory curricula in high school,

minority students can more fully realize the value of higher education and can increase their freedom of job and career choices, and ultimately, their chance of upward economic mobility (Ballesteros, 1986).

The kinds of courses that students take in high school have been shown to have strong effect on whether or not they pursue higher education. Hispanic students are much less likely to have taken the college preparatory courses in high school, and in fact, on average, by the age of 17, Hispanic students have been found to have the same math and reading skills as White 13-year-olds (Schmidt, 2003). Studies have shown that students who enroll in a high school curriculum that involves rigorous mathematics courses are much more likely to attend college. Additionally, it has been found that taking challenging math classes in high school can mitigate the effect of parental educational level (Choy, 2002). Limiting the number of hours worked while in high school also facilitates enrollment in higher education. Minority and low income students are much more likely to have been educated in under-funded, poorly staffed public schools that expect little and offer even less (Carey, 2004).

National studies of achievement tests indicate that Hispanic students' educational achievement begins to fall behind that of White students during elementary school and this gap continues to grow during the high school years. A 1999 study by the Educational Testing Service and the Hispanic Association of Colleges and Universities found that only 55% of Hispanic 8th graders expect to obtain a college degree, compared with 68% for Whites, 64% for Blacks and 72% for Asians. Other data cited imply that Hispanic students are more likely to be under prepared in language arts, mathematics, and science and are often tracked into non-academic coursework that does not provide

preparation for college (Duran, 1994). In Texas, Hispanics, especially females, are often enrolled in vocational tracks that offer little or no career or income potential. They are often tracked into non-college preparatory courses in high schools and are often not encouraged to pursue non-traditional fields (Romo, 1998).

Hispanic students' often limited involvement in the educational mainstream leads to less preparation for college. Many Hispanic students attend schools in districts with low per-pupil expenditures, high pupil-teacher rations, and limited resources and thus are poorly prepared for the rigors of college level work (Schmidt, 2003; Wells, 1989). In the state of Texas, public school funding has historically been based upon property tax. The state's richest and poorest districts have a gap of over $600 per pupil spending ($24,000 per classroom of 20) (Cortez & Romero, 1997). Efforts to equalize funding have been proposed for over 70 years, yet huge discrepancies still exist between the rich school districts and the poor districts. In 1987, Texas' school finance plan was held to be unconstitutional, denying children in poor districts equal protection and failing to provide an "efficient" educational system as required by the state constitution. The decision was reversed by the Appeals Court, but ultimately, that decision was reversed by the Texas Supreme Court which reaffirmed that the state's school funding system was unconstitutional and held for adequate state support for all schools (Walker, 1990). Although a variety of funding formulas have been attempted over the past decade, there continues to be a great deal of controversy and inequity. Due to the vast differences in property values, the richest school district in the state had over $14,000,000 of assessed valuation per child, while the poorest district has $20,000. In the 100 wealthiest districts, property wealth is 20 times greater than in the 100 poorest districts (Ascher,

1993). Because Texas A&M University-Kingsville draws its students from a 13-county area in South Texas, the vast majority of its students come from public schools which are historically under funded and provide only minimal educational opportunities.

Ortiz (1986) verifies that Hispanic students are disadvantaged in many ways, but particularly in regard to educational attainment, as they are more likely to be delayed in school and drop out more frequently. In her review of literature regarding sociological factors that influence educational attainment, she found that family background had a sizeable impact on educational attainment since the family is the primary source of achievement values, economic resources, and information about careers and work. Her own studies found that first generation immigrants had considerably fewer years' education in comparison to second and later generations and that second generations were shown to have acquired more years of schooling than subsequent generations. Additionally, because family needs take precedence over individual needs in the Hispanic culture, a student may be expected to contribute to the financial support of the family, perform a substantial amount of work at home, and provide moral support. This interference may have a negative impact upon a student's social and academic integration because it reduces the time the student may have to spend on campus, to interact with faculty and peers, and to take advantage of support programs and social activities. Many Hispanic parents may not be able to fully support their children because of socioeconomic factors, their own lack of education, or their lack of understanding of what it takes to succeed in college (Muniz, 1994). There is also a growing body of evidence that suggests that some minority students may come from cultures that devalue academic accomplishments (Griffin, 2002). Many times, these students exhibit

"disidentification" from academics, and often resist schooling and academic success because they represent the dominant White cultural values.

Sosa (1990) found that colleges and universities met with success when they extended outreach efforts to include community-based activities that focused upon actively recruiting students at an early age, provided direct personal attention, focused on enrichment (and not deficits), provided role models, and facilitated the educational process. Programs that target feeder high schools to identify potential college entrants and provide them with relevant information and contact can help close the gap between students' expectations of college and what it really is (Christoffel, 1986). Duran (1994) recommends that a necessary component in Hispanic student success is strong connections between schools, homes, and communities. Strengthening parental and community participation in the educational process through outreach, transitional, and bridge programs, appear to make meaningful connections to everyday life and the welfare of the students. Other proven strategies include pre-enrollment programs, summer orientation sessions, tutorials and academic enrichment activities, and student outreach programs (Western Interstate Commission for Higher Education [WICHE], 1987). Neisler (1992) found that many universities are taking a proactive approach and investing in students early through collaborative programs with middle and secondary schools. In order to increase the numbers of students who are prepared for and interested in higher education, such programs focus on skills enhancement, enrichment activities, exposure to educational opportunities, and mentoring. Additionally, summer bridge programs for secondary students which focused upon easing the transition from

high school to college and provided remediation and academic enhancement were found to be successful in recruiting and retaining students.

Hispanics and higher education leaders can accomplish more. Higher education needs to develop and expand programs that bring high school students into the university environment and provide necessary support services, including orientation programs and first generation programs.

A much more active role with the public schools must be taken in order to increase minority students' understanding of college requirements and participation in courses that would facilitate their transition to and persistence in higher education. Unless the quality of public education is improved, minority participation and persistence will remain low because students will not be adequately prepared for college (Peng & Korb, 1991).

Institutions committed to educational quality for all students provide integrated and comprehensive support services, including intrusive advising, collaborative study groups, and faculty mentoring (Richardson & De Los Santos, 1988). Comprehensive and ongoing counseling and advising for freshmen to integrate them into the college environment appears to be very important for student success in higher education. Nettles (1991) found that White students are better integrated academically, have higher college admission exam scores, and have higher high school grades, all of which contribute favorably to college success. Minority students were found to have lower academic integration, significantly greater financial need, lower college entrance exam scores, more interfering problems, and lower high school grades, all of which negatively impact their college performance. Initial findings from universities that have

implemented pre-college, summer bridge, and special orientation programs designed to increase academic skills and foster social integration are showing signs of success (Newman, 1994). Research has also found that college grades are an important factor in persistence. Good grades indicate the student's positive interaction with the academic system; thus higher grades reflect the degree of academic integration and increases the likelihood that students will persist (Muniz, 1994).

College Entrance Exam Scores

The American College Test (ACT) and the Scholastic Assessment Test (SAT) have been used by colleges and universities for more than thirty years as objective measures of the ability of graduating high school students to perform academic work at the college level (Carr, 1999). Because the prime purpose of the ACT is to predict college success, the relationship between ACT scores and high school GPA and college GPA has often been regarded as very important in validating (or repudiating) what has been accomplished in high school. In 1989, a major change in organization and test item selection of the ACT was conducted to eliminate racial, cultural, and gender bias in the test. ACT scores can range from 1-36. Any score below a 7 is considered to be in the 1st percentile; 99% of all the test-takers score better. Similarly, a score of 31 is considered to be in the 99th percentile, meaning that at most, only 1% of the test-takers will score higher. According to Bontekoe (1992), a student who scores 31 or above can expect to be admitted to any number of highly prestigious institutions. Student with a score of 28 or better most likely will be accepted into all but the most elite institutions. Students with a 19 or better are guaranteed entry into almost any standard liberal arts institution,

while students with 18 or less may have to "settle" for a less competitive state institution or a community college (Table 1). A score below 19 is regarded as indicating minimal readiness for college-level coursework (NCES, 2003).

Table 1
Mean ACT Composite Score by Ethnicity, 1990

	Hispanic	White	Black	Other	Average
Texas	17.9	21.0	17.1	-	19.8
Nation	18.3	21.2	17.0	18.0	20.6

Note: Data taken from ACT Assessment Results, 1990 Summary Report

The abbreviation, SAT, originally stood for "Scholastic Aptitude Test" but was changed to "Scholastic Assessment Test," and in fact, the abbreviation SAT itself is now the official name. It is designed to measure what students have accomplished—what they have learned in school and on their own. In 1991, only one-quarter of all the SAT-takers were minority students; that rose by 9%, to one-third of all test-takers in 2001 (NCES, 2003). Structured so that the average score on each section of the test is 800 (maximum score: 1600, combined verbal and quantitative scores), students who score higher tend to do well in school and students who score lower tend to perform less well. Also designed to predict success for first-year students, it has been argued that the SAT is not a valid measure for college success (Marx, 2002). Rather than heavily weight the scores for college admissions, they should be viewed as, "On the day of the test, this is what a student's reading and reasoning abilities were. Those abilities have been learned over the course of years of reading and education and usually do, in certain ways, suggest how successful a student will be at performing college-level work" (Table 2) (Marx, 2002, p. B11). However, it is argued that although high school grades are often

the most accurate predictor of first year college performance, when used with the SAT score, there is a significant increase in the prediction of college grades (Kobrin & Milewski, 2002).

Table 2
Mean SAT Scores by Ethnicity, 1990-91

	Hispanic	White	Black	Other	Average
Verbal	458	518	427	486	499
Math	462	513	419	492	500

Note: Data taken from College Entrance Examination Board, National Report on College-Bound Seniors, August 2001.

Almost all four-year institutions rely heavily upon high school grades, rank, and admissions test scores as evidence of preparation for the academic demands of college (Duran, 1986; Noble & Sawyer, 2001; Rodriguez, 1996). Astin (1977) reported that college admissions tests are the second most potent predictors of college GPA and persistence. These tests provide numerical measures and thus embody objective, qualitative characteristics that can be interpreted in the same manner by different people. However, achievement scores result from an isolated encounter with a test and alone do not provide any indication of the quality of education or learning opportunities. Indeed, as Pascarella & Terenzini (1980) pointed out, ACT scores are designed to be general measures of educational development in the subject areas of English, math, social sciences, and the natural sciences. A study done in 1984 indicated that Hispanic test-takers were almost 15% less likely than white test-takers to have been enrolled in college-preparatory programs in high school. Almost 80% of Whites had such a background, versus 65-67% of Hispanics. Duran (1986), in a review of literature focusing on college admissions tests, found that Hispanic students were much less likely

to have been enrolled in college preparatory classes prior to taking the tests than White test-takers, thus affording an explanation of lower test scores. However, between 1990 and 1999, ACT data found that the proportion of all high school students who reported having taken a curriculum of four years of English and three years of science, math and social sciences, increased from 48% to 63% (McQueen, 1999). Other factors, such as limited exposure to English and mathematics courses and English as a second language, may contribute to lower admissions test scores of minority students (Duran, 1986). On average, Hispanic students score 9-11% lower than White students on college entrance exams (Schmidt, 2003). ACT scores have remained constant since 1997 with an average score of 21; the average score in 1989 was 20.6. The gap among White students and minority students (with the exception of Asian-American students, who averaged 21.7) still persists; White students scored an average of 21.7, while Hispanic students scored 18.9, and Black students scored 17.1. Interestingly, the gap between men and women test takers has narrowed. In 1990, men scored an average of 21.0 and women scored an average of 20.3. By 1999, that difference had decreased to 21.1 for men and had risen to 20.9 for women (Carr, 1999). For the period of 1969-1992, SAT scores show that Hispanic test-takers scored well below White test-takers, consistent with the evidence cited on weaker academic preparation of Hispanics for college (Duran, 1994).

The correlation between high school GPA and college GPA was found to be even higher than that between ACT scores and college GPA; thus, high school GPA may be a more reliable predictor of college success than ACT composite scores. However, in his review of several studies from other institutions on the correlation of ACT scores as predictors of success in college, Bontekoe (1992) concludes that much of the research on

the use of the ACT is not very supportive. In many cases, there was no appreciable correlation with academic performance in college. None of the research he reviewed clearly and definitively identified nor defined what particular ACT score was most likely to produce a corresponding college GPA. In fact, it was concluded that students from high schools where education is of poor quality and where family educational values are limited are far more likely to obtain test scores in the low teens, regardless of natural ability (Bontekoe, 1992). Pursel (1989), in a small study of students at a comprehensive Midwestern university, found that both the ACT and high school class rank were statistically significant predictors of performance for regular admission students, but were not significant predictors for students who were admitted conditionally, thus confirming the indeterminate nature of the scores. White and Moseley (1995) found that SAT scores were the fourth best predictor of successful graduation at a commuter university. In his study of first year students at Trinity Christian College, Bontekoe (1992) found a distinct relationship between ACT success and success in college.

In summary, the literature review appears somewhat inconclusive as to the importance of college admissions tests scores in predicting success in college. As cited in Flores (1989), several studies did not find a significant difference in test scores between persisters and non-persisters, whereas other studies showed a significant relationship between college GPA and patterns of persistence or withdrawal.

Factors Influencing Students: In-College Characteristics

Other than getting married or forming a stable, partnering relationship, or having children, few choices have a more profound effect upon one's life than the decision

about college. For most students, this involves three questions: 1) whether or not to attend, 2) where to attend, and 3) how to attend (Astin, 1993). In particular, Hispanic education issues regarding access, application, acceptance, and persistence have not been examined sufficiently (Olivas, 1986b). For traditional college-bound students, attendance is a given fact; the issues of where to attend and how to succeed are paramount. For minority students, many of whom have received marginal public education and whose financial status is tenuous, the primary consideration is whether or not to attend.

Enrollment in Higher Education

In 1904, only 4% of the country's 18 year olds attended college; by 1997, 65% of all high school graduates went on to some type of higher education institution (Levine & Cureton, 1998a). Research on the numbers of Hispanics attending higher education varies. From 1976 to 1995, minority enrollment increased from 17% to 26%, primarily because of the increase in Hispanics (8% of total enrollment) and Asian/Pacific Islanders (6% of total enrollment) (NCES, 2000). Although these numbers are encouraging, minority students still tend to lag behind in the numbers of high school graduates that enroll in higher education. In 1978, the college participation rate for all races was about 30%; by 2000, the rate for White students was 46%, compared to 40% for Blacks and 34% for Hispanics. The 1978 college participation rate for Hispanic men was 31.5% and for Hispanic women, 27%. There has been a dramatic increase over the past twenty years for Hispanic women, now at 37%, the rate for Hispanic men increased by less than one percentage point, to only 31% (ACE News, 2003). Studies show that minorities,

with the exception of Asian Pacific Islanders, tend to be concentrated in less selective public universities, community colleges, and in traditionally Black institutions (Altbach, 1991). In 1985, Hispanic students enrolled in higher education were disproportionately concentrated in fewer than 2% of the 3,100 colleges and universities (Olivas, 1986b). By 1995, Black and Hispanic students each accounted for 11% of the enrollment in community colleges (NCES, 2000). In 1974, the progression rate of Hispanic students from high school graduation into college was 49%; by 1985, it had declined to 44.7% (Solmon & Wingard, 1991). Carter and Wilson (1991) found that in 1990, 32.5% of all White 18-24 year olds were enrolled in higher education, compared to 15.8% of all 18-24 year old Hispanics, yet in 1992, statistics from the American Council on Education reported that the college participation rate by Hispanic high school completers was 37.1%, with much of the increase attributed to a remarkable rise in the number of Hispanic females attending college. However, this accounted for only 6.6% of the total enrollment in higher education in 1992 (Carter & Wilson, 1994). Another study found that Hispanics had a higher education participation rate of 22.9% in 1990, as compared to 14.2% a decade earlier. However, this positive trend lags far behind the 1990 participation rates for Whites (35.9%), Asians (55.1%), and Blacks (27.1%) (Hernandez et al., 2001). The 1990 college enrollment in Texas totaled 738,255; this is expected to increase to 877,600 by 2005 and to 1,110,757 by 2030. Of the 1990 college students, 58% were White, 25.4% were Hispanic, 11.9% were Black, and 4.1% were Other. By 2030, college enrollment in Texas is projected to be 32.2% White, 48.2 % Hispanic, 9.9% Black, and 9.7% Other (Tables 3, 4 and 5) (Murdock, 2003).

Table 3
College Enrollment Rates of High School Completers, Ages 16-24, Enrolled in College as of October of Each Year

	Total	Hispanic	White	Black
1980	1,523,000	68,000	1,273,000	149,000
1985	1,540,000	72,000	1,264,000	140,000
1990	1,420,000	52,000	1,147,000	155,000
1995	1,610,000	155,000	1,197,000	179,000
2000	1,745,000	159,000	1,272,000	216,000

Source: American College Testing Program, unpublished tabulations derived from data collected by U.S. Bureau of Census 2002.

Table 4
Total Fall Enrollment in Institutions of Higher Education, by Numbers

	1980	1985	1990	1995
U.S.	12,096,895	12,247,055	13,818,637	14,261,781
Texas	701,391	769,692	901,437	952,525

Note: Data from NCES, 2001.

Table 5
Bachelor's Degrees Conferred by Degree-Granting Institutions

	Hispanic	White	Black	Total
1980	21,832	807,319	60,673	934,800
1990	36,612	904,062	65,341	1,081,280
1996	61,941	898,224	94,053	1,168,023
1999	74,963	928,013	107,891	1,237,875

Note: Data taken from NCES, 2001.

Interestingly, in a comprehensive analysis of the forces shaping the Texas-Mexico Border region, Sharp (1998) found that in the state of Texas in 1990, high school graduates age 25 or older participated in higher education at almost the same rate as the state average: 63.2% compared to 64.5% for the state. However, of all the bachelor's degrees awarded nationwide in 1991, only 4.5% were awarded to Hispanics (National Science Foundation, 1993).

In 1996, nearly two in three recent high school graduates enrolled in college, as compared to just under five in ten in 1972 (Higher education: The changing marketplace, 1997). However, in 1996, the attendance rate at Texas' four-year institutions of higher education was 14% below the national average, and Texas ranked 9th among the 10 most populous states in bachelor's degrees awarded to high school graduates (Taking a Stand for Texas, 1996). Obviously, too few Hispanic students enroll in higher education and even fewer graduate. Hispanics have not participated in higher education in anything like their proportional representation in the general population. If one agrees with the position that all groups in society ought to participate in higher education at rates equal to their presence in the general population, Hispanics are clearly under represented (Chahin, 1993; Luhrs, 1996). According to a report released by the Educational Testing Service, getting more Hispanics to graduate from college would halve the number of low-income Hispanic families and add an estimated $130 billion annually to the economy (Smolkin, 1999). In a comprehensive research report on projected population patterns and the demand for state services, Murdock et al. (1996) concluded that a reduction in economic differences among ethnic groups in Texas would dramatically alter the state's service needs and overall socioeconomic condition. An improvement of minority socioeconomic status would lead to enhanced socioeconomic conditions and increased independence. Therefore, addressing such differences is critical to the long-term economic and social well-being of the entire state.

College Choice

A review of the literature reveals that Hispanics are under-represented in public and private universities, are highly concentrated in community and junior colleges (Avalos & Pavel, 1993; Blandin, 1994; Carter & Wilson, 1992; Flores, 1989; Lavin & Hyllegard, 1996; Olivas, 1986a; Santos, 1986; Schmidt, 2003), and tend to be clustered in blue-collar and semiskilled jobs (Hernandez et al., 2001; Marin & VanOss Marin, 1991). In 1986, 55% of all Hispanic students enrolled in higher education were attending two-year institutions, compared to 36% of the White enrollees. A report by the U.S. Department of Education found that almost 43% of the Hispanic high school completers (ages 16-24) went directly from high school into a community college (U.S. Department of Education, 1999). In 2000, Hispanic students made up 14% of the total enrollment in community colleges and only 7% of the enrollment in four-year universities (NCES, 2003). Among entering community college students that are "minimally qualified for college," only 7% of the Hispanic students eventually complete a bachelor's degree compared to 16% of the White students (Fry, 2004). While these two-year institutions have increased access for Hispanics, they suffer from inherent problems of student transfers, commuter programs, and large numbers of part-time faculty (Olivas, 1986a). Although community colleges can be cost-saving measures for the lower-division requirements needed by students seeking a bachelor's degree, studies have shown that they are not conducive to long-term success. Their "easy in, easy out" procedures make for much more erratic patterns of attendance (Chaćon et al., 1986). The policies developed in the 1960s to rely on community colleges as the higher education access point for minorities have not produced the desired results. Even though

their participation increased dramatically, there has been little change in the economic and social mobility of minorities (Richardson & Bender, 1987; Santos, 1986).

Access to higher education requires transfer from a two-year to a four-year institution for more than half the minority student population (Richardson & Bender, 1987). In his longitudinal studies, Astin (1977) concluded that the chances of a student who begins at a two-year college persisting to the baccalaureate degree are substantially reduced. In California, it was found that 70% of the college-going Hispanic students enrolled in community colleges in 1994, with only 7% transferring to a four-year institution (Haro et al., 1994). The longitudinal study at CUNY found that bachelor degree attainment rates for students who had initially enrolled at the community college were vastly lower than those students who began their academic career at a four-year institution (Lavin & Hyllegard, 1996).

Bachelor's degree seekers who initially enroll at two-year colleges are far less likely than students who begin at four-year institutions to attain a bachelor's degree within five years (Choy, 2002; Cuccaro-Alamin, 1996; Schmidt, 2003; Solmon & Wingard, 1991). In 1989-90, 57% of the students who began at four-year institutions had completed the degree five years later, compared to 8% of those who began at two-year institutions. Many students failed to transfer to a four-year institution for the completion of their degree. However, if they did transfer, they were equally as likely to persist as those who began at four-year schools. Bachelor's degree recipients who started at two-year colleges were more than twice as likely as those who began at four-year institutions to take six or more years to complete their degree (Choy, 2002). A longitudinal study of 1989-90 beginning students found that bachelor degree seekers

who began their studies at four-year institutions were much more likely to complete a bachelor's degree within five years than those who began at a two-year institution (NCES, 1996). The Pew Hispanic Center conducted a study that found that White students who began at community colleges were twice as likely as Hispanic students to complete a bachelor's degree (Fry, 2004). Solmon and Wingard (1991) state that one of the primary factors in explaining minority enrollment at community colleges was that they take into account the need for their students to work full-time and are therefore the only choice for students who must earn more money than financial aid or scholarships provide. The same conclusion was drawn from a study of City University of New York students. Minority students were more likely to enroll at the community college and to pursue a vocational curriculum, often working full-time while in school or dropping out to help pay for school expenses and support a family (Lavin & Hyllegard, 1996).

College Admission Status

Colleges and universities with open admissions policies or minimal entrance standards experience first year attrition rates from freshmen fall semester to sophomore fall semester of 40-60% (Lavin & Hyllegard, 1996; White et al., 1985). Texas A&M University-Kingsville is no exception. Institutions which are competitive in admission criteria experience attrition rates from 8-12% from freshman fall to sophomore fall. At highly competitive institutions such as Harvard, Notre Dame, and Rice, attrition is only 1-2% during the first year. Even among the best prepared students, nearly 60% of Hispanics attend non-selective institutions compared to 52% of White students. Additionally, of the less prepared students, approximately 66% of the Hispanic students

enroll at open admissions institutions, compared to 45% of the White students (Fry, 2004).

In addition to a changing student population, Texas A&M University-Kingsville has an open admission policy. In 1990, high school class rank combined with minimum test scores determined admission status. Minimum test scores were not required for students in the top 25% of their graduation class—these students were admitted unconditionally. Students scoring an ACT of 17-20 or an SAT of 620-840 were admitted conditionally and students scoring 16 or less on the ACT or 610 or less on the SAT were admitted provisionally (TAIU Catalog, 1989-1992). Such students were required to complete designated credit and non-credit developmental courses. Consequently, there were a large number of the entering students that required remediation.

Interestingly, in a longitudinal study from 1970-1984 of a new open admissions policy at the City University of New York, researchers found that although students entered the university with many handicaps, there were ultimately major successes. A majority of the open admission students were economically disadvantaged, had parents who were less educated, had lower high school GPA's had taken fewer college preparatory courses in high school, were first generation college students, and required more developmental courses in college. However, ultimately, 56% of these students graduated with a bachelor's degree (Lavin & Hyllegard, 1996). These results support the value of an open admission policy that provides access and opportunity for all students.

Enrollment Status

Delaying enrollment into postsecondary education by as little as one year after high school is associated with poor persistence and lower degree attainment (Cuccaro-Alamin, 1996). In 1989-90, almost one-third of beginning post-secondary students delayed their entry. Delay rates are substantially higher for Hispanic students than for the general population (Neilsen, 1986). This was found to be more common among lower SES students and among students whose parents had not completed any education beyond high school. Additionally, students who delayed were more than twice as likely to attain no degree and to no longer be working towards a degree. Delayed entry often means that students expend extra time, money, and effort in an attempt to eventually reach the same educational status as students who follow a traditional entry into college. It also signals the beginning of possible "malintegration". As students start late and fall behind, they may become discouraged and feel an increasing disparity between their age and the traditional school population, thus leading to a propensity to drop out altogether (Neilsen, 1986). Historically, persistence rates tended to be higher at private institutions than public universities. However, between 1991 and 1997, highly selective public universities increased their freshman-to-sophomore retention rate by nearly 3%, while private four-year colleges suffered declines of more than 3%. Only 54% of the first year students who started college at an "open door" institution went back the next year (Cravatta, 1997). Additionally, it has been found that breaking enrollment continuity, for whatever reasons, is associated with a significantly lower degree completion rates (NCES, 1996).

In 1990, there were 11,959,000 students enrolled in higher education in the United States. Of those students, 6,976,000 were enrolled full-time and 4,983,000 were enrolled part-time; 6,719,000 were enrolled at four-year universities and 5,240,000 were enrolled at two-year colleges. By 1999, enrollment had increased to 12,681,000 (7,735,000 full-time and 4,947,000 part-time; 7,089,000 at four-year and 5,592,000 at two-year schools) (NCES, 2002). Full-time enrollment has been found to be associated with higher persistence and degree attainment rates (Cuccaro-Alamin, 1996). Fifty-two percent of the students seeking a bachelor's degree who enrolled on a full-time basis were more likely to complete their degree within five years as compared to 13% who were attending part-time. It has also been found that full-time enrollment yields larger increases in critical thinking skills than part-time enrollment, especially for first-generation college students (Pascarella, 2001). Part-time attendance is generally associated with students who are older, who are financially independent, and who work full-time while enrolled. One-quarter of Hispanic students are enrolled part-time, compared to 15% of White students. Studies have shown that part-time enrollment, regardless of ethnicity, increase the likelihood of non-completion (Schmidt, 2003). In addition, noncontinuous enrollment often reflects a students' lack of funds and need to work, which may interfere with persistence. In 1989-90, only 35% of the first-time students who interrupted their studies for more than four months had completed a degree, compared to 56% who had no break in continuity (Cuccaro-Alamin, 1996). Twenty-five percent of the students who interrupted their enrollment were more likely to still be enrolled five years after initially entering school, as compared to 8% who had been continuously enrolled. Additionally, studies have shown that students who attend

part-time and work more than fifteen hours per week are much less likely to persist in college (Choy, 2002; Schmidt, 2003).

College Major

The decision about where to go to college and the choice of major are important foundations of the college experience. The choice of major is an immediate outcome of the prior educational process and is also a determinant of future outcomes for a student. Preparation and achievement at pre-college levels, an individual's preference for certain courses of study (which may be encouraged by parents and societal expectations), and labor market prospects are among the many factors that influence choice of major (Turner & Bowen, 1999). In a nine-year, multi-institutional study of persistence, it was found that the impact of a college major was significant yet indirect, transmitted through the influence of major on the dimensions of social and academic integration (Stoecker et al., 1988). The academic structure of the major department and the interpersonal influence of faculty and peers contribute significantly to academic integration. Indecision about career goals and lack of a specified major are common themes among non-persisting students (Flores, 1989). However, Lewallen (1993) found that in a longitudinal study of over 20,000 college freshmen, undecided students were no more prone to attrition than declared majors. Although he found other variables that could be considered predictors of persistence (background characteristics, student involvement, and college environment), students who entered college with no selected major were found to be more similar than different from declared major students. Tinto (1987)

observed that weak goals often led to institutional departure. Conversely, high commitment to the goal of college completion led to a high level of persistence.

Little research has been done on the choice of major and college persistence for minorities. In a study by Stoecker et al. (1988), it was found that social sciences was the only major to significantly affect persistence. They found that for Black men, the effect of a social sciences major was negative and was positive for White women. They also discovered that the primary impact of a college major on persistence was indirect, transmitted through the influence of the major on the dimensions of social and academic integration. Allen and Haniff (1991) found that males and females displayed significant and traditional differences by gender, with females being over represented in the social sciences and the humanities. They also reported that the race of the campus appeared to be a significant differentiating factor in student's major choices, with students on predominantly Black campuses choosing to major in professional majors at higher rates than students on predominantly White campuses, while Black students on White campuses tended to major in social sciences and the humanities. In their study of gender-related majors, Sumner and Brown (1996) found that the source of career-related information was a significant determinant of future college majors. Students in traditionally female-linked careers gained substantially more career information from female family members, female friends, and female professors than did students in gender-neutral or male-linked occupations. Flores (1992) reported no significance related to the preference of majors between persisters and non-persisters.

Length of Time to Completion of Degree

In the last two decades, there has been a noticeable shift away from the pattern of undergraduates receiving a diploma within four years (White & Moseley, 1995). About one-half of the students who began their college education in 1989-90 obtained some type of post-secondary credential within five years; four out of ten were no longer enrolled, and one was still enrolled (Higher education: The changing marketplace, 1997). An ACT press release (2002) reported that 51% of students graduate within five years (ACT, 2002). Another study found that when taking into account students who transferred, graduated, or were still enrolled and pursing their degree, the six-year degree attainment rate was 79% (ACE News, 2003). The NCES (1998) reported that of all students beginning college in 1989, only 48% of the Whites, 47% of the Asian/Pacific Islanders, 34% of Blacks, and 32% of Hispanics had achieved their baccalaureate degree within five years. Another study at CUNY found that students took much longer than predicted to complete their bachelor's degree. Nearly half of the regularly admitted students took more than four years to graduate, 16% took more than five years, 8% took more than seven years, and 5% took over nine years. For the open admissions students, time to degree completion was even longer. Almost 60% took more than four years to complete their degree, 25% took more than five years, and 16% took over seven years. Examining the ethic differences of the open admission students provided even more revealing results. Twenty-five percent of the Hispanic students exceeded nine years before completing their degree, compared to 7% of the White and 20% of the Black open admission students (Lavin & Hyllegard, 1996). In 1995, Manno found that only 31% of the students earned an undergraduate degree within four years, down from 47%

in 1977; over 66% took five or more years to complete a degree, up from about 55% in 1977. Astin et al. (1996) found that fewer than two out of five students graduate within four years. In a study involving the University of Texas schools, Sharp (1998) found that students in the 43-county border region of Texas take longer than the traditional four years to graduate; fewer than one-quarter graduate within six years. Students graduating from border institutions took an average of 6.7 years to complete a degree.

Participation in a First Year Orientation Course

A longitudinal study at the University of South Carolina (USC) confirmed the positive association between the successful completion of a freshman year experience course and increased retention and persistence (Shanley & Witten, 1990). In a longitudinal study of freshmen-to-sophomore retention rates, Fidler and Godwin (1994) found that the Black students at USC who completed the freshman seminar had significantly higher retention rates than White students and Blacks students who did not take the course. Their findings support the value of designing first year seminar courses that focus on cultural needs and by structuring the course as a student support group to meet the needs of minority students. Another longitudinal study undertaken at the University of Memphis from 1990-1995 found that the first year orientation course had a significant impact on the persistence of Black students (Magun-Jackson, 1996). Additionally, an annotated review of first year seminars and extended orientation courses found that improvement in academic work, motivation to study, increased retention, and higher GPA's are common results for all students (Rice et al., 1991). A single-institution study of the effects of a study skills course on high risk students found

that the course was shown to have a positive impact on the majority of students who took it. The students reported that it improved their study skills, improved their knowledge about the institution and its resources, and provided stronger role models for participants (Forster et al., 1999). While no study has implied a causal relationship between these factors, a strong association exists and warrants further examination.

Early orientation programs can help address immediate concerns involving finances, campus logistics, and matriculation requirements. These programs often include diagnostic testing of student skills, preparation, and extensive career assessment, in which students are helped to link plans, goals, college courses, and future career and employment opportunities. Orientation programs provide an opportunity for students to meet with faculty advisors. Pre-freshmen programs in the summer have been shown to positively impact freshmen retention (Christoffel, 1986). Summer programs that focus on basic skills, academic enrichment and developmental courses, as well as career planning, all help to prepare students for a more successful freshman year.

College GPA

Typically, college grades earned in the first year are a commonly adopted indicator of future success in college (Duran, 1986). It is a well known phenomenon that relationships among variables that are collected across different points in time grow weaker as the intervals separating points of measurement increases. In considering college grades and information gathered from high school, this decrease in relationship of variables results from individual growth and learning while in college. In a study of over 700,000 students, it was found that high school grades did not accurately predict

academic achievement in the first year of college. Rather, the results of the study indicated that college grades reflect noncognitive factors as well as achievement (Noble & Sawyer, 2001). Metzner and Bean (1987) found that college grade point average had the highest impact on drop-out rates; however, past high school performance, age, educational goals, and minority status were found to have had significant effects on the grade point average. Flores (1992) found a significant difference in college GPA between persisters and non-persisters. In her study, a greater number of persisters reported their overall GPA's in the 3.25-4.0 or 2.24-3.24 range.

Good grades appeared to be extremely important reinforcers that maintain and strengthen a student's academic performance and decrease the chances of dropping out. More attention needs to be given to those educational experience factors that a student has in college which promote change and growth in their learning, particularly those that are believed to influence Hispanics' success in college. Additionally, academic performance may be somewhat influenced by the variance in socioeconomic, demographic, and psychological factors that affect persistence or non-persistence in college.

Financial Aid Status

The cost of attending a college or university is a significant obstacle for many low- and middle-income students. Even finding a way to finance a college education represents a hurdle for many families and students. Research has shown that families must have an annual income of $70,000 to be able to afford a public university without financial aid ($100,000 for a private university) (Choy, 2002). There is some evidence

that financial aid may have an impact on the racial gap in enrollment and completion; however, any change in policy—an increase in tuition or a decline in financial aid—will disproportionately affect lower-income students who are more cost sensitive (Kane, 1994). A $100 increase in tuition is associated with a ten percentage point decline in enrollment rates among students from below median SES and a 4.4 percentage point decline in students above the median. Federal student aid has dropped dramatically and students are borrowing more to finance their education (Astin et al., 1996; Levine & Cureton, 1998a). By 2002, loans accounted for nearly 70% of all federal financial aid, up from 56% in 1982 (Schmidt, 2003). However, financial aid has made college possible for low-income students who completed a rigorous high school curriculum and who took all the necessary steps for enrollment (Choy, 2002).

A 1990 meta-analysis by Tullisse A. Murdock (1990) of 49 studies of financial aid and persistence found that financial aid:

- has provided equal educational opportunity to lower-income students;
- has promoted persistence among minority students, although minority groups receiving financial aid continue to persist at lower rates than Whites;
- has a stronger effect on the persistence of students at community colleges than at four-year colleges (possibly due to the larger proportion of minority and low SES students who attend two-year colleges);
- appears to have a stronger effect on persistence during the junior and senior years, (possibly because more time and money have been invested and students have increased commitment to completion);

- has a greater impact on full-time students than on part-time students (possibly because part-time students are less likely to be eligible for aid, and receive smaller amounts);
- grants and loans combined have a greater positive effect on persistence than loans;
- dollar amounts have significant positive effects on persistence. (p. 218)

However, the meta-analysis concluded that although financial aid has an impact on persistence, there are other variables, such as academic preparation and socio-cultural influences, that influence persistence. Interestingly, Stapleford and Ray (1996) found that the availability of need-based aid had the most significant impact on college attendance of middle- and lower-middle class students.

In studies cited by Millett and MacKenzie (1996), receipt of various forms of financial aid impacted the type of institution that students were able to attend, widening that arena for some, but restricting it for minority groups. Walker (1989) found that offering proportional financial aid had a positive impact on the retention of Hispanic students at community colleges. Non-campus and campus-based financial aid awards were found to be more positively related to Hispanic student retention than high school grades or cumulative grade point average at community colleges (Avalos & Pavel, 1993). The national CIRP data shows a steady increase in the numbers of students who relied upon their parents for support and upon summer work to pay their school expenses. The shift in federal student aid from grants to loans is even more pronounced, with the proportion of students receiving Pell grants dropping from 31.5% in 1975 to 23.3% in 1990 (Dey et al., 1991). Olivas (1986a) found that Hispanics were largely

dependent upon the single aid source of grants, leaving them particularly vulnerable to cutbacks in that area. In the longitudinal study conducted at the University of Chicago, the research indicates that adequate financial aid could help level the playing field to provide access to higher education to students from lower socioeconomic families (Honan, 1996). Astin and Cross's study (as cited in Flores, 1989) found that student who received loans had an inconsistent pattern of persistence, whereas students who received grants and scholarships had increased chances of persistence. Several studies support the idea that the receipt of scholarships and grants increased the likelihood of college attendance, whereas loans did not (Millett & MacKenzie, 1996). Additional income generated through college work study programs (fewer than 20 hours per week and located on campus) also appeared to facilitate persistence (Flores, 1989; Olivas, 1986a). Students who worked outside of campus were less likely to be full participants in college life and had added financial and psychological burdens placed upon them.

There has been a broad belief that students, whether they are from rich or poor families, are on an even footing when they graduate from college. However, the fact is that in 1975, loans made up only one-fifth of federal aid to students; nine years later, they accounted for more than two-thirds of that aid. Meanwhile, grants shrank from 27% of federal aid to 21.9% (Newman, 1994). Loans as the dominant form of aid lead to higher levels of student indebtedness. Students who come from poor families have much heavier debt load, which can ultimately influence career choices. Also, students who borrow the most heavily seem the least likely to complete their education (Newman, 1994). Federal aid in the forms of grants and work/study are better methods than loans to encourage the type of involvement in college life that promotes persistence.

Poorer families are much more reluctant to borrow large sums for education, given that tuition and fees at many schools can cost more than the average minority family income (Newman, 1994). However, Tinto (1987) postulates that when students are satisfied with educational experience, they are willing to accept a greater economic burden in order to continue.

In 1989-90, students seeking bachelor's degrees who were awarded financial aid were more likely to attain their degree within five years than those who did not receive aid. Also, students who did not receive aid were found to be more likely to have no degree and to no longer be enrolled in postsecondary education. Students who did not receive any aid were more likely to still be pursuing their degree (Cuccaro-Alamin, 1996). Additionally, students who were attending two-year colleges were less likely to receive financial aid; the concentration of Hispanic students in those institutions raises questions about widespread access to higher education (Olivas, 1986a).

The financial burden of attending college, particularly for low-income, first generation Hispanic students, is taking its toll on retention and graduation rates. To help alleviate the financial strain, institutions should make every effort to provide scholarships for its students. More and more college students are working to help pay for the cost of higher education. "When federal and state policymakers decided to shift college costs from the public and parents to the student, and to move from low tuition and grants to student work and loans, they all but ordained that a culture of 'work now, study in between' would take hold" (Marchese, 1996, p. 4). We know that taking on too much work load can have a negative effect on persistence (Bracey, 1998; Kramer, 1994; Astin, 1993). As opposed to working long hours, borrowing does not appear to have a

negative effect upon persistence. Longitudinal studies have shown that students who borrow are just as likely to graduate as those who don't (King, 1998). Finding a reasonable balance between working and borrowing becomes the role of financial aid personnel, advisors, and even faculty mentors in order to help students understand that it maybe in their best interest to incur more debt load through borrowing rather than working longer hours (King, 1998).

In 1996, border students' loans averaged $4,023 per student, slightly below the state average of $5,200. However, because border students enroll in an average of only 10 hours per semester, they take longer to graduate, and thereby incur more total debt load (Sharp, 1998). Sixty-three percent of these students receiving financial assistance at border universities came from households with annual incomes of less than $20,000 (Sharp, 1998). Overall, these students received a total of $141 million in financial aid, accounting for two-thirds of the total unmet need for financial assistance in the state.

Work Status

A substantial number of students work for pay while attending college, yet a key risk factor for student persistence is work intensity (Carey, 2004). A recent study found that fully 55% of American high school seniors worked more than 20 hours per week and had lower grades than those who worked fewer hours (Bracey, 1998). Beginning with this work pattern established in high school, the proportion of full-time students who work while attending college has increased dramatically. In 1970, only about one in three full-time students were working while attending school. One study reported that by 1989-90, three-quarters of the full-time, dependent students held down some type of

job, while 30% of those worked full-time; of the non-traditional students (part-time, independent, over the age of 24), 46% of them worked full-time (Kramer, 1994). A U.S. Department of Education study that examined two- and four-year institutions found that a whopping 72% of undergraduates worked an average of 31 hours per week (U.S. Department of Education, 1998). In 1995, nearly one-half of the traditional, full-time students were working, and of those, nearly one in four worked more than 20 hours per week (Higher education: The changing marketplace, 1997). By 1999, 77% of all undergraduate students enrolled at four-year universities worked, and 26 % of those students worked full-time. Over 19% identified themselves as primarily an employee rather than a student working to earn extra money (Choy, 2002). Many students who work typically attend school part-time yet part-time attendance has been shown to be negatively associated with persistence (Carey, 2004; Kramer, 1994; Astin, 1993). However, overwhelming concerns about how to pay for their education cause these students to pursue employment, regardless of the toll it takes. Many students face the decision to drop-out, stopout, or attend part-time due to the cost of higher education (Levine & Cureton, 1998a).

For thousands of students, the typical college experience consists of little more than commuting to a campus for a few hours of classes, then driving home again (Astin, 1993; Choy, 2002). Those few class hours per day are sandwiched in between family obligations and off-campus jobs. There are myriad reasons proposed as to why students are working so much. Increased college costs, decreased financial aid, family obligations, and reluctance to assume debt are all factors in a student's decision to work (Kramer, 1994). The question is no longer whether or not to work, but how much to

work. Without working, many would not be able to finance their college education (Pascarella, 2001). Although many students have little choice about work due to financial limitations, evidence suggests that full-time off-campus work is negatively related to persistence in college (Bracey, 1998; King, 1998; Cuccaro-Alamin, 1996). By occupying discretionary time, off-campus work has been found to have the greatest negative influence on a student's ability to meet the requirements for normal progress through college (Bracey, 1998). Working fewer than 15 hours per week can have a positive effect upon a student's likelihood of persistence in school but working more than that has a negative effect (King, 1998; Pascarella, 2001). Interestingly, Astin (1982) found that working part-time on campus was positively related to persistence.

When considering the Hispanic cultural value of familialism, it is consistent that minority students from disadvantaged socioeconomic backgrounds will not understand the value of delayed gratification because of the need to contribute to the family's financial status. Additionally, these students may have low regard for learning and low self-esteem because they feel the schools do not recognize the legitimacy of their cultural values and behaviors (Ballesteros, 1986). First generation students may be less certain of their ability to complete their education and find good jobs; therefore, the fear of incurring huge debt for school may prompt them to work more hours (King, 1998; Kramer, 1994).

Housing Status

It has long been recognized that students living on campus enjoy larger and more varied benefits of college than do commuting students. However, in 1994, only 30% of

all college students lived on campus; the numbers living off-campus have tripled (Levine & Cureton, 1998a). With so many students living off-campus due to work and often, part-time attendance, campuses have become a place for academic instruction—social life and living occur elsewhere. Research also shows discernible differences in the social and intellectual climates of different residence halls on the same campus (Terenzini & Pascarella, 1994). Astin (1977) indicated that the most important environmental characteristic associated with college persistence was living in the dormitory during the freshman year. Pascarella and Chapman (as cited by Flores, 1989) found that, when all other variables were held constant, living on campus was significantly and positively associated with first year persistence. Persisters who lived on campus were more likely to spend weekends on campus and were more likely to be involved in social activities and academic college life

Education: The Implications for Texas

The future of all of Texas depends upon the education of its population. In an editorial by former Lt. Governor Bill Hobby (and former Chancellor of the University of Houston), he recounted the following sobering statistics:

- The population is aging and the baby boomers are graying.
- The minority population is growing. By 2005, the population of the state will be more than half minority. Texas currently has the second largest minority population in the United States (28.3% Hispanic).
- Texas ranks second in people living below the poverty line. Thirty-three percent of Hispanics, 31% of Blacks, and 14% of Whites live in poverty.

- Texas ranks 39th in percentage of high school graduates and 33rd in percentage of college graduates. (Hobby, 1996)

If these trends continue uninterrupted, we will see a state faced with an unskilled, uneducated labor force. One can predict growing prison populations and larger welfare rolls. There will be a greater gap between the haves and have nots. The best answer we have to this situation is education—the best way to improve the median income and move people into the middle class is through education (Hobby, 1996).

The under-education of our nation's population creates a spiraling effect which feeds on itself in perpetuity if left unchecked, and places a moral, psychological, and financial burden on the nation (Neisler, 1992). More education increasingly translates into more pay. A college graduate is expected to earn up to $1 million more in his/her lifetime than a worker without a college degree, with the difference as huge as $2.7 million for a college graduate compared to a high school drop-out (Vertuno, 1999). In 1997, men with a bachelor's degree earned $52,817, compared to $38,478 for men with some college, and $31,812 for men with high school diplomas. Women with a bachelor's degree earned $31,812, while those with some college earned $23,277, and those with a high school diploma earned $18,509. On average, White men earned $17,000 more than Hispanic men and White women earned $6,700 more than Hispanic women (Smolkin, 1999). However, in Texas, if the current trends continue, it is predicted that there will be a decrease in the educational attainment of the labor force. In 1990, slightly more than 24% of the labor force had graduated from high school; that is predicted to decrease to approximately 22% by 2030. In 1990, slightly more than 13% of the labor force graduated with a bachelor's degree; that is expected to plummet to

10% by 2030 (Murdock et al., 1996). Several academics have suggested that the benefits of a college education are not just monetary. Students develop a more positive self-image, a greater sense of intellectual and interpersonal competency, exhibit more tolerant views and attitudes, belong to more organizations, assume leadership roles more frequently, are better informed about national issues, and vote more frequently (Bowen, 1977; Chickering, 1974; Pascarella & Terenzini, 1991; Tinto, 1975).

The financial burdens of the pressure for greater productivity and support for an aging population will fall mostly upon younger workers. The annual cost for welfare benefits and lost revenue due to under-education and underemployment is $75 billion. The cost per prison inmate is $28,000; 60% of the prison population are high school drop-outs (Neisler, 1992). Additionally, the combined impact of low income levels of minority populations and high social service costs will impact future social security projections. In 1990, there were 30 social security beneficiaries for every 100 contributors. As baby boomers age, the ratio is expected to change to 50 beneficiaries for every 100 contributors. If these 100 contributors are educated and hold well-paying jobs, they will be able to meet the demands of higher social security payments. However, if the majority of those 100 contributors are members of historically undereducated groups in low-paying jobs, they will be unable to sustain the social security system. The hardest hit by any change in our social security system will be the poor, underemployed workers with little or no savings and property (Neisler, 1992).

In the future, expanding technology, globalization, and an-ever-changing marketplace will require that we have a more educated workforce. Jobs in the future will require more advanced skills and a more literate population. Of the additions to the

current workforce, about 15% are White males, 60% are female, and 25% are non-White. Projections indicate that 50% of the future workforce will be minorities and women. By 2020, 2/3 of American workers will be female or members of minority groups who have historically had less education and fewer advantages (Justiz, 1994). A report by a coalition of public education leaders in Texas, *The Competitive Edge,* states that Texas public universities must graduate 15,200 more students each year beginning in the year 2000 to maintain an educated workforce and remain economically competitive (Taking a Stand for Texas, 1996).

Additionally, the economic ramifications of an undereducated population must be examined. Current research shows that the average college graduate earns $1 million more than the average high school graduate over a 40-year career (Ford, 1998). Although personal income in Texas' border region had risen to $15,570 by 1995 (compared to the state average of $21,118 and the national average of $23,196), one must take into account the region's greater share of children, adult non-workers, unemployed adults, and low-skilled immigrant labor. The border regions' average annual wages in 1995 of $21,650 is not expected to increase significantly. The key determinant in securing a high-skill (and therefore, higher-paying) job is a worker's educational level. Workers with more schooling tend to earn more money. The unemployment rate is higher for persons with lower educational attainment. Unemployment rates for the region surrounding Texas A&M University-Kingsville in April, 1998, were 5.8% for Corpus Christi, 11.1% for the Brownsville-Harlingen region, and 14.8% for the McAllen-Mission-Edinburg region (Unemployment Rates in the

Coastal Bend, 1998). Increasing the levels of educational attainment of the workforce population would decrease the unemployment rate (Sharp, 1998).

Considering all the varied factors that impact higher education and student success, it is imperative that TAMUK study its particular population and determine which, if any, factors appear to facilitate graduation from college. The ability to understand what factors appear to facilitate success in college will need to be based on sound knowledge of the population characteristics. There needs to be an extended range of what are considered to be predictors of college success and also of the criterion measures of college achievement. Tinto (1987) calls on universities to provide for social and intellectual growth of an increasingly diverse student population. Policies and practices based on prior research must be developed and implemented at TAMUK. Variables relating to student persistence can be influenced by institutional policy towards students. As suggested in work by Pavel and Reiser (1991), TAMUK needs to needs to develop ways to compile a much more descriptive and analytically useful database on its students, including institutional characteristics, programs, and environmental factors that influence persistence and successful graduation from college.

CHAPTER III

METHODOLOGY

According to Tinto (1987), students bring with them to higher education a variety of differing family and community backgrounds as well as an assortment of attributes and skills, personal values, and a wide range of pre-college educational experiences and achievements. Each of these factors has an impact upon the student's success in college. Tinto believes that some degree of social and academic integration must exist as a condition of persistence.

The purpose of this research was to describe the 1990 freshman class at Texas A&M University-Kingsville and to investigate the varied and complex pre- and in-college characteristics that appear to impact their success. An analysis of the data on the 1990 freshman cohort provided a descriptive profile of the students at Texas A&M University-Kingsville and information about the relationship of variables that appear to predict college success (graduation) for this population. Data on attrition and graduation rates of those students were collected and analyzed and an attempt was made to determine if there was a relationship between pre-college characteristics, in-college characteristics, and graduation rates over a ten year period.

Research Questions

1. Who were the freshmen class of 1990?
    a. What were the pre-college characteristics?
    b. What were the in-college characteristics?
2. What happened to the first year students who entered TAMUK in the fall of 1990?
    a. What percentage successfully completed college and graduated?
    b. What percentage transferred to other institutions?
    c. What percentage did not persist and did not complete a degree at TAMUK?
3. What pre- and in-college characteristics appear to contribute to completion of college for the TAMUK population?

No student population at Texas A&M University-Kingsville has ever been formally studied. No cohesive data have ever been gathered in one place nor has student data been thoroughly analyzed to determine pre-college characteristics, in-college characteristics, and final status upon departure from the university. Student characteristics to be studied included:

- **Pre-College Characteristics**, including age, ethnicity, gender, marital status, HS GPA, HS Rank, HS of Origin, County of Origin, Residency, ACT/SAT scores.

- **In-College Characteristics**, including admission status (provisional, conditional, unconditional, transfer), enrollment status (full or part time), number of hours enrolled fall 1990, academic major, TASP scores, developmental courses, academic standing, and cumulative GPA at final semester of enrollment.
- **Final Status**, including graduated, transferred, and non-persisting.

Population

The population for this study was the fall 1990 entering freshman class of Texas A&M University-Kingsville (N=1,106).

Instrumentation

Data were collected from existing student educational records, including high school transcripts, college admission applications, college transcripts, ACT/SAT tapes, and THECB tapes, over a ten-year period (fall 1990—summer 2000). These data were analyzed using SPSS, version 11.5.

Procedure

1. Data for this study were gathered from high school transcripts, ACT/SAT tapes, college admission applications, and college transcripts. The first step in the data analysis procedure was to describe and summarize the information

utilizing descriptive techniques. Multivariate treatment was used to simultaneously analyze potentially interrelated multiple independent variables. Pre-college and in-college characteristics were analyzed using SPSS v. 11.5 logistic regression and those that showed significance were retained for the complete study. Those that were not significant were discarded. There were low numbers of students reporting an SAT score; the majority of TAMUK students took the ACT. Therefore, ACT scores were utilized when available and the *SAT-ACT Concordance Table for Recentered SAT-I Scores* was utilized to convert SAT scores to ACT equivalents to derive one set of college entrance exam scores for comparison purpose. TASP scores were not computed in the logistic regression model, as they were considered to be redundant with ACT/SAT scores.

The goal of logistic regression is to predict the category of outcome for individual cases. A model is created that includes all predictor variables that are useful in predicting the response variable. Backward stepwise regression appears to be the most preferred method for exploratory analyses, where the analysis begins with a full model and variables are eliminated from the model in an iterative process. The fit of the model is tested after each iteration to ensure that the model still adequately fits the data. When no more variables can be eliminated from the model, the analysis is complete.

In logistic regression, the probability of an event occurring is directly estimated. The probability estimates will always be between 0 and 1. The parameters of the model are estimated using the maximum-likelihood method – the coefficients that make the

observed results more likely are selected. In this study, backward stepwise (likelihood ratio) logistic regression was used to predict whether students would graduate from TAMUK based on pre- and in-college variables.

Data Analysis

Logistic regression was developed specifically to deal with dichotomous dependent variables. Logistic regression assumes curvilinear relationships between independent and dependent variables; hence, a predictor variable's influence on the outcome is more likely to be reflected in the model if curvilinearity is present. Finally, logistic regression computer routines directly estimate the probability of the outcome variable (persistence) for each student on the basis of his or her values on the predictor variables. This is very practical and useful information when the goal is to identify students who are likely to drop out.

Most research studies are based on outcome data collected at one point in time. This study consists of data collected at numerous points in time over a longitudinal period of ten years. The knowledge gained from this study will enable TAMUK to develop efficient methods for identifying high risk students and recommend interventions for keeping them in school.

Descriptive statistics, including frequencies, percentages, means, and standard deviations, were summarized and presented to compare demographic variables. Results of the findings were analyzed using SPSS v. 11.5 backward (likelihood ratio) stepwise multiple logistic regression techniques to determine if a model could be developed for

predicting success at TAMUK. Significance level was set at .05 or less for inclusion in the model. Ethnicity, self-reported high school class rank, self-reported high school GPA, ACT composite, enrollment status, and gender were entered into the total or full model. Variables that were excluded from the model were age (88% ≤ age 20), marital status (91% were single), high school and county of origin (over 87% of the students came from the surrounding counties), residency status (over 97% were from in-state), admission status (redundant with ACT scores), college major (too much fluctuation), and TASP scores (redundant with HS GPA and ACT). Success (graduation) served as the dependent variable. At each step, the variables were evaluated for removal from the model using the likelihood-ratio statistic. The data analysis was run only on students who did or did not graduate from TAMUK; transfer students were not included. Also, only those subjects with complete data sets (all significant variables) were used in the analysis.

CHAPTER IV

RESULTS

Research Question 1. Who Were the Freshmen Class of 1990?

The descriptive analyses of the 1990 entering students yielded some expected results as well as some surprising findings. The class was largely Hispanic, traditional college students who were single, age 18, from South Texas, who self-reported that they were above-average students, yet they performed rather poorly in college and failed to complete in large numbers.

a. What were the pre-college characteristics?

Number by Ethnicity

A total of 1106 first year students enrolled at TAMUK in the fall of 1990. The majority of the students were Hispanic (68.2%), compared to 24.9% who were White, 5.5% who were Black, and 1.4% who were Other. Nationally, in the fall of 1990, females accounted for 53.8% of all first-time full-time college students (Dey et al., 1991). However, at TAMUK in 1990, only 46.6% of the students were female compared to 53.4% who were male (Table 6).

The ethnicity of the 1990 freshmen class reflects the population of South Texas, particularly the five counties from which most TAMUK students originate. The ethnic

breakdown of Brooks, Duvall, Jim Wells, Kleberg, and Nueces counties is 75.3% Hispanic, 21.7% White, 2.0% Black, and 2.1% Other (U.S. Census Bureau, 1993).

Table 6
Total Number and Percent of Students Enrolled Fall 1990 as Entering Freshmen by Ethnicity and Gender

	Hispanic		White		Black		Other		Total		Combined
	Female	Male	Female	Male	Female	Male	Female	Male	Female	Male	Total
Number	381	373	113	162	16	45	5	11	515	591	1106
Percent	34.45	33.73	10.23	14.65	1.45	4.07	0.45	0.99	46.56	53.44	100.00

Age

The ages of the fall 1990 freshman class at Texas A&M University were very typical of traditional first year college students; the majority (61%) were 18 years of age. An additional 18% were 19 years of age and 5% were age 20. Less than 4% were under 18; the remaining 12% were age 21 and over (Table 7).

It appears that TAMUK is not attracting non-traditional students. Given that the institution is a regional, residential university with typical undergraduate degree programs, it is not surprising that the majority of entering freshmen were the traditional college age of 18.

Marital Status

In examining the marital status of the fall 1990 entering students at TAMUK, over 91% were single. Only 8% were married and fewer than 2% were divorced or widowed (Table 8).

Table 7
Number and Percent of Fall 1990 Entering Freshmen by Age, Ethnicity, and Gender

	Hispanic		White		Black		Other		Total		Combined
Age	Female	Male	Female	Male	Female	Male	Female	Male	Female	Male	Total
≤17	10	6	10	5	4	1	2	1	26	13	39
Percent	0.90	0.54	0.90	0.45	0.36	0.09	0.18	0.09	2.35	1.18	3.52
18	248	226	70	95	0	25	0	3	328	349	677
Percent	22.42	20.43	6.33	8.59	-	2.26	-	0.27	29.66	31.56	61.21
19	58	85	10	33	2	10	1	3	71	131	202
Percent	5.24	7.69	0.90	2.98	0.18	0.90	0.09	0.27	6.42	11.84	18.26
20	16	18	3	8	0	6	0	2	19	34	53
Percent	1.45	1.63	0.27	0.72	-	0.54	-	0.18	1.71	3.07	4.79
≥21	49	38	20	21	0	3	2	2	71	64	135
Percent	4.43	3.44	1.81	1.90	-	0.27	0.18	0.18	6.42	5.79	12.21
Total	381	373	113	162	6	45	5	11	515	591	1106

Table 8
Number and Percent of Fall 1990 Entering Freshman by Marital Status, Ethnicity, and Gender

	Hispanic		White		Black		Other		Total		Combined
Status	Female	Male	Female	Male	Female	Male	Female	Male	Female	Male	Total
Single	333	358	91	157	16	43	4	9	444	567	1011
Percent	30.10	32.37	8.22	14.19	1.45	3.88	0.36	0.81	40.14	51.27	91.41
Married	46	15	18	5	0	2	1	2	65	24	89
Percent	4.16	1.36	1.63	0.45	-	0.18	0.09	0.18	5.88	2.17	8.05
Divorced	1	0	4	0	0	0	0	0	5	0	5
Percent	0.09	-	0.36	-	-	-	-	-	0.45	-	0.45
Widowed	1	0	0	0	0	0	0	0	1	0	1
Percent	0.09	-	-	-	-	-	-	-	0.09	-	0.09
Total	381	373	113	162	16	45	5	11	515	591	1106
Percent	34.45	33.73	10.25	14.65	1.45	4.07	0.45	0.99	46.56	53.44	100.00

Again, the students in this class reflect a traditional freshmen student population who were overwhelmingly single. Given the fact that the majority of students were only 18 years old, and the fact that the predominant religion of the region is Catholic, it is not surprising to find that less than 2% were divorced or widowed.

High School GPA

The self-reported high school grade averages (again, commonly referred to as GPA's) of the fall 1990 entering freshmen indicated that the majority of students (62%) had a "B" average in high school, while almost 22% reported an "A" average and 16% reported a "C" average. Less than 1% reported a high school GPA of a "D" average (Table 9). This indicates that most of the entering freshmen rated themselves as being of average academic performance. Since TAMUK has an open-admission policy, it is likely that the institution attracts a majority of low-to-average performing students. If TAMUK were more selective in its admissions, most likely it could be expected that the high school GPA would be significantly higher than at an open admission university.

Table 9
Number and Percent of Fall 1990 Entering Freshmen
by Self-Reported HS GPA, Ethnicity, and Gender

	Hispanic		White		Black		Other		Total		Combined
GPA	Female	Male	Female	Male	Female	Male	Female	Male	Female	Male	Total
95-100	7	5	0	2	0	0	0	0	7	7	14
Percent	2.29	1.63	-	0.65	-	-	-	-	2.29	2.29	4.58
90-94	25	18	3	4	0	0	1	1	29	23	52
Percent	8.17	5.88	0.98	1.31	-	-	0.33	0.33	9.48	7.52	17.00
85-89	39	30	11	13	0	1	0	0	50	44	94
Percent	12.75	9.80	3.59	4.25	-	0.33	-	-	16.34	14.38	30.72
80-84	38	39	6	9	3	1	0	0	47	49	96
Percent	12.42	12.75	1.96	2.94	-.98	0.33	-	-	15.36	16.01	31.37
75-79	7	16	2	5	0	0	0	0	9	21	30
Percent	2.29	5.23	0.65	1.63	-	-	-	-	2.94	6.86	9.80
70-74	5	8	0	4	0	1	0	0	5	13	18
Percent	1.63	2.61	-	1.31	-	0.33	-	-	1.63	4.25	5.88
65-69	0	1	0	0	0	1	0	0	0	2	2
Percent	-	0.33	-	-	-	0.33	-	-	-	0.66	0.66
<64	0	0	0	0	0	0	0	0	0	0	0
Percent	-	-	-	-	-	-	-	-	-	-	-
Total N	121	117	22	37	3	4	1	1	147	159	306
Percent	39.54	38.24	7.19	12.09	0.98	1.31	0.33	0.33	48.94	51.96	100.00

Note: Only 306 of the 1106 students reported a HS GPA.

The use of self-reported high school GPA rank can be a methodological risk. To rely on individual accuracy and unbiased recollection may be problematic. Research on the disparity between actual and reported high school grades is very limited. However, a recent study found that self-reported GPA's were remarkably similar to official high school records (Cassady, 2002). Another study by Kuh (2001) found that student self-reports, although possibly subject to the halo effect, have generally been found to be relatively constant across different types of students and schools.

High School Class Rank

Interestingly, a majority of the students (64%) who entered TAMUK in the fall of 1990 reported that they were in the top quartile of their high school graduating class*. Only 11% reported being in the bottom quartile, while the remaining 25% reported being in the middle half of their graduating class (Table 10). Although their self-reported high school GPA's indicated average performance, the self-reported high school rank indicated that the majority of students deemed themselves to be above-average performers, scoring in the top quartile of their classes. A possible explanation for this discrepancy between self-reported GPA and high school rank could be that the high schools in South Texas do not have a wide range of GPA scores. It was not unusual for TAMUK to have students who did, indeed, score in the top 10% of their class with only an 82.0 GPA.

Table 10
Number and Percent of Fall 1990 Entering Freshman
by Self-Reported High School Rank, Ethnicity, and Gender

	Hispanic		White		Black		Other		Total		Combined
Rank	Female	Male	Female	Male	Female	Male	Female	Male	Female	Male	Total
Top Quartile	208	174	62	75	9	11	2	2	281	262	543
Percent	24.70	20.67	7.36	8.90	1.07	1.31	0.24	0.24	33.37	31.17	64.54
Middle Half	70	79	17	30	1	10	0	1	88	120	208
Percent	8.31	8.67	2.02	3.56	0.12	1.19	-	0.12	10.45	14.25	24.70
Bottom Quartile	26	37	2	18	2	6	0	0	30	61	91
Percent	3.09	4.39	0.24	2.14	0.24	0.71	-	-	3.56	7.24	10.80
Total	304	290	81	12	12	27	2	3	399	443	842

Note: Only 842 of the 1106 entering students reported a class rank.

High School of Origin

There were 21 high schools in Texas that had 10 or more students attend TAMUK in the fall of 1990. Almost half of the total students (44.6%) came from high schools within 50 miles of Kingsville. An additional 6% were from high schools within a 50-100 mile radius of Kingsville, while 3% were from a radius of 100-150 miles away. However, a significant number of students (46.2%) came from Other high schools, which included high schools further than 150 miles as well as high schools who had fewer than 10 students that entered TAMUK in the fall of 1990. Over 38% of the students were from the Kingsville-Alice-Corpus Christi triangle (Table 11). Based on these data, it is reasonable to assume that the majority of students attend TAMUK due to proximity. Also, there are a large number of very small high schools in the South Texas area that had fewer than ten students who attended TAMUK, yet overall, the small high schools account for a significant proportion of the total freshmen enrollment.

Table 11
Number and Percent of Fall 1990 Entering Freshmen by High School of Origin, Ethnicity, and Gender

School	Hispanic		White		Black		Other		Total		Combined Total	% of All Students Who Entered
	Female	Male	Female	Male	Female	Male	Female	Male	Female	Male		
0-50 mile radius												
HM King Kingsville	53	41	17	14	2	2	1	1	73	58	131	11.8
Alice	41	30	6	13	0	0	0	0	47	43	90	8.1
Robstown	27	15	0	0	1	0	0	0	28	15	43	3.9
Bishop	9	8	7	8	0	1	0	0	16	17	33	2.9
Calallen	5	4	6	17	0	0	0	0	11	21	32	2.8
Falfurrias	19	11	0	1	0	0	0	0	19	12	31	2.8
Benavides	4	12	0	1	0	0	0	0	4	13	17	1.5
Premont	10	5	2	0	0	0	0	0	12	5	17	1.5
Carroll Corpus	7	0	3	3	1	2	0	0	11	5	16	1.4
San Diego	9	7	0	0	0	0	0	0	9	7	16	1.4
Orange Grove	5	2	4	4	0	0	0	0	9	6	15	1.4
Tulosa Midway Corpus	4	2	1	5	0	0	0	0	5	7	12	1.0
Riveria	3	3	4	1	0	0	0	0	7	4	11	1.0
Agua Dulce	3	4	2	1	0	0	0	0	5	5	10	.9
Ben Bolt Palito Blanco	6	4	0	0	0	0	0	0	6	4	10	.9
Miller Corpus	1	5	1	0	1	1	0	1	3	7	10	.9
Number	206	153	53	68	5	6	1	2	265	229	494	
Percent	18.63	13.83	4.79	6.15	0.45	0.54	0.90	0.18	23.96	20.71	44.67	
51-100 mile radius												
Hebbronville	19	8	2	0	0	0	0	0	21	8	29	2.6
Harlingen	6	9	0	2	0	0	0	0	6	11	17	1.5
Freer	2	7	2	1	0	0	0	0	4	8	12	1.0
San Benito	2	8	0	0	0	0	0	0	2	8	10	.9
Number	29	32	4	3	-	-	-	-	-	33	35	68.0
Percent	2.62	2.89	0.36	0.27	-	-	-	-	2.98	3.16	6.14	
101-150 mile radius												
Eagle Pass	15	17	1	0	0	0	0	0	16	17	33	3.0
Number	15	17	1	0	0	0	0	0	16	17	33	
Percent	1.36	1.54	0.09	-	-	-	-	-	1.44	1.54	2.98	
≥151 miles or <10 students												
Other	131	171	55	91	11	39	4	9	201	310	511	46.2
Number	131	171	55	91	11	39	4	9	201	310	511	
Percent	11.84	15.46	4.97	8.23	0.99	3.57	0.36	0.81	18.17	28.03	46.20	

County of Origin

The largest number of students (56%) came to TAMUK from Kleberg County and the adjacent four counties: Brooks, Duval, Nueces, and Jim Wells. Over 31% came from 12 surrounding counties in South Texas, while only 13% came from Other counties that were further away or that had less than ten students per county who attended TAMUK. These findings support the literature that has found Hispanic students to be less willing to attend college far from home (Choy, 2002; Flores, 1992; Muniz, 1994; Munday, 1976; Sharp, 1998) (Table 12). Again, it is reasonable to assume that the majority of students attended TAMUK due to proximity.

Also, given the large geographical land mass of many counties in South Texas and the very low number of persons per square mile, it would not be unusual to find that many of the remote, rural counties had fewer than ten students who attended TAMUK (e.g., Kenedy County, 30 miles from Kingsville, covers 1,457 square miles with .3 persons per square mile; Maverick County covers 1,280 square miles with 36.9 people per square mile; Webb County covers 3,357 square miles with 57.5 people per square mile; Zavala County covers 1,298 square miles with 8.9 people per square mile; and Starr County covers 1,223 square miles with 43.8 people per square mile).

Table 12
Number and Percent of Fall 1990 Entering Freshman by County of Origin, Ethnicity, and Gender

	Hispanic		White		Black		Other		Total		Combined	% of All Students
County	**Female**	**Male**	**Female**	**Male**	**Female**	**Male**	**Female**	**Male**	**Female**	**Male**	**Total**	**Who Entered**
0-50 mile radius												
Nueces	75	55	28	41	4	6	0	1	107	103	210	18.99
Kleberg	70	65	32	28	4	4	1	1	107	98	205	18.54
Jim Wells	60	40	13	15	0	0	0	0	23	55	128	11.57
Duval	14	27	1	1	0	0	0	0	15	28	43	3.89
San Patricio	9	6	5	1	0	0	1	0	15	19	34	3.07
Brooks	20	11	1	1	0	0	0	0	21	12	33	2.98
Number	248	204	80	87	8	10	2	2	228	315	603	54.52
Percent	22.42	18.44	7.23	7.87	0.72	0.90	0.18	0.18	26.04	28.48		
51-100 mile radius												
Cameron	20	43	2	4	0	0	0	0	22	47	69	6.24
Hidalgo	18	30	2	12	0	1	0	0	20	43	63	5.69
Jim Hogg	19	9	1	0	0	0	0	0	20	9	29	2.62
Webb	3	6	2	1	0	0	0	0	5	7	12	1.08
Willacy	7	3	0	2	0	0	0	0	7	5	12	1.08
Number	67	91	6	19	-	1	-	-	74	111	185	16.73
Percent	6.06	8.23	0.54	1.72	-	0.09	-	-	6.69	10.04		
101-150 mile radius												
Bexar	9	10	6	5	1	1	1	0	17	16	33	2.98
Maverick	16	16	1	0	0	0	0	0	17	16	33	2.98
Harris	4	2	2	7	4	8	0	0	10	17	27	2.44
Starr	11	7	0	1	0	0	0	0	11	8	19	1.72
Zapata	6	0	1	1	0	0	0	0	7	1	8	0.72
Zavala	2	4	0	0	0	0	0	0	2	4	6	0.54
Number	48	39	10	14	5	9	1	-	64	62	126	11.39
Percent	4.34	3.52	0.90	1.27	0.45	0.81	0.09	-	5.79	5.61		
≥151 miles or <10 students												
Other	18	39	16	30	3	25	2	9	39	103	142	
Number	18	39	16	30	3	25	2	9	39	103	142	12.84
Percent	1.63	3.53	1.45	2.71	0.27	2.26	0.18	0.81	3.53	9.31		

Residency Status

The vast majority of the fall 1990 entering class (97.8%) were from Texas, while only 1% were from Out-of-State, and 1% were International (Table 13). TAMUK does not appear to attract out-of-state or international students at the freshman level.

ACT Scores

The fall 1990 entering students at TAMUK had a mean ACT score of 16.8, which was significantly lower than the national mean of 21 (Carr, 1999). When considering ethnicity, the TAMUK students also scored well below the national mean. The Hispanic students at TAMUK scored 16.4 compared to 18.9 nationally, while the White students scored 18.1, compared to 21.7 nationally, and the Black students scored 15.8, compared to 17.1 nationally.

The TAMUK scores are consistent with the research that indicates that minority students continue to perform below the norm for White students (ACT, 2002; Carr, 1999; Duran, 1994; McQueen, 1999; Noble & Sawyer, 2001). Even the mean ACT score of 17.9 for TAMUK graduates was well below the national mean of 20.6. As might be expected, the lowest mean ACT score of 15.7 was found among the students who did not graduate from TAMUK (Table 14).

Table 13
Number and Percent of Fall 1990 Entering Freshmen by Residency Status, Ethnicity, and Gender

	Hispanic		White		Black		Other		Total		Combined
Residence	Female	Male	Female	Male	Female	Male	Female	Male	Female	Male	Total
In-State	380	366	109	162	16	42	3	4	508	574	1,082
Percent	34.36	33.09	9.86	14.65	1.4	3.80	0.27	.36	45.93	21.90	97.83
Out-of-State	1	5	4	0	0	3	0	0	5	8	13
Percent	.09	0.45	0.36	-	-	0.27	-	-	0.45	-.72	1.18
Foreign	0	2	0	0	0	0	2	7	2	9	11
Percent	-	0.18	-	-	-	-	0.18	0.63	0.18	0.81	0.99
Total	381	373	104	162	16	45	5	11	515	591	1,106

Table 14
Mean ACT Composite Scores of Fall 1990 Entering Freshmen by Ethnicity and Gender

	Hispanic		White		Black		Other		Total		
Group	Female	Male	Female	Male	Female	Male	Female	Male	Female	Male	Combined Total
All Students	16.08	16.68	18.16	18.23	15.71	15.89	21.00	22.00	16.46	17.04	16.75
N	246	233	55	83	7	18	1	1	309	335	644
SD	3.69	3.60	4.14	4.48	1.26	3.39			3.82	3.89	3.86
Graduates	16.92	18.07	19.56	20.25	–	–	–	22.00	17.40	18.60	18.00
N	72	56	16	16				1	88	73	161
SD	3.28	3.91	3.54	5.11					3.49	4.26	3.88
Non-Graduates	15.37	15.49	16.67	17.33	15.60	14.67	–	–	15.58	15.85	15.72
N	64	71	12	24	5	9			81	104	185
SD	3.49	3.16	3.23	4.46	1.34	2.83			3.36	3.54	3.45
Transfers	15.94	16.75	18.00	17.98	16.00	17.11	21.00		16.37	17.10	16.74
N	110	106	27	43	2	9	1		140	158	298
SD	3.99	3.46	4.65	4.10	1.41	3.62			4.17	3.67	3.92

When examining the verbal scores of the TAMUK students, once again, the scores were very low for all ethnic groups, at an average of 16.5. The highest verbal scores were by Other students while the lowest scores were by the Black students, particularly Black males. Females had a mean verbal score of 16.9 as compared to the males' mean verbal score of 16.1 (Table 15).

Similar results were found when examining the ACT math scores of the TAMUK students. The scores were very low for all ethnic groups, at an average of 16.4. Interestingly, the highest math scores were by Other male students while the lowest scores were by the Other female students. Overall, females had a mean math score of 15.66 as compared to the males' mean math score of 17.08, both of which are significantly lower than the national mean (Table 16).

SAT Scores

Consistent findings were also present when examining the SAT scores of the fall 1990 TAMUK students. When examining the verbal scores of the TAMUK students, once again, the scores were very low for all ethnic groups. Hispanic students had a mean verbal score of 340 (458 national score), while White students had a mean verbal score of 403 (compared to 518 nationally), Black students had a mean verbal score of 325 (compared to 427 nationally), and Other students had a mean verbal score of 326 (compared to 486 nationally). Overall, TAMUK students scored a mean of 357 on the verbal section of the SAT, compared to a national mean of 499 (Table 17).

Table 15
Mean ACT Verbal Scores of Fall 1990 Entering Freshmen by Ethnicity and Gender

	Hispanic		White		Black		Other		Total		
Group	**Female**	**Male**	**Female**	**Male**	**Female**	**Male**	**Female**	**Male**	**Female**	**Male**	**Combined Total**
All Students	16.35	15.67	19.27	16.88	15.86	14.61	22.00	24.00	16.87	15.93	16.40
N	246	233	55	83	7	18	1	1	309	335	644
SD	4.29	4.26	4.24	5.56	2.48	4.88			4.39	4.69	4.54
Graduates	17.69	17.18	20.81	18.69	–	–	–	24.00	18.26	17.60	17.93
N	72	56	16	16				1	88	73	161
SD	3.59	4.27	3.35	5.10					3.73	4.51	4.12
Non-Graduates	15.14	14.58	18.25	16.88	15.00	12.67	–	–	15.59	14.94	15.27
N	64	71	12	24	5	9			81	104	185
SD	4.46	3.94	2.73	5.60	1.23	4.03			4.25	4.50	4.38
Transfers	16.16	15.59	18.81	16.21	18.00	16.56	22.00	–	16.74	15.82	16.25
N	110	106	27	43	2	9	1		140	158	298
SD	4.41	4.26	5.05	5.67	4.24	5.07			4.63	4.71	4.67

Table 16
Mean ACT Math Scores of Fall 1990 Entering Freshmen by Ethnicity and Gender

	Hispanic		White		Black		Other		Total		
Group	**Female**	**Male**	**Female**	**Male**	**Female**	**Male**	**Female**	**Male**	**Female**	**Male**	**Combined Total**
All Students	15.45	16.82	16.65	17.57	15.57	16.17	14.00	21.00	15.66	16.99	16.35
N	246	233	55	83	7	18	1	1	309	335	644
SD	4.18	3.80	4.98	5.70	1.51	3.22			4.30	4.33	4.32
Graduates	16.21	18.20	18.19	20.50	–	–	–	21.00	16.57	18.74	17.55
N	72	56	16	16				1	88	73	161
SD	4.58	4.03	4.39	5.32					4.56	4.39	4.48
Non-Graduates	14.86	15.31	14.17	15.50	16.00	15.89	–	–	14.83	15.40	15.15
N	64	71	12	24	5	9			81	104	185
SD	3.41	3.21	3.76	5.91	1.23	2.76			3.37	3.93	3.65
Transfers	15.30	17.11	16.85	17.63	14.50	16.44	14.00		15.58	17.22	16.45
N	110	106	27	43	2	9	1		140	158	298
SD	4.29	3.73	5.48	5.34	2.12	3.78			4.53	4.21	4.37

Table 17
Mean SAT Verbal Scores of Fall 1990 Entering Freshmen by Ethnicity and Gender

	Hispanic		White		Black		Other		Total		
Group	**Female**	**Male**	**Female**	**Male**	**Female**	**Male**	**Female**	**Male**	**Female**	**Male**	**Combined Total**
All Students	338.62	340.47	402.31	402.90	332.22	318.40	290.00	362.50	355.14	357.86	356.50
N	87	106	39	62	9	25	3	8	138	201	339
SD	75.65	70.55	85.79	87.52	38.66	78.03	17.32	125.21	81.59	84.94	83.27
Graduates	351.76	342.55	353.00	442.94	342.50	322.50	280.00	334.00	349.80	364.25	357.03
N	34	47	10	17	4	4	1	5	49	73	122
SD	64.83	73.74	63.08	80.29	45.74	53.77		119.08	62.26	88.00	75.13
Non-Graduates	308.67	338.82	368.57	363.57	303.33	298.89	295.00	335.00	322.59	338.33	330.46
N	15	17	7	14	3	9	2	2	27	42	69
SD	61.71	67.26	72.21	72.07	28.87	105.88	21.21	91.92	64.19	79.78	71.99
Transfers	338.68	338.81	435.45	398.71	355.00	331.67	–	560.00	373.55	361.98	367.77
N	38	42	22	31	2	12		1	62	86	148
SD	87.06	69.82	86.23	90.77	7.07	1.91			96.48	84.28	90.38

The mean quantitative scores of the TAMUK students, although slightly higher than the verbal scores, were still low. Hispanic students had a mean quantitative score of 400 (462 national score), while White students had a mean quantitative score of 434 (compared to 513 nationally), Black students had a mean quantitative score of 355 (compared to 419 nationally), and Other students had a mean quantitative score of 452 (compared to 492 nationally). Overall, TAMUK students scored a mean of 409 on the quantitative section of the SAT, compared to a national mean of 500 (Table 18).

There are several possible reasons for the low ACT and SAT scores of the TAMUK freshmen. Given what is known about the university—it serves a poor, regional, predominantly Hispanic area of the state—and given what is known about public schools in South Texas—they are under-funded and often low-performing—it is not surprising to see low college entrance exam scores. Students who attend TAMUK may do so because they can be admitted there—if they applied to a more selective university, they would be turned away. Also, these students most likely did not attempt a rigorous, college-preparatory curriculum while in high school; in fact, many of their high schools may not have even offered a more rigorous curriculum. When there are only eight students in the graduating class of a high school, it is highly unlikely that the school would be able to offer courses such as physics, calculus, Latin, honors classes, or other advanced subjects. Finally, it can be assumed that English may be a second language for the majority of these students, thereby possibly limiting their command of written and spoken English.

b. What were the in-college characteristics?

Table 18
Mean SAT Quantitative Scores of Fall 1990 Entering Freshmen by Ethnicity and Gender

	Hispanic		White		Black		Other		Total		
Group	**Female**	**Male**	**Female**	**Male**	**Female**	**Male**	**Female**	**Male**	**Female**	**Male**	**Combined Total**
All Students	388.74	411.04	409.49	458.55	378.89	332.00	410.00	495.00	394.42	419.20	406.81
N	87	106	39	62	9	25	3	8	138	201	339
SD	79.33	92.03	84.07	93.54	72.19	64.82	141.77	107.44	81.33	98.59	89.96
Graduates	414.41	424.89	393.00	496.47	392.50	337.50	460.00	500.00	409.18	441.92	425.55
N	34	47	10	17	4	4		5	49	73	122
SD	60.36	84.18	75.73	97.34	87.70	77.90		106.07	64.90	96.17	80.54
Non-Graduates	334.67	420.00	377.14	428.57	333.33	327.78	385.00	410.00	349.26	402.62	375.94
N	15	17	7	14	3	9	3	2	27	42	69
SD	59.63	103.14	99.28	70.04	40.16	77.42	190.92	14.14	78.59	93.52	86.06
Transfers	387.11	391.90	427.27	451.29	420.00	333.33	–	640.00	402.42	408.02	405.22
N	38	42	22	31	2	12			62	86	148
SD	90.76	94.67	81.89	94.58	70.71	55.65			88.13	100.56	94.35

Admission Status

Texas A&M University-Kingsville's open admission policy required that the official high school class rank be combined with minimum college entrance test scores to determine an admission status. Minimum test scores were not required for students in the top quartile of their graduation class—these students were Unconditionally Admitted. Students scoring an ACT of 21 or above or an SAT of 850 or more were also Unconditionally Admitted. Students scoring an ACT of 17-20 or an SAT of 620-840 were Conditionally Admitted and students scoring 16 or less on the ACT or 610 or less on the SAT were Provisionally Admitted (TAIU Catalog, 1989-1992). (Note: upon receiving a student's application for admission, the Registrar's Office at TAMUK assigned the Admission Status, based upon the official high school rank and ACT/SAT scores. Of the 1106 entering students, only 984 records indicated their Admission status; the remaining 122 records were missing this data).

Of the 984 students who indicated an Admission Status, only 20% were Unconditionally Admitted. More than 41% were Conditionally Admitted and 35% were Provisionally Admitted (11% had no Admission status recorded).

More males (58%) than females (42%) were Unconditionally Admitted, while 57% of the Conditionally Admitted students were males, compared to 43% for the females. In the Provisional Admission category, the gender division was even—50% of the Provisionally Admitted students were males and 50% were females.

Ethnically, some interesting results were found. Of the students who were Unconditionally Admitted (20%), over 51% were Hispanic, while 44% were White, fewer than 2% were Black, and 3% were Other. In the Conditional Admission category (41%), 68% were Hispanic, compared to 24% White, 7% Black, and 1% Other. In the lowest category, Provisional Admission (39%), 77% of the students were Hispanic, 15% were White, 7% were Black, and less than 1% were Other (Table 19).

Of the fall 1990 students who ultimately graduated from TAMUK, almost 25% were Unconditionally Admitted (38% female and 62% male), while slightly less than 44% were Conditionally Admitted (50% for both male and female), and 23% (56% female and 44% male) were Provisionally Admitted.

There appears to be a discrepancy between the students' self-reported high school class rank, self-reported high school GPA, college entrance exam scores, and Admission Status. Although the majority of students reported that they were in the top quartile of their class (64%) and had a "B" or better high school GPA (62%), the actual college admission status suggests much lower performance. Over 77% of the Provisionally Admitted students were Hispanic, suggesting that these low-performing students were the least prepared for college-level work, whether due to poor high school experiences, lack of access or opportunity, limited English skills, or other reasons.

Table 19
Number and Percent of Fall 1990 Entering Freshmen by Admission Status, Ethnicity, and Gender

	Hispanic		White		Black		Other		Total		
Status	**Female**	**Male**	**Female**	**Male**	**Female**	**Male**	**Female**	**Male**	**Female**	**Male**	**Combined Total**
Unconditional											
N	47	56	34	53	1	2	1	5	83	116	199
Percent	4.8	5.7	3.5	5.4	0.1	0.2	0.1	0.5	8.4	11.8	20.2
Conditional											
N	126	151	39	57	8	20	2	3	175	231	406
Percent	12.8	15.3	4.0	5.8	0.8	2.0	0.2	0.3	17.8	23.5	41.3
Provisional											
N	160	133	21	35	7	21	1	1	189	190	379
Percent	16.2	13.5	2.1	3.6	0.7	2.1	0.1	0.1	19.2	19.3	38.5

Note: Only 984 of the total 1106 application records indicated an admission status; 122 (11%) had no admission status recorded.

Given two key factors—that TAMUK was charged with creating a middle class in South Texas and that the institution has an Open Admission policy—it is not surprising to find marginal students in this freshmen class. (Note: The Office of the Registrar at TAMUK originally had access to official high school transcripts. The official high school class rank and college entrance exam scores were calculated and an Admission Status was assigned to each entering student. Unfortunately, the original high school transcripts were no longer available for this study, so although the Admission Status was based upon official records, the high school GPA was self-reported).

Enrollment Status

The vast majority (87.4%) of the fall 1990 entering class enrolled as full-time students. Only 12.6% enrolled for fewer than 12 hours. Of the full-time students, 44.7% were female and 55.3% were male (Table 20).

Again, this reflects the traditional college population whose primary purpose is to attend school rather than work full-time and attend school part-time. Most of this freshman class entered as baccalaureate degree-seeking students, which one could expect to find at a comprehensive regional university such as TAMUK.

Table 20
Number and Percent of Fall 1990 Entering Freshmen by Enrollment Status, Ethnicity, and Gender

	Hispanic		White		Black		Other		Total		
Status	**Female**	**Male**	**Female**	**Male**	**Female**	**Male**	**Female**	**Male**	**Female**	**Male**	**Total**
Full-time	320	339	93	144	15	42	4	10	432	535	967
Percent	28.93	30.65	8.41	13.02	1.36	3.80	0.36	0.90	39.06	48.37	87.43
Part-time	61	34	20	18	1	3	1	1	83	56	139
Percent	5.52	3.07	1.81	1.63	0.09	0.27	0.09	0.09	7.50	5.06	12.57
Total Number	381	373	113	162	16	45	5	11	515	591	1106
Percent	34.45	33.73	10.22	14.65	1.45	4.07	0.45	0.99	46.56	53.44	100.00

Number of Hours Enrolled Fall 1990

Students in the fall 1990 class enrolled in an average of fourteen hours for the first semester. Students who ultimately graduated took slightly more hours, at an average of 14.45, while students who did not graduate took an average of 13.93 hours (Table 21). A total of twelve hours was considered full-time, so students were often advised (particularly by the Financial Aid office) to take no more than 12-14 hours during their first semester. It is important to note that students who were required to take developmental classes were limited in what "college level" courses they could take as freshmen. Students who required developmental courses were not allowed to take classes that required extensive reading, such as History or Political Science, or mathematics.

Therefore, many of the students enrolled in two or three developmental courses, plus a general education course such as psychology, and a physical education class, for a total of 14 credit hours. Given that the majority of the students took less than fifteen hours per semester, the population at TAMUK confirms the fact that border students will take an average of 6.7 years to graduate (Sharp, 1998).

Table 21
Mean Number of Hours Enrolled During First Semester for Full-Time Fall 1990 Entering Freshmen by Ethnicity and Gender

	Hispanic		White		Black		Other		Total		
Group	**Female**	**Male**	**Female**	**Male**	**Female**	**Male**	**Female**	**Male**	**Female**	**Male**	**Combined Total**
All Students	14.07	14.13	14.48	14.82	14.13	14.60	13.00	14.60	14.15	14.36	14.26
Graduates	14.21	14.39	14.67	15.34	13.75	15.00	12.00	14.63	14.26	14.62	14.45
Non-Graduates	13.73	13.85	14.11	14.23	14.14	14.21	13.50	14.50	13.82	14.01	13.93
Transfers	14.16	14.10	14.54	14.90	14.50	14.89	13.00	–	14.26	14.41	14.34

College Major

The students of fall 1990 enrolled in a wide array of 46 different majors. Nearly one-third of the freshmen class entered as Undeclared majors (27.7%). The most popular major upon entry was Elementary Education (8%), followed by General Business (7%), Pre-Engineering (7%), Accounting (4%), and Political Science (4%) (Table 22).

There appears to be little propensity for any particular major among the entering freshmen class of 1990; majors are across the board, with the exception of Education, which may reflect remnants of the school's original mission as a Teacher's College. Additionally, because nearly one-third of the students were Undeclared, this may very well impact their ability to be academically integrated into the university. With no declared major, no assigned major advisor, and presumably, no major-related student organization to join, these students are at high risk for leaving the university. Such a high proportion of Undeclared students would indicate a need for strong academic advising and career counseling during the first semester or year of college.

Table 22
College Major Upon Entry of Fall 1990 Entering Freshmen by Ethnicity and Gender

	Hispanic		White		Black		Other		Total		
Major	**Female**	**Male**	**Female**	**Male**	**Female**	**Male**	**Female**	**Male**	**Female**	**Male**	**Combined Total**
Ag Business	3	2	1	5	0	0	0	0	4	7	11
Accounting	15	8	9	6	1	1	0	0	25	15	40
Ag Science	1	3	1	3	0	0	0	0	2	6	8
Animal Science	10	11	6	9	0	0	0	1	16	21	37
Art	3	3	2	5	0	0	0	0	5	8	13
BA Applied Science	0	0	0	1	0	0	0	0	0	0	1
Biology	5	6	1	3	1	1	0	0	7	10	17
Chemical Engineering	0	1	2	8	0	0	0	0	2	9	11
Chemistry	4	0	1	1	0	1	0	0	5	2	7
Civil Engineering	0	5	1	0	0	0	0	0	1	5	6
Communication	8	7	6	2	0	1	0	0	14	10	24
Communication Disorders	2	0	3	0	0	0	0	0	5	0	5
Comp Info Sys	10	5	1	0	0	2	0	0	11	7	18
Computer Science Eng	4	2	0	1	0	0	0	0	4	3	7
Economics	0	0	1	0	0	0	0	0	1	0	1
Electrical Engineering	3	21	2	5	1	1	1	4	7	31	38
English	0	2	1	0	0	0	0	0	1	2	3
Finance	1	4	1	3	0	1	0	0	2	8	10
General Business	28	25	6	13	2	4	1	0	37	42	79
Geography	0	0	0	1	0	0	0	0	0	1	1
Geology	0	2	0	0	0	0	0	0	0	2	2
Health	0	0	1	0	0	0	0	0	1	0	1
Health/Kinesiology	1	0	0	0	0	0	0	0	1	0	1
History	0	5	0	0	0	0	0	0	0	5	5
Human Sciences	8	1	3	0	0	0	0	0	11	1	12
IDS/Elem Education	58	12	16	1	0	1	0	0	74	14	88
Industrial Technology	1	1	0	1	0	0	0	0	1	2	3
LBA/Undeclared	98	122	26	36	3	18	2	1	129	177	306
Management	1	2	1	3	0	1	0	0	2	6	8
Marketing	7	4	2	2	0	2	0	0	9	8	17
Math	0	2	1	1	0	0	0	1	1	4	5
Mechanical Engineering	7	3	2	9	0	0	0	1	9	13	22
Med Tech	4	2	0	1	0	1	0	0	4	4	8
Music	6	15	1	0	0	0	0	0	7	15	22

Table 22
Continued

	Hispanic		White		Black		Other		Total		
Major	**Female**	**Male**	**Female**	**Male**	**Female**	**Male**	**Female**	**Male**	**Female**	**Male**	**Combined Total**
Nat Gas Engineering	0	0	1	2	0	0	0	0	1	2	3
Plant Science	0	0	0	2	0	0	0	0	0	2	2
Political Science	17	15	4	2	1	1	0	0	22	18	40
Pre-Dental	4	4	0	0	1	0	0	0	5	4	9
Pre-Engineering	10	43	2	14	1	5	1	2	14	64	78
Pre-Med	18	12	0	2	1	1	0	1	19	16	35
Pre-Nursing	17	1	1	0	0	0	0	0	18	1	19
Pre-Pharmacy	5	2	0	0	0	0	0	0	5	2	7
Psychology	17	6	4	4	2	1	0	0	23	11	34
Range Wildlife Science	0	3	2	10	0	0	0	0	2	13	15
Real Estate	1	2	0	0	0	0	0	0	1	2	3
Sociology	10	7	4	6	1	2	0	0	15	15	30
Theatre	1	1	0	0	0	0	0	0	1	1	2
Total	381	373	113	162	16	45	5	11	515	591	1,106

TASP Scores

The Texas Academic Skills Program (TASP) was implemented in the fall of 1989 as an early assessment and academic support program for all students entering Texas public institutions of higher education. Students were required to take the TASP test to determine if they had the reading, writing, and mathematics skills to be successful in college. Students found to have academic skill deficiencies were required to participate in continuous remediation programs until skill mastery was demonstrated by passing all three sections of the TASP test.

The state of Texas set a passing score on the Reading section of TASP at 230; however, TAMUK chose to set the passing score at 240. Students who did not pass the Reading section were not allowed to take core courses that required extensive reading and comprehension, such as History and Political Science; thus, many of the students who failed the Reading test were limited to taking developmental course and perhaps a kinesiology course during their first semester.

Students who took the TASP Reading Test scored fairly well, with a mean score of 244 on the first attempt. Those students who ultimately graduated had a mean first attempt score of 252 compared to 232 for those students who did not graduate (Table 23).

Table 23
Mean TASP Reading Scores of Fall 1990 Entering Freshmen by Gender and Ethnicity

	Hispanic		White		Black		Other		Total		
Group	**Female**	**Male**	**Female**	**Male**	**Female**	**Male**	**Female**	**Male**	**Female**	**Male**	**Total**
All Students	237.79	244.28	259.35	252.54	253.43	226.13	255.67	250.44	243.01	245.60	244.05
N	298	267	84	109	14	23	3	9	399	408	807
SD	34.42	35.20	30.21	33.41	35.88	32.80	16.29	26.73	34.63	34.84	34.4
Graduates	245.75	255.36	257.03	261.42	266.50	226.75	267.00	252.43	248.83	255.81	252.32
N	109	102	30	33	4	4	1	7	144	146	290
SD	31.64	26.63	28.34	22.02	13.30	41.16		29.18	30.90	26.51	28.71
Non-Graduates	228.57	231.35	243.38	236.14	230.83	232.57	237.00	243.50	231.42	232.95	232.19
N	68	55	16	22	6	7	1	2	91	86	177
SD	35.89	44.59	38.18	44.6	43.65	29.18		21.92	36.60	42.77	39.67
Transfers	235.80	240.48	267.89	253.80	274.25	222.17	263.00	–	244.34	243.32	243.83
N	121	110	38	54	4	12	1		164	176	340
SD	34.67	34.16	25.27	32.06	19.97	34.36			35.28	34.38	34.83

Students were allowed to take the TASP test as many times as necessary to achieve a passing score. However, it was recommended that a second attempt not be made until the completion of developmental courses. Interestingly, scores on the final attempt of the Reading test were lower than the initial attempt in all categories of students except the non-persisters, who had a mean final attempt score of 245 (as compared to a score of 232 on the first attempt). It may be hypothesized that this was due to the non-persisters' participation in developmental Reading classes, which may have helped improve their scores.

The minimum passing score on the Writing section of the TASP was 230 for the state and 240 for TAMUK. The scores on the Writing section of the TASP test were the lowest scores of all the three areas. The fall 1990 entering students scored a mean of 229. Even the students who ultimately graduated had a mean Writing score of 235, only marginally above the state passing score (Table 24).

The Math scores of the TASP test were average, with the fall 1990 students scoring a first attempt of 240. Although the state passing score was 230, TAMUK set the passing score at 240. Many of the students who did not initially pass were required to take developmental Math courses. The students who ultimately graduated scored significantly higher that those that never did graduate (249 compared to 226) (Table 25).

Table 24
Mean TASP Writing Scores of Fall 1990 Entering Freshmen by Ethnicity and Gender

	Hispanic		White		Black		Other		Total		
Group	**Female**	**Male**	**Female**	**Male**	**Female**	**Male**	**Female**	**Male**	**Female**	**Male**	**Total**
All Students	229.52	226.11	242.35	231.68	234.29	214.21	243.33	221.11	232.58	226.93	229.76
N	290	262	85	107	14	19	3	9	392	397	789
SD	30.22	31.61	28.81	31.73	33.45	28.54	25.17	30.19	30.37	31.60	30.99
Graduates	233.24	234.75	241.33	239.69	255.00	220.00	220.00	218.57	235.45	234.65	235.05
N	108	101	30	32	4	4	1	7	143	144	287
SD	27.47	25.32	29.80	36.76	30.00	28.28		33.88	28.15	28.82	28.49
Non-Graduates	226.09	220.93	233.75	225.00	218.33	214.00	240.00	230.00	227.13	221.18	224.16
N	64	54	16	22	6	5	1	2	87	83	170
SD	33.98	36.15	33.04	24.64	37.10	39.75		14.14	33.65	32.99	33.32
Transfers	227.97	220.56	246.67	229.62	237.50	212.00	270.00	–	232.96	222.88	227.92
N	118	107	39	53	4	10	1		162	170	332
SD	30.37	32.96	25.99	30.63	23.63	25.30			30.21	32.08	31.15

Table 25
Mean TASP Math Scores of Fall 1990 Entering Freshmen by Ethnicity and Gender

	Hispanic		White		Black		Other		Total		
Group	**Female**	**Male**	**Female**	**Male**	**Female**	**Male**	**Female**	**Male**	**Female**	**Male**	**Total**
All Students	232.02	241.41	251.38	255.86	241.43	215.91	269.33	258.00	236.74	244.21	240.48
N	298	266	85	109	14	23	3	9	400	407	807
SD	38.20	40.83	34.82	37.98	40.80	42.03	12.01	25.06	38.31	40.88	39.60
Graduates	242.22	252.02	244.60	266.27	269.25	237.25	281.00	265.14	243.74	255.47	249.61
N	109	102	30	33	4	4	1	7	144	146	290
SD	31.99	33.94	35.06	40.23	10.87	73.56		22.00	32.47	36.61	34.54
Non-Graduates	218.72	230.00	223.94	245.32	214.83	221.57	270.00	233.00	219.95	233.34	226.65
N	68	54	16	22	6	7	1	2	91	85	176
SD	36.57	47.98	34.70	30.26	39.66	37.43		22.63	36.30	42.94	39.62
Transfers	230.31	237.17	267.85	253.80	253.50	205.50	257.00	–	239.90	240.11	240.00
N	121	110	39	54	4	12	1		165	176	341
SD	41.79	40.97	25.21	38.49	42.81	31.43			41.46	41.25	41.36

The low scores on all three sections of the TASP test indicate many underlying problems for these students. Whether it is because of poor preparation in high school, the poor quality of the public schools, or the lack of a rigorous college-prep curriculum, there appears to be a real disconnect among what the schools are producing, how the students are performing, and what the university expects. The very low scores on the Writing section of the TASP may reflect a lack of writing experience in high school as well as limited English ability. Although no statistics were available on the TAMUK students' primary language in the home, it could be surmised that, given a population that was 68% Hispanic, English would not be the first language of many of the students, nor would they have mastery in written English. The fact that all scores are low should send a signal to the university and to the public schools that there needs to be discussion as to how to better align the high school curriculum with college expectations.

Developmental Courses

As previously stated, students who did not meet minimum passing standards on each of the three sections of the TASP test were required to take the appropriate developmental courses. The fall 1990 class of 1106 students took a total of 1081 developmental courses during their tenure at TAMUK.

Actual numbers of attempts show that 106 students at TAMUK (10%) took Developmental Reading at least once, while 26 of those students (25%) repeated the course a second time, and one student took the course eight times. Over 54% of the

students who took Developmental Reading were male, compared to 46% who were female (Table 26).

The TASP Writing test proved even more difficult than the Reading test for the class of 1990. A total of 300 students (27%) were required to take Developmental Writing and 92 students (31%) had to repeat the course, some up to seven times. Forty-six percent of the students who took Developmental Writing were female, compared to 54% who were male (Table 27).

Math proved to be the most difficult for TAMUK students. Although only 299 students in the fall 1990 class (27%) were required to take Developmental Math, 127 of them (43%) had to repeat the course two or more times. There were no significant gender differences: 49% of the students who took Developmental Math were female and 51% were male (Table 28).

Due to the method in which TAMUK tracked developmental courses, it was not possible to calculate an unduplicated headcount on students taking these courses. However, it could be assumed that if the 300 students who took Developmental Writing were the same students who took Developmental Reading (106 students) and Developmental Math (299 students), the results would be that only 27% of the entire freshmen class required remediation, which was lower than the national average of 55% (Manno, 1995).

Table 26
Number and Percent of Developmental Reading Courses Taken by Fall 1990
Entering Freshmen by Ethnicity and Gender

	Hispanic		White		Black		Other		Total		
Number of Courses	**Female**	**Male**	**Female**	**Male**	**Female**	**Male**	**Female**	**Male**	**Female**	**Male**	**Total**
6-8	0	1	0	0	0	0	0	0	0	1	1
3-5	4	3	0	0	0	2	0	0	4	5	9
2	12	9	1	0	0	4	0	0	13	13	26
1	39	39	4	9	2	9	2	2	47	59	106
Total	55	52	5	9	2	15	2	2	64	78	142
Percent of Group Requiring Developmental Reading	10.24	10.46	3.54	5.56	12.50	20.00	40.00	18.18	9.13	9.98	9.58

Table 27
Number and Percent of Developmental Writing Courses Taken by Fall 1990
Entering Freshmen by Ethnicity and Gender

	Hispanic		White		Black		Other		Total		
Number of Courses	**Female**	**Male**	**Female**	**Male**	**Female**	**Male**	**Female**	**Male**	**Female**	**Male**	**Total**
6-7	2	2	0	0	0	0	0	0	2	2	4
3-5	14	14	0	3	1	4	0	0	15	21	46
2	28	35	2	10	1	14	0	2	31	61	92
1	112	112	21	34	4	15	2	0	139	161	300
Total	154	133	23	47	6	33	2	2	187	245	432
Percent of Group Requiring Developmental Writing	29.40	30.03	18.58	20.99	25.00	33.33	40.00	18.18	26.99	27.24	27.12

Table 28
Number and Percent of Developmental Math Courses Taken by Fall 1990
Entering Freshmen by Ethnicity and Gender

	Hispanic		White		Black		Other		Total		
Number of Courses	**Female**	**Male**	**Female**	**Male**	**Female**	**Male**	**Female**	**Male**	**Female**	**Male**	**Total**
10-14	0	0	1	0	0	1	0	0	1	1	2
6-9	6	5	1	1	0	1	0	0	6	7	13
3-5	24	26	2	4	1	9	0	0	27	39	66
2	50	43	8	15	2	9	0	0	60	67	127
1	114	98	25	39	7	12	2	2	148	151	299
Total	194	172	36	59	10	32	2	2	242	265	507
Percent of Group Requiring Developmental Math	29.92	26.27	22.12	24.07	43.75	26.67	40.00	18.18	28.74	25.55	27.03

A national study found the proportion of students in the class of 1992 that required one or more developmental classes was 42%. Of those students, 11% required developmental reading and 70% did not complete their degree (Adelman, 2004). In 2000, on average, more than one-quarter of Hispanic students required remediation in English and more than one-half needed remediation in math (Schmidt, 2003).

As a final note on pre-and in-college characteristics, it should be noted that unfortunately, in 1990, TAMUK did not gather information regarding certain student characteristics. Therefore, it was not possible to track some of the significant variables that impact student attrition and retention as found in the literature review. There were no institutional data maintained on socioeconomic status, parental educational level, primary language in the home, high school curriculum, financial aid status, housing status, or work status. Additionally, although high school transcripts were required for initial admission to the university, the university did not use a computerized system until 1993; all hard copy records, including high school transcripts, were kept in storage until they were destroyed after five years.

Another point to note: all freshmen students at TAMUK were required to take a "University and Personal Success" orientation course, which was a 2-hour credit, pass/no pass course. No retention data was kept on the cohort; however, it would appear that because 100% of the students were required to take the course, there may be some positive correlation with the 83% retention rate from fall-to-spring. However, it should be noted that the first year retention rate (Fall 1990-Fall 1991) dropped to 50%.

Research Question 2. What Happened to the First Year Students Who Entered TAMUK in the Fall of 1990?

Of the 1106 students who entered TAMUK in the fall of 1990, 307 ultimately graduated (28%), 490 transferred to other state institutions (44%), and 309 did not persist (28%).

First Semester GPA

The first semester mean GPA of the fall 1990 class was disappointingly low at 1.89. The students who ultimately graduated showed more academic promise from the start by having a mean GPA of 2.46. As might be expected, the students who did not graduate had a lower mean GPA of only 1.53 (Table 29).

First Year GPA

By the end of the first year, the mean GPA's had not changed much. In fact, they were surprisingly static over the next several semesters. Overall, the mean GPA at the end of the first year was just 1.97 (Table 30). Students who ultimately graduated continued to have higher GPA's (mean GPA 2.51) than students who did not persist (mean GPA 1.58) and those that transferred (mean GPA 1.81).

Table 29
First Semester (Fall 1990) Mean Cumulative College GPA of Full-Time Fall 1990 Entering Freshmen

	Hispanic		White		Black		Other		Total		
Group	**Female**	**Male**	**Female**	**Male**	**Female**	**Male**	**Female**	**Male**	**Female**	**Male**	**Total**
All Students											
GPA	1.85	1.83	2.06	1.90	2.27	1.95	2.30	2.55	1.91	1.87	1.89
N	319	338	93	143	15	41	3	9	430	531	961
SD	1.08	1.08	1.05	1.10	1.22	1.01	2.07	0.87	1.10	1.08	1.09
Graduates											
GPA	2.43	2.42	2.54	2.52	2.69	2.29	4.0	2.78	2.47	2.46	2.46
N	103	106	24	32	4	3	1	7	132	148	280
SD	0.87	0.87	0.88	0.79	1.06	0.42	–	0.73	0.88	0.84	0.86
Non-Persisters											
GPA	1.31	1.55	2.17	1.51	1.54	1.87	0.00	1.75	1.46	1.58	1.53
N	81	86	19	38	7	19	1	2	108	145	253
SD	0.97	1.09	1.00	1.11	1.10	1.11	–	1.06	1.04	1.10	1.07
Transfers											
GPA	1.73	1.56	1.78	1.84	3.15	1.97	2.91	–	1.78	1.68	1.72
N	135	146	50	73	4	19	1	–	190	238	428
SD	1.10	1.04	1.07	1.11	0.95	0.99	–	–	1.11	1.06	1.08

Table 30
First Year (Spring 1991) Mean Cumulative College GPA (Full-Time Students)

	Hispanic		White		Black		Other		Total		
Group	**Female**	**Male**	**Female**	**Male**	**Female**	**Male**	**Female**	**Male**	**Female**	**Male**	**Total**
All Students											
GPA	1.89	1.94	2.15	2.08	2.06	1.84	3.09	2.62	1.96	1.98	1.97
N	288	299	72	119	13	40	3	9	376	467	843
SD	0.95	0.86	0.95	0.89	1.14	0.83	0.66	0.67	0.96	0.87	0.91
Graduates											
GPA	2.49	2.47	2.53	2.59	2.59	2.49	3.85	2.79	2.51	2.51	2.51
N	102	104	22	31	4	3	1	7	129	145	274
SD	0.70	0.67	0.81	0.66	0.82	0.60	–	0.62	0.73	0.66	0.69
Non-Persisters											
GPA	1.35	1.58	2.11	1.75	1.37	1.68	2.62	2.00	1.49	1.64	1.58
N	70	78	16	31	6	18	1	2	93	129	222
SD	0.82	0.81	0.99	0.86	1.11	0.76	–	0.53	0.91	0.81	0.86
Transfers											
GPA	1.72	1.72	1.93	1.99	2.73	1.89	2.81	–	1.78	1.82	1.81
N	116	117	34	57	3	19	1	–	154	193	347
SD	0.94	0.83	0.97	0.90	1.06	0.89	–	–	0.95	0.86	0.90

Students who ultimately graduated from TAMUK had higher GPA's during their first year; conversely, students who did not persist or who transferred had much lower GPA's during their first year at college. In the university environment at TAMUK, where there is a high proportion of students admitted on a conditional or provisional basis and where large numbers of students require remediation, one can expect the majority of students to have some difficulty in maintaining high GPA's. Better academic integration into the academic climate at the university, through intrusive advising, mentoring, and contact with faculty, might help students perform better and obtain higher GPA's, resulting in more students who would graduate.

Academic Standing

At TAMUK, students were placed on Scholastic Probation (SP) if their cumulative GPA fell below a 2.0. They were given one semester to raise their grades above the minimum. If they did not succeed, they were placed on Enforced Withdrawal (EW) for a semester, which meant that they had to sit out of school for at least one long term. However, students could appeal that decision and request to be re-instated. As the table below illustrates, the fall 1990 entering students spent an average of six semesters at TAMUK, with three of those semesters being on Scholastic Probation and/or Enforced Withdrawal (Table 31).

Table 31
Mean Number of Semesters of Enrollment, Scholastic Probation, and Enforced Withdrawal of Fall 1990 Entering Freshmen by Ethnicity and Gender

	Hispanic		White		Black		Other		Total		
	Female	**Male**	**Female**	**Male**	**Female**	**Male**	**Female**	**Male**	**Female**	**Male**	**Total**
Semesters Enrolled	6.04	6.08	4.96	4.89	5.63	4.33	4.00	9.55	5.77	5.69	5.73
N	381	373	113	162	16	45	1	11	515	591	1106
SD	4.55	4.63	3.98	4.13	3.45	0.30	–	5.20	4.43	4.49	4.46
Semesters on Scholastic Probation	1.46	1.41	1.25	1.43	1.67	1.38	1.00	1.50	1.43	1.41	1.42
N	234	229	49	93	9	34	1	4	293	360	653
SD	0.92	0.80	0.52	1.00	0.87	0.74	–	1.0	0.86	0.85	0.86
Semesters on Enforced Withdrawal	1.69	1.66	1.52	1.76	1.43	1.17	–	1.33	1.66	1.63	1.64
N	149	161	25	49	7	23	–	3	181	236	417
SD	1.03	0.94	0.65	1.16	0.79	0.39	–	0.58	0.98	0.96	0.97

The low GPA's coupled with the number of students placed on Academic Probation and Enforced Withdrawal reflect a lack of preparation for college. These students most likely have poor study habits and do not perceive what it takes to succeed in college. It may also be that these students lack academic integration into the university. With one-half of their experience at TAMUK being in academic jeopardy, it is no wonder that over two-thirds of the students transferred or dropped out entirely.

Retention and Graduation Rates

The entering freshmen class of 1990 had a low rate of graduation from TAMUK. Only 27.8% of the students who began at the university completed their bachelor's degree at the institution within the 10 years under study. According to ACT (2002), 46.1% of the college students who enter public institutions graduate within five years. The first graduates (n=3) from the TAMUK entering class of 1990 completed their education by the summer of 1993. The largest number of graduates, 106 students (34.5%), occurred at the end of the fifth year (1995). An additional 69 students (22.4%) graduated by the end of the sixth year (1996). In the last four years of this study (1997-2000), 77 more students graduated (25.1%), for a total graduation rate of 27.8% of the original enrollment. Nationally, a ten-year longitudinal study found that over half (51%) of all students who entered a public four-year institution graduated from the same institution within six years (ACE News, 2003). In spite of the persistent myth that circulates at TAMUK, students do not take any longer than average to graduate. Indeed,

those students who did ultimately graduate did so in less than the national average of six years.

The TAMUK attrition rate of 50% between the freshmen and sophomore year exceeds the attrition rates found in other national research, which generally ranged between 33-44% (Choy, 2002; Davidson & Muse, 1994; Levitz & Noel, 1989). A study by ACT (2002) reported a freshman-to-sophomore attrition rate of 29% at state institutions.

A review of the literature regarding gender and college success found that although women have achieved equality in attendance rates with that of men, their retention and completion rates tend to be lower (Flores, 1989; Schwartz, 2001; Tinto, 1987; Vives, 2001). Prior research also found that minority women are least likely to persist in college and that Hispanic women have the lowest completion rate of all populations (Chaćon et al., 1986; Muniz, 1994) (Table 32).

Graduates

Nationally, about one-half to three-fourths of the students who began their college education in 1989-90 obtained some type of post-secondary credential within four or five years; four out of ten were no longer enrolled, and one was still enrolled (ACT, 2002; Higher education: The changing marketplace, 1997). Twenty-five percent of all the institutions that have and enrollment of at least 5% Hispanic students have a Hispanic graduation rate of less than 30% (Carey, 2004).

Table 32
Retention and Graduation Rates of Fall 1990 Entering Freshmen by Semester

	Number Enrolled	% Original Enrollment	% Returning from Previous Semester	# Grads by Semester	# Grads by Academic Year	Year	Cum # of Grads	Grads as % of Original Enrollment	Grads as Cum % of Enrollment
Fall 90	1,106	100	–						
Spring 91	924	83.5	83.5			1st			
Fall 91	554	50.0	59.9						
Spring 92	538	48.6	97.1			2nd			
Fall 92	454	41.0	84.4						
Spring 93	413	37.3	90.9	3	3	3rd	3	.3	.3
Fall 93	386	34.9	93.4	6			9		
Spring 94	361	32.6	93.5	46	52	4th	55	4.7	5.0
Fall 94	311	28.2	86.1	45			100		
Spring 95	272	24.6	87.5	61	106	5th	161	9.6	14.6
Fall 95	208	18.8	76.5	33			194		
Spring 96	170	15.4	81.7	36	69	6th	230	6.2	20.8
Fall 96	136	12.3	80.0	20			250		
Spring 97	110	9.9	80.9	16	36	7th	266	3.3	24.1
Fall 97	93	8.4	84.5	7			273		
Spring 98	79	7.1	84.9	13	20	8th	286	1.8	25.9
Fall 98	66	6.0	83.5	5			291		
Spring 99	62	5.6	93.9	6	11	9th	297	.99	26.9
Fall 99	53	4.8	85.5	1			298		
Spring 00	42	3.8	79.2	9	10	10th	307	.90	27.8

Note: Summer semesters are not included as summer school enrollment fluctuates greatly and does not reflect consistent enrollment patterns; this table reflects retention rates from fall to spring and spring to fall.

The NCES (1998) reported that of all students beginning college in 1989, only 48% of the Whites, 47% of the Asian/Pacific Islanders, 34% of Blacks, and 32% of Hispanics had achieved their baccalaureate degree within five years. Twenty-five percent of the Hispanic students exceeded nine years before completing their degree, compared to 7% of the White and 20% of the Black open admission students (Lavin & Hyllegard, 1996).

In 1995, Manno found that only 31% of the students earned an undergraduate degree within four years, down from 47% in 1977; over 66% took five or more years to complete a degree, up from about 55% in 1977. Astin et al. (1996) found that fewer than two out of five students graduate within four years. In a study involving the University of Texas schools, Sharp (1998) found that students in the 43-county border region of Texas take longer than the traditional four years to graduate; fewer than one-quarter graduate within six years. Students graduating from border institutions took an average of 6.7 years to complete a degree.

The fall 1990 students at TAMUK tended to follow this same pattern. The students who graduated spent an average of 5½ years at TAMUK and had a mean cumulative GPA of 2.8. Over 73% of the graduates were Hispanic, 21% were White, 2.6% were Black, and 2.9% were Other.

Of the 1106 students who entered TAMUK in the fall of 1990, 307 ultimately graduated (28%), 490 transferred to other institutions (44%), and 309 did not persist (28%). Only 3% of the students who enrolled in the fall of 1990 graduated within the "traditional" four years. The majority of students who ultimately completed college at

TAMUK graduated between the fifth and sixth year (57% of the total 307 graduates). Of the 1106 students who entered TAMUK in the fall of 1990, 307 ultimately graduated (28%), 490 transferred to other institutions (45%), and 309 did not persist (28%). Only 3% of the students who enrolled in the fall of 1990 graduated within the "traditional" four years. The majority of students who ultimately completed college at TAMUK graduated between the fifth and sixth year (57% of the total 307 graduates) (Table 33).

Nationally, in the fall of 1990, females accounted for 53.8% of all first-time full-time college students (Dey et al., 1991). At TAMUK, females accounted for only 46.6% of the entering freshman class; however, the females graduated at rates equal to those of males: 49.2% compared to 50.7%. Over 30% of all the Hispanic females who entered TAMUK in the fall of 1990 ultimately graduated; of the 307 graduates, 37.8% were Hispanic females although they accounted for only 34.4% of the entering 1990 class. Their graduation rate of 30.4% exceeded the graduation rates of the Hispanic males (29.5%), Anglo females (26.5%), Anglo males (21.0%), Black females (25.0%), and Black males (8.9%). This did not support the findings of previous research, which has found that women belonging to minority groups are under represented in graduation rates from higher education (Cardoza, 1991) (Table 34).

Table 33
Number and Percent of Fall 1990 Entering Freshmen Who Graduated from TAMUK with Bachelor Degrees by Semester, Ethnicity, and Gender

	Hispanic		White		Black		Other		Total			
Semester	**Female**	**Male**	**Female**	**Male**	**Female**	**Male**	**Female**	**Male**	**Female**	**Male**	**Total**	**Percent**
Spring 93	1	0	0	0	0	0	0	0	1	0	1	0.33
Summer 93	1	0	1	0	0	0	0	0	2	0	2	0.33
Fall 93	1	2	1	1	0	0	0	1	2	4	6	1.95
Spring 94	15	8	5	6	0	0	0	0	20	14	34	11.07
Summer 94	9	2	1	0	0	0	0	0	10	2	12	3.91
Fall 94	23	15	1	3	0	1	0	2	24	21	45	14.66
Spring 95	18	14	8	3	1	1	1	1	28	19	47	15.31
Summer 95	4	4	2	2	1	0	0	1	7	7	14	4.56
Fall 95	10	13	5	3	0	1	0	1	15	18	33	10.75
Spring 96	11	13	2	4	1	0	0	0	14	17	31	10.10
Summer 96	2	3	0	0	0	0	0	0	2	3	5	1.63
Fall 96	7	7	1	5	0	0	0	0	8	12	20	6.51
Spring 97	6	0	1	1	0	0	0	0	7	1	8	2.61
Summer 97	1	6	0	1	0	0	0	0	1	7	8	2.61
Fall 97	2	3	0	2	0	0	0	0	2	5	7	2.28
Spring 98	0	7	1	1	0	1	0	0	1	9	10	3.26
Summer 98	1	2	0	0	0	0	0	0	1	2	3	0.98
Fall 98	2	2	1	0	0	0	0	0	3	2	5	1.63
Spring 99	1	3	0	0	0	0	0	0	1	3	4	1.30
Summer 99	0	2	0	0	0	0	0	0	0	2	2	0.65
Fall 99	0	0	0	0	0	0	0	1	0	1	1	0.33
Spring 00	1	2	0	1	1	0	0	1	2	4	6	1.95
Summer 00	1	2	0	0	0	0	0	0	1	2	3	0.98
Totals	116	110	30	34	4	4	1	8	151	156	307	100.00
Percent of Total Enrolled	30.45	29.49	26.55	20.99	25.00	8.89	20.00	72.73	29.32	26.39	27.77	

Table 34
Summary Characteristics of Graduates from Fall 1990 Entering Freshmen by Ethnicity and Gender

	Hispanic		White		Black		Other		Total		
	Female	**Male**	**Female**	**Male**	**Female**	**Male**	**Female**	**Male**	**Female**	**Male**	**Total**
Total Number Enrolled	381	373	113	162	16	45	5	11	515	591	1,106
Percent of Total Enrolled	34.4	33.7	10.2	14.6	1.4	4.1	0.5	1.0	46.6	53.4	100.0
Number of Graduates	116	110	30	34	4	4	1	8	151	156	307
Percent of Group that Graduated	30.4	29.5	26.5	21.0	25.0	8.9	20.0	72.2	29.3	26.4	27.8
Percent of All Graduates	37.8	35.8	9.8	11.1	1.3	1.3	0.3	2.6	49.2	50.8	100.0
Mean Number Semesters Enrolled Before Graduating	11.3	11.7	10.1	11.0	11.8	12.3	10.0	11.6	11.1	11.5	11.3
SD	3.0	2.8	2.3	2.4	1.0	2.6	-	3.8	2.8	2.7	2.8
Mean Cumulative GPA at Graduation	2.91	2.77	3.03	2.92	2.85	2.56	2.68	2.72	2.93	2.79	2.86
SD	0.41	0.38	0.41	0.37	0.45	0.48	-	0.43	0.41	0.40	0.40
Percent that Required Dev. Reading and Graduated	35.9	30.8	100.0	44.4	100.0	-	-	100.0	42.6	30.5	35.8
Percent that Required Dev. Writing and Graduated	43.7	36.6	57.1	52.9	100.0	6.7	-	100.0	46.8	38.5	42.4
Percent that Required Dev. Math and Graduated	49.1	45.9	48.0	51.4	4.3	1.7	-	100.0	48.0	44.4	46.2

Of the 307 students who ultimately graduated within the 10-year period of this study, the largest percentage (29.6%) was from the College of Arts & Sciences, followed by the College of Education (24.8%), the College of Engineering (19.2%), the College of Business Administration (12.4%) and the College of Agriculture & Human Sciences (10.4%) (Table 35).

It was difficult to track majors as students progressed through TAMUK. The initial major upon admission was recorded, as was the final major upon graduation. In many cases, the initial major data were miscoded. Other problems included the fact that the institution switched from a three-letter major coding system to a four-letter system in 1993; many students entered the university as LBA (Liberal Arts) majors, although this category was used by TAMUK to include the Undeclared majors as well as Education majors; and some students entered the university and declared majors that were not offered at TAMUK (e.g., Real Estate and Economics). Finally, TAMUK also offered degree tracks that lead to degrees which would require transferring. For example, TAMUK offered a Pre-Nursing major and a Pre-Med major but it was not possible to graduate from the institution with these degrees. Many of these students either transferred to complete their degrees or changed their major (example: from Pre-Med to Biology) and graduated from TAMUK. Table 36 provides information about majors upon entry and majors upon graduation.

Table 35
Number and Percent of Fall 1990 Entering Freshmen Who Graduated with Bachelor's Degrees Between Fall 1990-Summer 2000 by College

	Hispanic		White		Black		Other		Total		
College	**Female**	**Male**	**Female**	**Male**	**Female**	**Male**	**Female**	**Male**	**Female**	**Male**	**Total**
Ag & Human Science	8	11	4	7	1	0	0	1	13	19	32
Percent	6.90	10.00	13.33	20.59	25.00	-	-	12.50	8.61	12.18	10.42
Arts & Science	42	30	10	7	2	0	0	0	54	37	91
Percent	36.21	27.27	33.33	20.59	50.00	-	-	-	35.76	23.72	29.64
Business Administration	15	16	4	2	0	1	0	0	19	19	38
Percent	12.93	14.55	13.33	5.88	-	25.00	-	-	12.58	12.18	12.38
Education	44	15	11	5	0	1	0	0	55	21	76
Percent	37.93	13.64	36.37	14.71	-	25.00	-	-	36.42	13.46	24.76
Engineering	5	34	0	12	0	2	1	5	6	53	59
Percent	4.31	30.91	-	35.29	-	50.00	100.00	62.50	3.97	33.97	19.22
Unknown	2	4	1	1	1	0	0	2	4	7	11
Percent	1.72	3.64	3.33	2.94	25.00	-	-	25.00	2.65	4.49	3.58
Total	116	110	30	34	4	4	1	8	151	156	307
Percent of Total Enrolled	30.45	29.49	26.55	20.99	25.00	8.89	20.00	72.73	29.32	26.39	27.77

Table 36
Number of Students by Major Upon Entry and Upon Graduation

Major	Number Declaring as Original Major	Original Major and Graduated	Changed to This Major and Graduated	Total Number Graduates in Major
Ag Business	11	3	3	6
Accounting	40	4	4	8
Ag Science	8	0	6	6
Animal Science	37	6	4	10
Art	13	2	1	3
BA Applied Science	1	0	0	0
Biology	17	3	8	11
Chemical Engineering	11	1	9	10
Chemistry	7	0	0	0
Civil Engineering	6	1	3	4
Communication Disorders	5	2	3	5
Communications	24	4	1	5
Computer Info Systems	18	1	1	2
Computer Science Eng	7	0	3	3
Economics	1	0	0	0
Electrical Engineering	38	10	7	17
English	3	1	5	6
Finance	10	1	4	5
General Business	79	2	8	10
Geography	1	1	0	1
Geology	2	1	0	1
Health	1	0	0	0
Health/Kinesiology	1	1	20	21
History	5	3	1	4
Human Sciences	12	3	3	6
IDS/Elementary Education	88	25	28	53
Industrial Technology	3	2	9	11
LBA/Undeclared	306	0	0	0
Management	8	0	1	1
Marketing	17	0	8	8
Math	5	0	3	3
Mechanical Engineering	13	2	3	5
Med Tech	8	0	0	0
Music	22	2	1	3
Nat Gas Engineering	3	0	7	7
Physics	0	0	2	2
Plant Science	2	1	0	1
Political Science	40	4	2	6
Pre-Dental	9	0	0	0
Pre-Engineering	78	0	0	0
Pre-Med	35	0	0	0
Pre-Nursing	19	0	0	0
Pre-Pharmacy	7	0	0	0
Psychology	34	6	9	15
Range Wildlife Science	15	3	0	3
Real Estate	3	0	0	0
Sociology	30	4	3	7
Spanish	0	0	3	3
Theatre	2	1	3	4

Non-Persisters

Almost one-third of the students (27.9%) who entered TAMUK in the fall of 1990 eventually dropped out and never graduated from any state institution. On average, non-persisters were enrolled for four long semesters and had a mean cumulative GPA of 1.5 at the time of departure from the university. Of the non-persisters, a total of 204 students (66%) were Hispanic, while 73 were White (24%), 27 were Black (9%), and 5 were Other (2%). Slightly more than 45% of the non-persisters were female, while 55% were male (Table 37).

Transfer Students

A total of 490 students (44%) from the fall 1990 class eventually transferred to other institutions. Before they transferred, they attended TAMUK an average of 3½ semesters and had a mean cumulative GPA of 1.73 at time of transfer. About 66% of the transfers were Hispanic, 28% were White, 5.3% were Black, and fewer than 1% were Other (Table 38).

The 490 students who transferred from TAMUK attended a total of 3,814 semesters at other state institutions (counting semesters as fall, spring, summer I, and summer II), for an average of eight semesters per student. Sixty percent of the semesters were at 47 state junior and community colleges, while only 40% of the semesters were at 31 other state four-year institutions.

Table 37
Summary Characteristics of Non-Persisters from Fall 1990 Entering Freshmen by Ethnicity and Gender

	Hispanic		White		Black		Other		Total		
Variable	**Female**	**Male**	**Female**	**Male**	**Female**	**Male**	**Female**	**Male**	**Female**	**Male**	**Total**
Total Number Enrolled	381	373	113	12	16	45	5	11	515	591	1,106
Percent of Total Enrolled	34.4	33.7	10.2	14.6	1.4	4.1	0.5	1.0	46.6	53.4	100.0
# of Non-Persisters	103	101	27	46	8	19	3	2	141	168	309
Percent of Group that Did Not Persist	27.0	27.1	23.9	28.4	50.0	42.2	0.6	18.2	27.4	28.4	27.9
Percent of All Non-Persisters	33.3	32.7	8.7	14.9	2.6	6.1	1.0	3.6	45.6	54.4	100.0
Mean # Semesters Enrolled Before Dropping Out	3.9	4.2	3.9	3.4	3.6	2.6	2.0	5.0	3.9	3.8	3.8
SD	3.3	3.5	3.5	3.0	2.3	1.0	1.7	4.2	3.3	3.2	3.3
Mean Cum GPA at Time of Drop-Out	1.44	1.50	2.02	1.51	1.25	1.42	0.86	1.79	1.53	1.50	1.51
SD	0.85	0.95	1.12	0.96	0.88	0.66	1.49	0.23	0.94	0.92	0.93

Table 38
Summary Characteristics of Transfer Students from Fall 1990 Entering Freshmen by Ethnicity and Gender

	Hispanic		White		Black		Other		Total		
	Female	**Male**	**Female**	**Male**	**Female**	**Male**	**Female**	**Male**	**Female**	**Male**	**Total**
Total Number Enrolled	381	373	113	162	16	45	5	11	515	591	1,106
Percent of Total Enrolled	34.4	33.7	10.2	14.6	1.4	0.5	1.0	46.6	53.4	100.00	
# of Transfers	162	162	56	82	4	22	1	1	223	267	490
Percent of Group that Transferred	42.5	43.4	49.6	50.6	25.0	48.9	20.0	9.1	43.3	45.2	44.2
Percent of All Transfers	33.1	33.1	11.4	16.7	0.8	4.4	0.2	0.2	45.5	54.5	100.0
Mean # Semesters Enrolled Before Transfer	3.6	3.5	2.7	3.2	3.5	4.4	4.0	1.0	3.4	3.5	3.4
SD	2.7	2.5	1.9	2.6	3.7	2.6	-	-	2.5	2.5	2.5
Mean Cumulative GPA at Time of Transfer	1.65	1.62	1.88	1.85	2.91	1.79	2.73	4.00	1.74	1.72	1.73
SD	0.99	0.91	1.13	1.07	1.11	0.73	-	-	1.04	0.96	1.00
# that Graduated from Other Schools	37	36	18	20	3	0	0	0	58	56	114

Note: The data from THECB tracked only those students who transferred to another state institution; it did not track students who transferred to private or out-of-state schools. However, given the geographic origin of the vast majority of these students and their propensity to remain close to home, as well as the socioeconomic level of the South Texas region, it is assumed that few, if any, of the transfer students switched to private or out-of-state institutions.

A transfer rate of almost 50% should be alarming to TAMUK. It could be surmised that the university did not offer the courses of study that these students ultimately selected and therefore, they had to transfer to other institutions. However, upon examining the transfer institutions, it was found that they were remarkably similar in program offerings. In fact, TAMUK was the only university compared to the top five transfer institutions that offered engineering and agriculture programs. A more likely explanation for the high transfer rate could again be the lack of academic and social integration; students simply did not feel that they "fit" at TAMUK and decided to transfer to another school in hopes of finding a better fit.

The majority of transfer semesters (60%) were at community and technical colleges. This finding supports the research that indicates that Hispanic students more frequently attend two-year institutions.

As an interesting note, it was not unusual to find a student who entered TAMUK and attended for two semesters, then transferred to a community college for one or both summer sessions, then transferred back to TAMUK the following fall, only to transfer again to another university or, more likely, a community college. Because of the method in which the data were gathered from THECB and maintained in the TAMUK database, it was impossible to determine the actual number of students who attended other schools per semester; it was only possible to count the actual semesters of enrollment (Tables 39 and 40).

Table 39
Number of Semesters of Attendance by Transfers to State Community and Junior Colleges

College	# Semesters Attendance
Del Mar College	696
Bee County College	353
Texas Southmost College	166
TSTC Harlingen	153
Laredo Community College	123
San Antonio College	107
Southwest Texas Junior College	87
Victoria College	69
Austin Community College	66
Palo Alto College	58
South Texas Community College	51
Houston Community College	51
Blinn College	40
N. Harris Montgomery Co. College	25
San Jacinto College	23
Lee College	22
St. Philip's College	19
Central Texas College	18
Navarro College	17
Tarrant County Northwest Campus	16
TSTC Waco	13
Wharton County Junior College	13
Tarrant County Northeast Campus	11
McLennan Community College	8
Alvin Community College	8
South Plains College	7
Galveston College	7
DCCCD Richland	6
Midland College	6
Hill College	5
Tarrant County South Campus	5
El Paso Community College	4
Brazosport College	4
Kilgore College	4
Collin County Community College	3
Tyler Junior College	3
DCCCD Brookhaven	3
DCCCD North Lake	3
DCCCD El Centro	2
DCCCD Mountain View	2
TSTC Amarillo	2
Odessa College	2
N. Central Texas College	1
Angelina College	1
DCCCD Cedar Valley	1
Temple Junior College	1
Weatherford College	1
Total # Semesters at Community and Junior Colleges	2,286

Table 40
Number of Semesters of Attendance by Transfers to State Universities

University	# Semesters Attendance
University of Texas Pan American	312
Texas A&M University Corpus Christi	247
University of Texas San Antonio	132
Texas A&M University	111
University of Texas	109
Southwest Texas State University	89
University of Texas Brownsville	61
Sam Houston State University	57
University of Houston	57
Texas Tech University	51
University of Texas Arlington	42
University of North Texas	34
Texas A&M International University	25
Sul Ross University Uvalde	21
Angelo State University	20
Stephen F. Austin University	20
University of Houston Victoria	19
University of Houston Clear Lake	18
University of Texas El Paso	18
Texas Southern University	16
Texas Women's University	15
University of Houston Downtown	11
Lamar University	8
University of Texas Permian Basin	8
UT School Biomedical Science San Antonio	6
University of Texas School of Allied Health Dallas	6
UT School of Allied Health San Antonio	6
Sul Ross University Alpine	4
Midwestern State University	3
East Texas State University	1
University of Texas Dallas	1
Total # Semesters at Transfer Universities	1,528

In 2001, a ten-year national study found that only 43% of the students who entered an institution of higher education with the intention of completing a degree or certificate had actually earned that credential at their first institution (ACE News, 2003). Another study concluded that 29% of the students studied over a five-year period had

left their first institution without attaining their degree and enrolled in a different institution (NCES, 1996). However, another study revealed that 20% of the students in the entering class of 1992 who began at a four-year university ultimately graduated from a transfer institution (Adelman, 2004).

Also, it is worth reiterating that individual institutional retention rates typically understate postsecondary persistence. Retention statistics are generally based on single-institution reports; however, when students who transfer, stop out and return, or graduate from other institutions, the total postsecondary retention rate is considerably higher than the institutional retention rate (Carey, 2004; Choy, 2002).

Overall, it appears that the majority of transfer students at TAMUK were performing rather poorly academically and chose to transfer to community colleges in the immediate vicinity; both Del Mar (Corpus Christi) and Bee County (campuses in Kingsville, Alice, and Beeville) were within 60 miles of Kingsville, furthering the supposition that these students choose schools due to their proximity. Of those students who transferred to universities, most chose the valley (UT Pan American), Corpus Christi (TAMUCC), and San Antonio (UTSA)—again, in close proximity and most likely, close to home.

Interestingly, although a significantly high number of transfer students attended community and junior colleges, they did not graduate in the same proportion from those institutions. Rather, the higher number of graduates among transfer students was found at the university level. Fifteen percent of the transfers graduated from other state universities, compared to only 3% who graduated with associate degrees from state

community and junior colleges, and 5% who graduated with certificates. A disappointing 376 transfer students (77%) never graduated from their transfer institutions. (Again, note that this study was only able to capture data relating to state institutions).

Supporting prior research, this study found that of the 16 associate degrees awarded, 94% were received by Hispanic transfer students, while only 6% were awarded to White transfer students. Of the 22 community college certificates awarded, 68% were received by Hispanics, compared to 32% received by White students. No associate degrees or certificates were awarded to Black or Other students. There were no gender differences found between graduates with associates degrees; 50% were female and 50% were male. However, a disproportionate number of the certificates (68%) were awarded to females (n=15) and particularly Hispanic females (n=10), many of whom received certificates in cosmetology, again supporting the literature that indicates that Hispanic females often pursue lower educational attainment (Duran, 1994; Romo, 1998) (Table 41).

Of the 77 students who transferred and graduated from 18 other state universities, almost 58% were Hispanic, compared to 38% who were White, and 4% who were Black. Twenty-two percent of the transfer students graduated from Texas A&M University-Corpus Christi, followed by 14% from the University of Texas at Austin. There were no gender differences between the transfer students who graduated from universities; 50% were female and 50% were male (Table 42).

Table 41
Number and Percent of Transfer Students Who Graduated from State Community and Junior Colleges, 1990-2000, by School, Ethnicity, Gender, and Award

	Hispanic		White		Black		Other		Total		Combined
	Female	Male	Female	Male	Female	Male	Female	Male	Female	Male	Total
Total Number Enrolled	381	373	113	162	16	45	5	11	515	591	1,106
Number of Transfers	162	162	56	82	4	22	1	1	223	267	490
Percent of Group that Transferred	42.52	43.43	49.56	50.62	25.00	48.89	20.00	0.09	43.30	45.18	44.30
Percent of Total Enrolled that Transferred	14.65	14.65	5.06	14.65	0.36	1.99	0.09	0.09	20.16	24.14	44.30
Community/Junior College of Graduation											
Bee County	3	0	0	0	0	0	0	0	3	0	3
Del Mar	2	1	0	0	0	0	0	0	2	1	3
TSTC Harlingen	1	1	0	1	0	0	0	0	1	2	3
Texas Southmost	0	3	0	0	0	0	0	0	0	3	3
Laredo Comm. College	1	2	0	0	0	0	0	0	1	2	3
Central Texas College	1	0	0	0	0	0	0	0	1	0	1
Total Number Associate Degrees	8	7	0	1	0	0	0	0	8	8	16
Percent of Group	4.94	4.32	-	1.22	-	-	-	-	3.58	2.99	3.28
Percent of Total Enrolled that Transferred	2.09	1.87	-	0.62	-	-	-	-	1.55	1.35	1.45
Certificates											
Bee County	4	2	2	0	0	0	0	0	6	2	8
Del Mar	3	1	2	2	0	0	0	0	5	3	8
TSTC Harlingen	1	0	1	0	0	0	0	0	2	0	2
Texas Southmost	1	1	0	0	0	0	0	0	1	1	2
TSTC Amarillo	1	0	0	0	0	0	0	0	1	0	1
Hill College	0	1	0	0	0	0	0	0	0	1	1
Total Number Certificates	10	5	5	2	0	0	0	0	15	7	22
Percent of Group	6.17	3.09	8.92	2.44	-	-	-	-	6.76	2.62	4.49
Percent of Total Enrolled that Transferred	0.90	1.35	4.42	1.23	-	-	-	-	2.91	1.18	1.99
Total Combined Associates & Certificates	18	12	5	3	-	-	-	-	23	15	38
Percent of Group	11.11	7.40	8.92	3.66	-	-	-	-	10.31	5.62	7.76
Percent of Total Enrolled that Transferred	4.72	10.62	4.42	1.85	-	-	-	-	4.47	2.54	3.44

Table 42
Number and Percent of Transfer Students Who Graduated with Bachelor Degrees from State Universities, 1990-2000, by School, Ethnicity and Gender

	Hispanic		White		Black		Other		Total		
	Female	Male	Female	Male	Female	Male	Female	Male	Female	Male	Total
Total Number Enrolled	381	373	113	162	16	45	5	11	515	591	1,106
Percent of Total Enrolled	14.65	14.65	5.06	7.41	0.36	1.99	0.09	0.09	20.16	24.14	100.00
Number That Transferred	162	162	56	82	4	22	1	1	223	267	490
Percent of Group	42.52	43.43	49.56	50.62	25.00	48.89	20.00	0.09	43.30	45.18	44.30
University of Graduation											
TAMU Corpus Christi	7	4	2	3	1	0	0	0	10	7	17
UT Austin	3	2	1	4	0	0	0	0	4	6	10
UT Pan Am	5	4	0	0	0	0	0	0	5	4	9
UTSA	1	5	1	0	0	0	0	0	2	5	7
TAMU	0	0	1	5	0	0	0	0	1	5	6
SWTSU	1	0	2	0	1	0	0	0	4	0	4
Texas Tech	1	1	1	0	0	0	0	0	2	1	3
Sam Houston	0	1	0	2	0	0	0	0	0	3	3
UT Brownsville	0	1	0	1	0	0	0	0	0	2	2
UT Arlington	0	1	1	0	0	0	0	0	1	1	2
U of H Clear Lake	0	0	1	1	0	0	0	0	1	1	2
University of Houston	0	1	0	0	1	0	0	0	1	1	2
U of H Victoria	0	0	1	0	0	0	0	0	1	0	1
UNT	0	1	0	0	0	0	0	0	0	1	1
Tarleton	1	0	0	0	0	0	0	0	1	0	1
SF Austin	0	0	1	0	0	0	0	0	1	0	1
TAIU Laredo	1	0	0	0	0	0	0	0	1	0	1
Sul Ross	1	0	0	0	0	0	0	0	1	0	1
Number of Bachelor Degrees	21	21	12	16	3	0	0	0	36	37	73
Percent of Group	12.96	12.96	21.42	19.51	75.00	-	-	-	16.14	13.86	14.90
Percent of Total Enrolled	5.51	5.63	10.62	9.88	18.75	-	-	-	6.99	6.26	6.60

Research Question 3. What Pre- and In-College Characteristics Appear to Contribute to the Completion of College for the TAMUK Population?

Research questions 1 (who were the entering freshmen class of 1990?) and 2 (what happened to the first year students who entered TAMUK in the fall of 1990?) were addressed by using descriptive statistics, including frequencies, percentages, means, and standard deviations, which were summarized and presented to compare demographic variables. Research question 3 (what pre- and in-college characteristics appear to contribute to completion of college at TAMUK?) was addressed by using SPSS v. 11.5 backward stepwise (likelihood ratio) logistic regression techniques to determine if a model could be developed for predicting success (graduation) at TAMUK. The likelihood ratio technique was used because it provides a better criterion than the Wald statistic for determining variables to be removed from the model.

Significance level was set at .05 or less for inclusion in the model. Ethnicity, self-reported high school class rank, self-reported high school GPA, ACT composite, enrollment status, and gender were entered into the total or full model. Variables that were excluded from the model were age (88% ≤ age 20), marital status (91% were single), high school and county of origin (over 87% of the students came from the surrounding counties), residency status (over 97% were from in-state), admission status (redundant with ACT scores), college major (too much fluctuation), and TASP scores (redundant with HS GPA and ACT). Success (graduation) served as the dependent variable. The data analysis was run only on students who did or did not graduate from

TAMUK; transfer students were not included. Also, only those subjects with complete data sets (all significant variables) were used in the analysis.

Of the 1106 entering freshmen students, 307 graduated and 309 did not graduate (n=616). Of those 616 students, 537 reported an ACT score and 237 reported a HS GPA; all other variables in the analysis (race, gender, marital status, enrollment status, admission status, and college GPA) were present for all subjects. However, only 228 of those students reported *both* an ACT score and a HS GPA and therefore were included in the analysis. Of these 228 students, only 45 (19.7%) graduated. The 388 students who did not have both an ACT score and a HS GPA were not included in the final analysis (Table 43).

Table 43
Case Processing Summary

Unweighted Cases	**N**	**Percentage**
Selected Cases		
Included in Analysis	228	37.0
Missing Cases	388	63.0
Total	616	100.0
Unselected Cases	0	0
Total	616	100.0

Table 44 illustrates the range of scores for the valid cases included in the analysis. ACT scores ranged from a low of 5 to a high of 29 and HS GPA's ranged from 69-99.

Table 44
Descriptive Statistics

	N	Minimum	Maximum	Mean	Standard Deviation
ACT Comp	537	5	29	16.29	3.65
HS GPA	237	69	99	85.97	5.55
Valid N	228				

The results of the logistic regression revealed two steps in the development of the final model (Table 45). The first statistically significant predictor was high school GPA (.006). The second statistically significant predictor was the ACT Composite (.030). The coefficients and associated statistics for the significant variables are shown below. The B column represents the unstandardized logit coefficients for each independent variable and the constant. The Wald statistic is commonly used to test the significance of individual logistic regression coefficients for each independent variable. It is the ratio of the unstandardized logit coefficient to its standard error. The Exp(B) column represents the odds ratio for each independent variable and the constant.

Table 45
Variables in the Equation

	B	SE	Wald	df	Sig.	Exp(B)
Step 1						
HS GPA	.096	.035	7.439	1	.006	1.101
ACT Comp	.133	.061	4.718	1	.030	1.143
Constant	-8.900	2.893	9.461	1	.002	.000

One way to assess how well the model fits is to compare predictions to the observed outcomes. In Step 0, when all variables were included, the model correctly classified outcomes with all 80.3% accuracy (Table 46).

Table 46
Classification Table Step 0

		Predicted		
		Finish		%
	Observed	GRAD	No GRAD	Correct
Step 0	Predicted Graduation	0 True Positive – predicted to GRAD and DID	45 False Positive – Predicted to GRAD and DID NOT	.0
	Predicted No Graduation	0 False Negative – Predicted NOT to GRAD but DID	183 True Negative – Predicted NOT to GRAD and DID NOT	100.0
	Overall Percentage			80.3

In Step 1, the removal of all variables except those with statistical significant (HS GPA and ACT) increased the accuracy of the model by less than 2%, to 81.6% (Table 47). This table compares the observed and predicted group memberships when cases with a predicted probability of .5 or greater are classified as having graduated from TAMUK. Five students who graduated were correctly classified, while 181 of the students who did not graduate were correctly classified. Additionally, 40 of the students who graduated were incorrectly classified not to graduate and two of the students who were classified not to graduate actually succeeded. Of the students who did succeed (graduated), only 11.1% were correctly classified while 98.9% of the unsuccessful (non-graduating) students were correctly classified. Overall, 81.6% of the students were correctly classified. The model more accurately classifies those who will not graduate but does not classify those who will graduate.

Table 47
Classification Table Step 1

		Predicted		
		Finish		%
	Observed	GRAD	No GRAD	Correct
Step 0	Predicted Graduation	5 True Positive – predicted to GRAD and DID	40 False Positive – Predicted to GRAD and DID NOT	11.1
	Predicted No Graduation	2 False Negative – Predicted NOT to GRAD but DID	181 True Negative – Predicted NOT to GRAD and DID NOT	98.9
	Overall Percentage			81.6

Backward logistic regression starts with all of the variables entered into the model. Then, at each step, variables are evaluated for removal or retention. The score statistic is always used for determining whether the variables should be added to the model. For each variable in the final model, Table 48 contains the log-likelihood for the model if the variable is removed from the model, the change in -2LL if the variable is removed, and the observed significance level for the change. If the observed significance level is grater for the cutoff value for the remaining model, the term is removed from the model and the model statistics are recalculated to see if any other variables are eligible for removal.

Table 48
Model if Term Removed

	Variable	Model Log Likelihood	Change in -2 Log Likelihood	df	Significance of the Change
Step 1	HS GPA	-107.670	7.924	1	.005
	ACT	-106.307	5.197	1	.023

Table 49 shows the model summary statistics for the model with the significant variables. For this model, the value of -2LL is 207.406, which is less than the model containing only the constant (-2LL=226.500). The next two entries, the Cox and Snell R Square and the Nagelkerke R Square, are statistics that attempt to quantify the proportion of explained variation in the logistic regression model.

Table 49
Model Summary

Step	-2 Log Likelihood	Cox & Snell R Square	Nagelkerke R Square
1	207.406[a]	.080	.128

[a]Estimation terminated at iteration number 5 because parameter estimates changed by less than .001.

The probability of observed results, the -2 log likelihood, is very high, indicating that the model is a poor fit and is not a good predictor of graduation. The Cox & Snell R square and the Nagelkerke R Square are not goodness-of-fit tests, but rather, are attempts to measure strength of association. Both the Cox & Snell (.080) and Nagelkerke (.128) are low, indicating that the model can explain only 8-12% of the variance of the dependent variable. These results are similar to Tinto's (1987) findings that found that high school grades account for only 12% of variance in predicting college success; the other 88% was unaccounted for in his study.

SPSS logistic regression reports the difference between the constant-only model and the full model as the Model Chi-Square. The results of this analysis (Table 50) show that the model with all predictors is no better than one with only the constant.

Although this study's analysis found some statistically significant in predicting graduation from college, there is little practical significance in these results.

Table 50
Omnibus Test of Model Coefficients

		Chi-Square	df	Sig.
Step 1	Step	19.094	2	.001
	Block	19.094	2	.001
	Model	19.094	2	.001

What may be a more relevant outcome of this study is the awareness of the variables for this population that are *not* significant predictors of success. Race, gender, and admission status were not significant in terms graduation from college. The fact is that none of the variables in this study resulted in any practically significant predictors of success. This leads the researcher to conclude that it may possibly be the variables that were *not* studied—i.e., persistence, motivation, achievement—that may, in fact, impact retention and graduation. This premise certainly warrants further investigation. Also, it should be noted that missing data for a large portion of the subjects in this study mitigates meaningful interpretation of the results.

Logistic regression does not provide a cut-off score for predictability; it simply predicts the probability of membership in a group (graduation or not). However, it is possible to view individual ACT scores of the TAMUK entering students in terms of the percent that graduated (Table 51). The mean ACT composite score for all students was 16.75; 47.7% of the students scoring a 16 graduated from TAMUK. As might be expected, the higher the ACT score, the larger the percent of students that graduated. Conversely, the lower the ACT score, the less percent that graduated. Interestingly, students who scored an ACT of 12, 13, 14, or 15 also graduated at a rate of nearly 50%.

Key Findings

Key findings related to research question 1: Who were the entering freshmen class of 1990?

Pre-College Characteristics

1. Students who entered TAMUK in the fall of 1990 were evenly divided between male (53.4%) and female (46.6%), young (79% age 19 or less), single (91.4%), and primarily Hispanic (68.2%). The majority attended school full-time (87.4%) and took an average of 14 hours during the fall semester.
2. Almost half (46%) of the students came to TAMUK from high schools within 50 miles of Kingsville, and the majority (56%) were from Kleberg County and the immediately surrounding four counties.

Table 51
ACT Scores and the Percent of Graduates

ACT Score	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29
N	1	0	1	2	3	5	22	32	52	58	67	65	51	48	34	32	23	13	8	7	7	3	1	3	2
% that Grad	100.0	-	0.0	0.0	0.0	0.0	22.7	46.9	51.9	44.8	46.3	47.7	54.9	68.8	61.8	56.3	73.9	53.8	37.5	71.4	100.0	100.0	100.0	66.7	100.0

3. The mean ACT composite score of this entering class of freshmen was 16.76, well below the national mean of 21. The mean SAT verbal score was 357 and the mean SAT quantitative score was 407, also well below the national means of 499 and 500, respectively.

In-College Characteristics

1. The lowest mean TASP scores were in Writing (229.76), followed by Math (240.48) and Reading (244.05).
2. The 1106 entering freshmen took 1081 developmental courses throughout their tenure at TAMUK. Slightly more than 10% took Developmental Reading classes, 27% took Developmental Writing classes, and 27% took Developmental Math classes.
3. First semester GPA's averaged 1.89, rising slightly to a 1.97 at the end of the first year.
4. The average student spent six semesters at TAMUK, with 1.4 of those semesters on scholastic probation and 1.6 semesters on academic withdrawal.

Key findings related to research question 2: What happened to the first year students who entered TAMUK in the fall of 1990?

1. Of the 1106 entering students, 307 (28%) graduated from TAMUK, 309 (28%) were non-persisters, and 490 (44%) transferred to other state institutions. The first semester attrition rate was only 16.5%; however, the first year attrition rate was 50%.

2. Hispanic females graduated at a rate of 30.4, which was the highest rate of any ethnic or gender group. The lowest graduation rate was found among Black Males (8.9%). Missing data on a large number of subjects mitigates meaningful interpretation of the results.
3. Only 111 (22.6%) of the 490 transfer students ever graduated from other state institutions: 22 received certificates, 16 received associate degrees, and 73 received bachelor degrees. Examining only the institutional rates of graduation tends to understate student persistence. The transfer graduation rate of 22% combined with the TAMUK graduation rate of 28% raises the overall persistence rate to 50%.

Key findings related to research question 3. What pre- and in-college characteristics appear to contribute to completion of college at TAMUK?

1. Only high school GPA and ACT composite were significant variables when predicting classification (graduation or no graduation). The model with the constant alone correctly classified results with 80.3% accuracy, while the addition of the HS GPA and ACT composite increased the accuracy of classification to only 81.6%.
2. Other variables such as ethnicity and gender had no predictive value in this study and were not found to be statistically significant.

CHAPTER V

CONCLUSIONS AND RECOMMENDATIONS

The purpose of this study was to describe in detail the characteristics—both pre-college and college—of the 1990 entering freshman cohort at Texas A&M University-Kingsville and to describe what happened to those students as they progressed on their academic journey. A secondary purpose was to determine what characteristics appear to predict graduation from college.

The review of the literature supports the need for this type of study. Despite small gains in educational attainment made by Hispanics in recent years, they continue to lag behind in many areas. Much of the rise in minority enrollment in higher education is due simply to the growth in the numbers of Hispanics in the population. High school drop-out and suspension rates remain high and college completion rates still fall behind those of Whites and Blacks (NCES, 2002). Additionally, Texas A&M University President Gates has stressed the need to focus on "action not rhetoric" in addressing the diversity initiatives to attract and retain minority students (Gates, 2004). A TAMU Hispanic Network has been established to address how the university can achieve its goals relating to recruitment, retention, campus life, and leadership opportunities for Hispanic students. As a part of the TAMU System, TAMUK has an obligation to assist in these efforts on its own campus.

Summary of Findings

1. It appears that TAMUK is educating a less-well prepared group of students compared to state and national norms. Although the majority of the entering students (64%) reported that they were in the top quartile of their class and 84% reported that they had a "B" or better high school GPA, the average ACT and SAT scores were very low (16.8 composite and 357 verbal/407 quantitative, respectively). In addition, their college admission status as determined by TAMUK reflected that 71% of the students were admitted to the university on either Conditional Admission or Provisional Admission.
2. The students that are attracted to TAMUK want to stay close to home; the majority (56%) of students came from Kleberg County and the four adjacent counties. Almost half (46.2%) of the students came from high schools within 50 miles of the university. Students who transferred also stayed close to home in their choice of transfer schools. The majority transferred to state community and junior colleges, most likely because of proximity, cultural influences and cost. Although this study was only able to track students who transferred to state institutions, given the demographic characteristics of the TAMU population, it is highly unlikely that few, if any, of the students transferred to out-of-state or private institutions.
3. The high freshmen-to-sophomore attrition rate may be explained by a lack of academic integration into the university. Students appear to be ill-equipped

to meet the demands of the university. In general, the entering freshmen displayed only moderate-to-poor performance in high school, followed by marginal performance at the university. The fall 1990 to spring 1991 retention rate was 83.4%. However, the fall 1990 to fall 1991 retention rate dropped to 50%, well below the national mean. By the end of the second year (spring 1993), the retention rate was 37.3%, where it appears to have stabilized until students began graduating in the spring of 1995. Overall, students at TAMUK appear to lack academic and/or social integration into the university, as evidenced by the low retention rate and short amount of time spent at the university. Although graduates averaged an attendance of 11 semesters (with three of those on academic probation or enforced withdrawal), transfers attended only 3.5 semesters (two on academic probation and enforced withdrawal) before transferring to another institution. Non-persisters averaged four semesters of attendance (three on academic probation or enforced withdrawal) before dropping out of TAMUK.

4. TAMUK appears to do a better job of educating Hispanic females. A higher proportion of Hispanic females ultimately completed their bachelor's degree (30.4%), which represented 37.8% of the graduating students. This is in direct contradiction of prior research, which has found that Hispanic females have typically been the least likely to persist in school.

Discussion and Implications

Perhaps one of the most compelling reasons for critically examining TAMUK's student population is to simply review the demographic predictions for the South Texas region. Texas' 2.1 million population increase from 1990-1996 accounted for 12.6 % of the entire nation's growth. The growth resulted from a 55.2% increase in natural growth, a 23% increase in international immigration, and a 21.8% increase in domestic immigration. If this growth rate is sustained, the state's population is expected to double in 37 years (Murdock, 1997). Of the total net change in the state's population from 1990 to 2030, 87.5% is expected to come from the growth in minority populations (Murdock et al, 1996). Population growth consists of two factors: natural increases and regional net migration. The border region of Texas has historically grown at a much faster rate than the rest of the state, and this trend is expected to accelerate. By 2020, the population growth in the South Texas region will outpace the state rate by more than 30%, not counting net migration, which is also expected to remain strong, with nearly 1 million more people moving into the border areas than out through 2020. The combined effects of net natural and in-migration will increase the border population by nearly 2.3 million people by 2020. Enrollment in colleges and universities in South Texas is expected to increase by 30% by 2010 (Sharp, 1998). Additionally, in 1995, TAMUK became a qualifying Border Serving Institution (Higher Education Opportunities . . . , 1997). Included in the Special Programs statute of the Texas Education Code, the university can now offer in-state tuition eligibility to students from bordering states

attending schools within Texas counties 100 miles of that bordering state. Thus, TAMUK can expect to see more and more students from Mexico.

It is also likely that TAMUK will continue to draw its students from the south Texas region, which has, and will continue to have, underserved and underprepared students entering higher education. It will take another generation, or perhaps two, before the institution will see improvement in the quality of its entering freshmen. Even with the *No Child Left Behind* Act, the continued lack of funding for public schools, high teacher attrition rates, and an economy based, in large part, on manual labor and manufacturing, will continue to contribute to the undervaluation of higher education. Cultural influences of the Hispanic population are changing ever-so-slowly and will continue to influence decisions about whether or not to attend college and which school to select.

In 1990, there were 738,255 persons enrolled in higher education in Texas; in 2030, that number is expected to increase by 370,000 students, to a total of more than 1,110,750 (Texas Challenged, 1996). According to 1990 Census figures, one in five Texans earned a college degree, yet only 32% of the 19 year olds were enrolled in college in 1996, well below the national average of 40% (Vertuno, 1999). In 1993, Texas colleges and universities awarded 66,000 bachelor's degrees to students, but that number must increase to 81,000 by 2003 in order for the state to remain economically strong (Wright, 1996). A skilled, motivated, and educated workforce is essential for building and maintaining a strong competitive state economy. Jobs requiring a college degree are projected to account for nearly 45 to 60% of all jobs to be created between

1994 and 2005 (Higher education: The changing marketplace, 1997) and yet, students in South Texas, and particularly at TAMUK, are not obtaining the educational levels necessary to attain these jobs.

Recommendations

1. Given the mission of Texas A&M University-Kingsville and the probability that students who choose to attend the institution will most likely continue to come from economically depressed, rural areas, where poor public schools and an undereducated population are the norm, it is important for the university to find ways to intervene and create opportunities for success.
2. The proportion of Hispanics completing a college degree has not increased since 1990. By the year, 2000, only 10% of the adult Hispanic population ages 25-29 had a bachelor degree, compared to 34% of Whites and 18% of Blacks (NCES, 2003). With a freshman-to-sophomore attrition rate of 50% and a graduation rate of less than 28%, it is in the best interest of TAMUK to find ways to identify potential non-persisters and implement an effective intervention program. Not only would this result in a more satisfying educational experience for the student, there would be an improved retention and graduation rate for the institution, and thus an improved image, as well as financial gain.
3. Interventions at all levels which promote social and academic involvement at the institution can effectively enhance persistence. Duran (1986) emphasized

the need to learn more about how background and personal characteristics of Hispanics interact with high school achievement, admissions test scores, and college achievement in order to better predict grades. TAMUK should have a sound knowledge of the population characteristics of Hispanics and what factors influence their educational opportunities in order to better design an institutional environment and academic interventions that will aid in academic success.

4. The lack of specific data on all students, such as valid high school GPA, high school rank, and college entrance exam scores, made it difficult for this study to develop a model for predicting college success. Improved methods for capturing complete student data would enhance the institutional capability for predicting, planning and intervening.
5. At TAMUK, additional planning and research needs to focus on designing a longitudinal database capable of tracking each student on a semester-by-semester basis. The ability to monitor trends of stop-outs and non-persisters over several years is crucial to improving methods of intervention. The institution must continue to study why students stopout and why they drop out. There is a critical need to develop and implement an early identification system for high risk students and respond to their needs. TAMUK should also analyze institution-specific characteristics and students' reasons for persistence to graduation.

6. It is important to note that some vital determinants of college persistence include motivation, self-expectations, and self-esteem, as well as student and parental aspirations, and support and encouragement from significant others. This study was unable to capture any information of that nature. In predicting future college persistence, it would be valuable to utilize Cooperative Institutional Research Program (CIRP) data, the Learning and Study Strategies Inventory (LASSI), and other instruments such as the Intrinsic Motivation Inventory (IMI) and the College Student Inventory (CSI) to gather such information.
7. Because higher education is an important avenue to socioeconomic mobility and independence, it is critical to the survival and prosperity of the South Texas region to better educate the population. The data produced from this study indicate that far too many students do not complete their college education. Of the 1106 who entered TAMUK in the fall of 1990, 27.7% graduated from TAMUK, 6.6% completed a bachelor's degree at another state institution, 1.4% graduated with an associate degree, and 2% completed a community college certificate program; the remaining 62.3% did not complete their education at any state school in Texas. As expressed by Kevin Carey (2004),

> . . . low college graduation rates are something that our economy can no longer afford and our society must no longer tolerate. As a nation, we have been profligate with our aspiring college students. Every

> year, hundreds of thousands of young people leave our higher education system unsuccessfully, burdened with large student loans that must be repaid, but without the benefit of the wages that a college degree provides. These students are disproportionately low income and people of color. For many, going to college was their first, best, and last opportunity for real economic mobility and success. These are the people who are most vulnerable to the vagaries of an increasingly globalized and volatile job market. Without a degree, they face an uncertain and unstable future. (p. 5)

8. In order to increase retention and graduation rates, TAMUK should take advantage of its unique identity and location and take a proactive approach to find ways to enhance the social and academic integration of their students. The data from this study showed that 56% of the fall 1990 entering students came from Kleberg County and the four adjacent counties; an additional 31% came from the surrounding 12 counties in South Texas. As a comprehensive, regional university, TAMUK should focus upon the social and geographical milieu in which it functions. As suggested by Duran (1986) in his research, we need to learn more about how personal and background characteristics of Hispanics interact with high school achievement, admissions test performance, and college achievement in order to determine to what degree we can expect accurate prediction of college success. The ability to grasp what factors impact Hispanic success in college needs to be based on sound

knowledge of the population characteristics and the diversity of those characteristics. Only then will TAMUK be able to create an institutional environment and provide academic interventions that will aid all students in attainment of their academic goals.

9. In referencing the "college fit" theory, TAMUK should more carefully assess its applicants and focus on pre-college characteristics in light of the academic demands of the institution. An early, thorough evaluation of the students would allow counselors and faculty advisors to respond to student needs more effectively, and would allow for successful support and continuation of those students that were accepted. Once admitted, students would benefit from a comprehensive, well-planned orientation that assists them in adjusting to those academic demands and expectations, as well as student services and activities (Wyckoff, 1998).
10. The university should also consider examining other psychological factors that appear to influence persistence. It has been found that motivation for college work (as measured by the LASSI) showed a significant difference in the success of first-time students (Forster et al., 1999). Also, although demographic variables may predict early retention, it has been found that stress-coping factors may become more predictive later (Ryland et al., 1994). It has been suggested that student assessment must include the whole person, including the study of all measures of coping effectively with the college experience (Witherspoon et al., 1999).

11. Of the 1106 entering freshmen in 1990, 490 eventually transferred to other institutions, and over 77% of those never graduated at all. Over 60% of the transfer semesters were spent at community and junior colleges. It has been shown that the development and strengthening of articulation agreements with community colleges helps improve transfer retention rates and improves the continuity experienced by students when moving from a community college to a university (Avalos & Pavel, 1993). TAMUK should strengthen their articulation and 2+2 agreements with the community colleges in the surrounding area, not only to smooth the transition of sophomore students from the community colleges to the university, but also to encourage the return of students who leave TAMUK. More emphasis needs to be placed on articulation agreements and transfer policies, as well as orientation programs targeting transfer students and their unique problems. Past studies have shown that it benefits both the students and the institution to strengthen transfer student orientation (Richardson & Bender, 1987).
12. This study should be replicated on a cohort with full data sets in order to more accurately assess the predictability of variables.

Recommendations for Future Research

It is important to recognize that research supports the value of developing an institutional retention model and measures of institution/student fit (Gillespie & Noble, 1992; Tinto, 1975). This 1990 cohort data should be utilized by the institution as a

comparison of other cohorts to conduct longitudinal studies on retention and graduation, as well as the relationship between pre-college and in-college characteristics of other cohorts.

1. Further research is warranted to explore more fully the relationship between personal characteristics not captured by this study. Traits such as motivation, persistence, and determination may be significant predictors of college success.
2. Qualitative research is needed to fully assess the interplay between Hispanic students and faculty in order to understand more fully how social and academic integration inside and outside the classroom could be achieved, thereby increasing the likelihood of college success. This study was unable to capture any information regarding student's attitudes about faculty, contact with them, or mentoring by them. Numerous studies have cited faculty-student interaction as critical for persistence for all students because it increases social and academic integration and institutional commitment (Velasquez, 1996; Muniz, 1994; Pascarella & Terenzini, 1991; Tinto, 1987).
3. The institution should undertake research of the advising process and retention. TAMUK did not assess any component of the advising process for freshmen or other students. The data in this study indicate that in addition to a high rate of attrition, there are a significant number of students who change majors, some of whom graduate and many who do not. An examination of the advising process might reveal flaws or suggest advising strategies that

would increase retention. Academic advising by faculty has been found to be an important method for increasing faculty-student interaction and can lay the groundwork for further academic and social integration (Beal & Noel, 1985; Frost, 1991; Miller, 1991; Petress, 1996; White & Moseley, 1995).

4. Qualitative research is needed to fully assess why students transfer to other institutions and what could possibly be done to retain those students.
5. This 1990 cohort data should be utilized by the institution as a comparison of other cohorts to conduct longitudinal studies on retention and graduation, as well as the relationship between pre-college and in-college characteristics of other cohorts. Particular attention should be paid to high school curricula.
6. The institution should collect data and conduct research on the socio-economic status, parental educational attainment, financial aid status, housing status, work status (number of hours worked per week) of students.
7. Further study of Hispanic educational attainment is warranted. There is a need for research that focuses on predominately Hispanic-serving institutions in order to identify best practices and benchmarks that enhance the quality of the educational experience for students.

The American Dream promotes the belief that all citizens are entitled to equal educational opportunities and that social mobility, equal access, and a job for every citizen are cornerstones of our nation. The reality is that our society is stratified and the gap is widening; alarms are being sounded over the growing division around the concept of class (Henricksen, 1995; Justiz, 1994). In 1990, the Business-Higher Education

Forum of the American Council on Higher Education produced a report outlining the realities of minority life in the United States. They found that every 30 minutes, 250 new Americans arrived in this country. During that same half hour, 50 young people dropped out of school, 85 committed a violent crime against another person, and 27 teenage girls gave birth, 16 of them out of wedlock. By the end of the school year, 1 million students had dropped out of high school, over 1.3 million had committed a violent crime, and 478,000 teenagers had babies (Blandin, 1994). Minority students—Hispanics, Blacks, and American Indians—continue to be less likely to graduate from college. This failure undermines the very foundation of our nation, limits our ability to build a competitive workforce, and challenges our educational system's capacity to respond to demographic predictions (Richardson & De Los Santos, 1988). Degree attainment is particularly important to minority groups who have long been under represented and who strive to become major players in social, political, and economic realms (Deskins, 1991). Unless we can improve the collegiate experience and provide a more effective learning environment for all students, educational access and educational success will remain an unfulfilled dream for many (King, 1999).

A society that seeks to include all its citizens in meaningful and productive roles must cultivate the intellectual capacities of *all* students. Higher education must be committed to providing all individuals with the education and skills to face the challenges of the future. In a multicultural society, everyone must work together to see that all students are empowered and encouraged to succeed (WICHE, 1987). Colleges and universities have a responsibility to provide the type of education that will enable

students to attain their dreams and serve the society it will lead in the future. Texas A&M University-Kingsville must show a willingness to provide services in tune with student needs, develop and implement programs to impact student success, hire and train the necessary faculty and staff, and develop an institutional environment in which all students, regardless of background, can flourish. Frank Newman (1994) said it best:

> Whenever, 'We, the people' set out to form a more perfect union, acting in concert on matters of deep conviction, we have proved a potent force. When we . . . created the G.I. Bill . . . and immensely expanded student aid by means of work/study, Pell Grants, and loan programs . . . we greatly affected the size and shape and power of higher education in America. Our American belief that higher education should be a pathway to social mobility led to the founding of land-grant universities, the hundreds of state colleges, and, more recently, the widespread development of community colleges. Our efforts to improve higher education for minorities can, and should, be at least as determined. (p. 348).

REFERENCES

ACE News. (2003). *Minority college enrollment surges over the past two decades: Students of color still lag behind whites in college participation.* [On-line]. Available: http://www.acenet.edu/news/press_release/2003/10october/minority_report.cfm.

ACT. (2002). *College graduation rates steady despite increase in enrollment.* [On-line]. Available: http://www.act.org/new/releases/2002/11-15-02.html.

Adelman, C. (2004, April). *Principal indicators of student academic histories in postsecondary education, 1972-2000.* Washington, DC: U.S. Department of Education, Institute of Education Sciences.

Allen, W.R. & Haniff, N.Z. (1991). Race, gender, and academic performance in U.S. higher education. In W.R. Allen, E.G. Epps & N.Z. Haniff (eds.), *College in black and white: African American students in predominantly White and in historically Black public universities* (pp. 95-109). Albany, NY: State University of New York Press.

Altbach, P.G. (1991). The racial dilemma in American higher education. In P.G. Altbach & K. Lomotey (eds.), *The racial crisis in American higher education* (pp. 3-17). Albany, NY: State University of New York Press.

Applebome, P. (1997, April 14). *In shift, U.S. tells Texas it can't ignore court ruling on affirmative action.* [On-line]. Available: http://www.latinolink.com/news/news97/9414NAFI.HTM.

Ascher, C. (1993, April). *Efficiency, equity, and local control—school finance in Texas.* New York: ERIC Clearinghouse on Urban Education. (ERIC Document Reproduction Service No. ED 357139).

Astin, A.W. (1977). *Four critical years: Effects of college on beliefs, attitudes, and knowledge*. San Francisco, CA: Jossey-Bass Publishers.

Astin, A.W. (1982). *Minorities in higher education.* San Francisco, CA: Jossey-Bass Publishers.

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

Astin, A.W. (1990). *Excellence and equity in the education of minority students.* Hempstead, NY: Hofstra University. (ERIC Document Reproduction Service No. ED 341741).

Astin, A.W. (1993). *What matters in college? Four critical years revisited*. San Francisco, CA: Jossey-Bass Publishers.

Astin, A.W., Tsui, L. & Avalos, J. (1996). *Degree attainment rates at American colleges and universities: Effects of race, gender, and institutional type*. Los Angeles, CA: Higher Education Research Institute, University of California.

Avalos, J. & Pavel, D.M. (1993). *Improving the performance of the Hispanic community college student.* Los Angeles: ERIC Clearinghouse on Urban Education. (ERIC Document Reproduction Service No. ED 358907).

Ballesteros, E. (1986). Do Hispanics receive an equal educational opportunity? The relationship of school outcomes, family background, and high school curriculum.

In M.A. Olivas (ed.), *Latino college students* (pp. 47-70). New York: Columbia University, Teachers College Press.

Beal, P.E. & Noel, L. (1985). *What works in student retention.* Iowa City, IA: American College Testing Service.

Bean, J.P. (1986). Assessing and reducing attrition. In D. Hossler (ed.), *Managing college enrollments: New directions for higher education* (pp. 47-61). San Francisco, CA: Jossey-Bass Publishers.

Bennett, C. & Okinaka, A.M. (1990). Factors relating to persistence among Asian, Black, Hispanic, and White undergraduates at a predominately White university: Comparison between first and fourth year cohorts. *The Urban Review, 22,* 33-60.

Blandin, D.M. (1994). Three realities: Minority life in the United States—the struggle for economic equity. In M.J. Justiz, R. Wilson & L.G. Bjork (eds.), *Minorities in higher education* (pp.22-43). Phoenix, AZ: American Council on Education.

Blimling, G.S. & Whitt, E.J. (1998, March/April). Principles of good practice for student affairs. *About Campus*, 10-13.

Bontekoe, J.F. (1992). *The ACT as predictor of college success at Trinity Christian College.* Washington, DC: U.S. Department of Education. (ERIC Document Reproduction Services No. ED 355258).

Bowen, H.R. (1977). *Investment in learning: The individual and social value of American higher education.* San Francisco, CA: Jossey Bass Publishers.

Bracey, G.W. (1998, October). Working in college: Outcomes similar to high school. *Phi Delta Kappan, 80*(2), 170.

Braxton, J.M. & Brier, E.M. (1989). Melding organizational and interactional theories of student attrition: A path analytic study. *The Review of Higher Education, 13,* 47-62.

Brown, G.H., Rosen, N., Hill, S. & Olivas, M.A. (1980). *The condition of education for Hispanic Americans.* Washington, DC: U.S. Department of Education.

Brown, H.E. & Burkhardt, R.L. (1999, June). *Predicting student success: The relative impact of ethnicity, income, and parental education.* Seattle, WA: Association for Institutional Research. (ERIC Document Reproductive Service No. ED 433893).

Cardoza, D. (1991). College attendance and persistence among Hispanic women: An examination of some contributing factors. *Sex Roles, 24,* 133-147.

Carey, K. (2004, May). *A matter of degrees: Improving graduation rates in four-year colleges and universities.* Washington, DC: The Education Trust. [On-line]. Available: http://www.edtrust.org.

Carr, S. (1999). More high school students take the ACT, but the mean score doesn't budge. *Chronicle of Higher Education, 46*, 2.

Carroll, J. (1988, January). Freshman retention and attrition factors at a predominantly Black urban community college. *Journal of College Student Development*, 52-58.

Carter, D. & Wilson, R. (1991). *Tenth annual status report on minorities in higher education.* Washington, DC: American Council on Education.

Carter, D. & Wilson, R. (1992). *Eleventh annual status report on minorities in higher education.* Washington, DC: American Council on Education.

Carter, D. & Wilson, R. (1994). *Thirteenth annual status report on minorities in higher education.* Washington, DC: American Council on Education.

Cassady, J. C. (2002). Self-reported GPA and SAT: A methodological note. *Practical Assessment, Research & Evaluation*, *7*(12). [On-line]. Available: http://pareonline.net/getvn.asp?v=7&n=12.

Chaćon, M.A., Cohen, E.G. & Strover, S. (1986). Chicanas and Chicanos: Barriers to progress in higher education. In M.A. Olivas (ed.), *Latino college students* (pp. 296-324). New York: Columbia University, Teachers College Press.

Chahin, J. (1993, March). *Hispanics in higher education: Trends in participation.* Charleston, WV: ERIC Clearinghouse on Rural Education and Small Schools. (ERIC Document Reproduction Service No. ED 357911).

Chickering, A.W. (1974). *Commuting versus residential students.* San Francisco, CA: Jossey-Bass Publishers.

Chissom, B.S. & Lanier, D. (1975). Prediction of the first quarter freshman GPA using SAT scores and high school grades. *Educational and Psychological Measurement, 35,* 461-463.

Choy, S.P. (2002). *Access and persistence: Findings from 10 years of longitudinal research on students.* Washington, DC: American Council on Education.

Christoffel, P.A. (1986, October). *Minority student access and retention: A review, research and development update.* New York: College Entrance Exam Board. (ERIC Document Reproduction Service No. ED 279217).

Cortez, A. & Romero, A.A. (1997, August). Texas legislature considers much for education, accomplishes little. *Intercultural development research association.* [On-line]. Available: http://www.idra.org/Newslttr/1997/Aug/Albert.htm.

Cravatta, M. (1997, November). Hanging on to students. *American Demographics, 19*, 41.

Cuccaro-Alamin, S. (1996). Postsecondary persistence and attainment. *The condition of education 1996.* [On-line]. Available: http://nces.ed.gov/pubs/ce/c97007.html.

Davidson, B.S. & Muse, C.T. (1994). *A ten year longitudinal study comparing 1980 freshman students' persistence to graduation at two selected universities.* Washington, DC: U.S. Department of Education. (ERIC Document Reproduction Service No. ED 372682).

De Los Santos, A. & Rigual, A. (1994). Progress of Hispanics in higher education. In M.J. Justiz, R. Wilson & L.G. Bjork (eds.), *Minorities in higher education* (pp.173-194). Phoenix, AZ: American Council on Education.

Deskins, D.R. Jr. (1991). Winners and losers: A regional assessment of minority enrollment and earned degrees in U.S. colleges and universities, 1974-1984. In W.R. Allen, E.G. Epps & N.Z. Haniff (eds.), *College in black and white: African*

American students in predominantly White and in historically Black public universities (pp. 17-39). Albany, NY: State University of New York Press.

Dey, E.L., Astin, A.W. & Korn, W.S. (1991). *The American freshman: Twenty-five year trends, 1966-1990.* Washington, DC: American Council on Education. (ERIC Document Reproduction Service No. ED 340325).

Duran, R.P. (1986). *Prediction of Hispanic's college achievement*. In M.A. Olivas (ed.), *Latino college students* (pp. 221-245). New York: Columbia University, Teachers College Press.

Duran, R.P. (1994). Hispanic student achievement. In M.J. Justiz, R. Wilson & L.G. Bjork (eds.), *Minorities in Higher Education* (pp.151-172). Phoenix, AZ: American Council on Education.

Fidler, P.P. & Godwin, M.A. (1994, Spring). Retaining African-American students through the freshmen seminar. *Journal of Developmental Education, 17*, 34-40.

Flores, J.L. (1989). Persistence and nonpersistence of Hispanic Americans students at two comprehensive universities. (Doctoral dissertation, University of Oklahoma, Norman, OK, 1989). *Dissertation Abstracts International, 51*(2), 425.

Flores, J.L. (1992). *Persisting Hispanic college students: Characteristics that lead to baccalaureate degree completion.* Norman, OK: The Center for Research in Multi-Ethnic Education. (ERIC Document Reproduction Service No. ED 345609).

Flores, J.L. (1994). *Facilitating postsecondary outcomes for Mexican Americans.* Charleston, WV: ERIC Clearinghouse on Rural Education and Small Schools. (ERIC Document Reproduction Service No. 372903).

Flores-Hughes, G. (1997, Fall). Why the term Hispanic? *Hispanic Today, 9*, 3, 47.

Fonda, D. (2000, December 11). The male minority. *Time, 12,* 58-60.

Ford, G. (1998, April 9). Texas' future well-being linked to minorities' wealth, education. *Corpus Christi Caller Times*, A1, A12.

Forster, B., Swallow, C., Fodor, J.H. & Foulser, J.E. (1999). Effects of a college study skills course on at-risk first-year students. *NASPA Journal, 36*, 120-132.

Frost, S.H. (1991). *Academic advising for student success: A system of shared responsibility.* Washington, DC: George Washington University. (ERIC Document Reproduction Service No. ED 340274).

Fry, R. (2004, June 23). *Latino youth finishing college: The role of selective pathways.* Washington, DC: Pew Hispanic Center. [On-line]. Available: http://www.pewhispanic.org/site/docs.

Gamboa, S. (2001, January 25). Hispanic girl grad rate low. *Corpus Christi Caller Times,* A1.

Garcia, J.M. & Montgomery, P.A. (1991). *The Hispanic population in the United States: March 1991* (series P-20, No. 455). Washington, DC: U.S. Department of Commerce. (ERIC Document Reproduction Service No. 342872).

Gates, R.M. (2004). *Highlights TAMU's diversity efforts at Hispanic summit*. [On-line]. Available: http://rev.tamu.edu/stories/04/04222004-2.html.

Gil, R.M. & Vasquez, C.I. (1996). *The Maria paradox: How Latinas can merge old world traditions with new world self-esteem.* New York: G.P. Putnam & Sons.

Gillespie, M. & Noble, J. (1992). *Factors affecting student persistence: A longitudinal study.* Washington, DC: U.S. Department of Education. (ERIC Document Reproduction Service No. ED 357056).

Goldberg, C. (1997, February 1). Hispanics' incomes drop. *Corpus Christi Caller Times*, A1, A12.

Griffin, B.W. (2002, April-May). Academic disidentification, race, and high school dropouts. *High School Journal, 85*, 4.

Griggs, S. & Dunn, R. (1996). *Hispanic-American students and learning style*. Urbana, IL: ERIC Clearinghouse on Elementary and Early Childhood Education. (ERIC Document Reproduction Service No. ED 393607).

Hammer, L.B., Grigsby, T.D. & Woods, S. (1998, March). The conflicting demands of work, family, and school among students at an urban university. *Journal of Psychology, 132*(2), 220-226.

Haro, R.P., Rodriguez, G. & Gonzalez, J.L. (1994). *Latino persistence in higher education.* Washington, DC: U.S. Department of Education. (ERIC Document Reproduction Service No. 380023).

Haworth, K. (1998, January 9). Report cites obstacles to college entrance. *Chronicle of Higher Education, 44*(18), A50-A51.

Henricksen, J.A. (1995, July). *The influence of race and ethnicity on access to postsecondary education and the college experience.* Los Angeles, CA: ERIC

Clearinghouse for Community Colleges. (ERIC Document Reproduction Service No. ED 386242).

Hernandez, R., Siles, M. & Rochin, R.I. (2001). *Latino youth: Converting challenges to opportunities* (JSRI Working Paper #50). Ann Arbor, MI: Michigan Sate University, The Julian Samora Research Institute.

Higher education opportunities for Mexican nationals at border serving institutes and TAMU-Kingsville. (1997, February). *El Noticiario Nacional, 9,* 4.

Higher education: The changing marketplace. (1997, October). *National Alliance of Business Workforce Trends, 5,* 1-5.

Hispanic drop-out rates remain high. (1997, July 31). [On-line]. Available: http://www.americanpatrol.com/SCHOOLS/SCHOOLSDROPOUT03197.html.

Hispanics to be largest U.S. minority. (1998, August 7). *Corpus Christi Caller Times*, A4.

Hobby, W. (1996, January 14). Future looks grim unless Texas changes. *Corpus Christi Caller Times Editorial*, A11.

Honan, W.H. (1996, June 18). Education level tied to family income. *Corpus Christi Caller Times*, C8.

Justiz, M. (1994). Demographic trends and challenges to American higher education. In M.J. Justiz, R. Wilson & L.G. Bjork (eds.), *Minorities in higher education* (pp. 1-21). Phoenix, AZ: American Council on Education.

Kane, T.J. (1994). *Race, college attendance, and college completion*. Washington, DC: Brookings Institute. (ERIC Document Reproduction Service No. ED 374766).

Kerka, S. (1989). *Retaining adult students in higher education.* Washington, DC: ERIC Clearinghouse on Adult, Career, and Vocational Education. (ERIC Document Reproduction Service No. ED 308401).

King, J.E. (1998, May 1). Too many students are holding jobs for too many hours. *Chronicle of Higher Education, 44*(34), A72.

King, P. (1999). *Improving access and educational success for diverse students: Steady progress but enduring problems*. [On-line]. Available: http://www.acpa.nche.edu/seniorscholars/trends/trends2.htm.

Kobrin, J.L. & Milewski, G.B. (2002, January). *Students with discrepant high school GPA and SAT I scores.* New York: The College Board.

Kowalski, C. (1977). *The impact of college on persisting and nonpersisting students.* New York: The Philosophical Library, Inc.

Kuh, G.D. (2001). *The national survey of student engagement: Conceptual framework and overview of psychometric properties*. Bloomington, IN: Indiana University Center for Postsecondary Research and Planning. [On-line]. Available: www.indiana.edu/~nsse/acrobat/psychometric_framework_2002.pdf.

Kramer, M. (1994, January). Earning and learning: Are students working too much? *Change, 26*(1), 6-7.

Lang, M. & Ford, C.A. (eds.). (1992). *Strategies for retaining minority students in higher education.* Springfield, IL: Charles C. Thomas Publishers.

Larson, J.R. & Scontrino, P.M. (1976). The consistency of high school grade point average and of the verbal and mathematical portions of the scholastic aptitude

test of the college entrance. *Educational and Psychological Measurement, 39,* 439-443.

Latino drop-out rate remains high: More blacks, whites finishing school. (1997). Los Angeles Times. [On-line]. Available: http://www.americanpatrol.com/SCHOOLS/DROPOUT080197.html.

Lavin, D.E. & Hyllegard, D. (1996). *Changing the odds: Open admissions and the life chances of the disadvantaged*. New Haven, CT: Yale University Press.

Levine, A. & Cureton, J.S. (1998a). *Shaping higher education's future: Demographic realities and opportunities 1990-2000.* San Francisco, CA: Jossey-Bass Publishers.

Levine, A. & Cureton, J.S. (1998b). What we know about today's college students. *About Campus*, 4-9.

Levitz, R. & Noel, L. (1989). Connecting students to institutions: Keys to retention and success. In M.L. Upcraft, J.N. Gardner & Associates (eds.), *The freshman year experience: Helping students survive and succeed* (pp. 65-81). San Francisco, CA: Jossey-Bass Publishers.

Lewallen, W.C. (1993). Persistence of the undecided: The characteristics and college persistence of students undecided about academic major or career choice. (Doctoral dissertation, University of California, Los Angeles, CA, 1993). *Dissertation Abstracts International, 53*(12), 4226.

Luhrs, J. (1996). Diversity: A bottom-line on college campuses. In A. Hixson & M. Gilroy (eds.), *The Hispanic outlook in higher education, 1996-97*. Washington,

DC: U.S. Department of Education. (ERIC Document Reproduction Service No. ED 416775).

Lum, L. (1997, August 24). *Affirmative action case changes college plans for many in Texas.* [On-line]. Available: http://www.latinolink.com/news/news97/0824nstu.htm.

Magun-Jackson, S. (1996). *The relationship of a freshman orientation course to minority and non-minority retention at a large urban university.* Unpublished doctoral dissertation, University of Memphis, Memphis, TN.

Manno, B.V. (1995, May). Remedial education. *Change, 27*(3), 47-49.

Marchese, T. (1996, November). Resetting expectations. *Change, 28*(6), 4.

Marin, G. & VanOss Marin, B. (1991). *Research with Hispanic populations*. Newbury Park, CA: Sage Publications, Inc.

Marx, P. (2002). Why we need the SAT. *The Chronicle of Higher Education, 48*, B10-11.

McQueen, A. (1999, September 6). ACT scores hold steady for decade. *Community College Week, 12*, 2.

Melendez, S.E. & Petrovich, J. (1989). In C.S. Pearson, D.L. Shavlik & J.G. Touchton (eds.), *Educating the majority: Women challenge tradition in higher education* (pp. 57-68). New York: McMillan Publishing Company.

Metzner, B. & Bean, J.P. (1987). The estimation of a conceptual model for nontraditional undergraduate student attrition. *Research and Higher Education, 27*, 15-28.

Miller, R.J. (1991). Persistence in higher education: A review of the literature for continuing educators. *The Journal of Continuing Higher Education, 4,* 19-22.

Millett, C.M. & MacKenzie, S. (1996). *An exploratory study of college purchase options: How financial aid widens minorities' choices.* Paper presented at the Association for the Study of Higher Education, Memphis, TN.

Minority initiative remains top priority. (1995, Spring). *Educational Record, 76*, 95-98.

Mittelstadt, M. (1996, June 10). Analysis of Hispanics may prompt urban policy creation. *Corpus Christi Caller Times*, A1, A4.

Munday, L. (1976). College access for non-traditional students. *Journal of Higher Education, 47*, 681-699.

Muniz, D. (1994). *Factors that predict Hispanic persistence in a predominately White institution: A comparison of African American students*. Unpublished doctoral dissertation, University of Michigan, Ann Arbor, MI.

Murdock, S.H. (1997). *Texas population growth leads nation*. [On-line]. Available: http://txsdc.tamu.edu/pubsrep/rebriefs/rbsp971.php.

Murdock, S.H. (2003). *Population change in Texas: Implications for human and socioeconomic resources in the 21st century*. [On-line]. Available: http://txsdc.tamu.edu/presentations.

Murdock, S.H., Hoque, N., Michael, M., White, S. & Pecotte, B. (1996, February). *Texas challenged: The implications of population change for public service demand in Texas.* Austin, TX: Texas Legislative Council.

Murdock, T.A. (1990). Financial aid and persistence: An integrative review of the literature. *NASPA Journal, 27*, 213-221.

National Center for Education Statistics. (1996). *The educational persistence and attainment of 1989-90 beginning postsecondary students after five years.* [On-line]. Available: http://nces.ed.gov/pubs/web/96155.asp.

National Center for Education Statistics. (1998). *The condition of education 1998.* Washington, DC: Author.

National Center for Education Statistics. (2000). *Participation in education: Undergraduate enrollment of minority students*. [On-line]. Available: http://nces.ed.gov/programs/coe/2000/section1/indicator08.asp.

National Center for Education Statistics. (2001). *Dropout rates in the United Sates: 2000.* [On-line]. Available: http://nces.gov/pubs2002/droppub_2001.

National Center for Education Statistics. (2002). *Participation in education: Past and projected undergraduate enrollments* (Data table). [On-line]. Available: http://nces.ed.gov/programs/coe/2002/section1/tables/t05_1.asp.

National Center for Education Statistics. (2003). *Status and trends in the education of Hispanics.* [On-line]. Available: http://nces.ed/gov/pubs2003/2003008.pdf.

National Science Foundation. (1993) *Science and engineering indicators.* Washington, DC: National Science Foundation. (ERIC Document Reproduction Service No. ED 369652).

Neal, P.D. (2002). *Extracurricular activities as predictors of college success.* [On-line]. Available: http://www.csubak.edu/~cmckay/spring2002port/pamneal/CDEV410.htm.

Neisler, O. (1992). Access and retention strategies in higher education: An introductory overview. In M. Lang & C. L. Ford (eds.), *Strategies for retaining minority students in higher education* (pp. 3-21). Springfield, IL: Charles C. Thomas Publishers.

Nettles, M.T. (1991). Racial similarities and differences in the predictors of college student achievement. In W.R. Allen, E.G. Epps & N.Z. Haniff (eds.), *College in black and white: African American students in predominantly White and in historically Black public universities* (pp. 221-225). Albany, NY: State University of New York Press.

Newman, F. (1994). An optimistic sense of possibility. In M.J. Justiz, R. Wilson & L.G. Bjork (eds.), *Minorities in higher education* (pp. 346-364). Phoenix, AZ: American Council on Education.

Nielsen, F. (1986). Hispanics in high school and beyond. In M.A. Olivas (ed.)*, Latino college students* (pp. 71-103). New York: Columbia University, Teachers College Press.

Noble, J. & Sawyer, R. (2001, August). *Predicting different levels of academic success in college using high school GPA and ACT composite scores.* ACT Research Report Series. Iowa City, IA: ACT, Inc.

Nunez, A. (1998, November). *First-generation students: A longitudinal analysis of educational and early labor market outcomes.* Berkeley, CA: MPR Associates. (ERIC Document Reproduction Service No. ED 427599).

Office of Educational Research and Improvement. (1996, March). *High school drop-out rates.* [On-line]. Available: http://www.ed.gov/pubs/OR/ConsumerGuides/dropout.html.

Olivas, M.A. (1986a). Financial aid for Hispanics: Access, ideology, and packaging policies. In M.A. Olivas (ed.), *Latino college students* (pp. 281-295). New York: Columbia University, Teachers College Press.

Olivas, M.A. (1986b). Research on Latino college students: A theoretical framework and inquiry. In M.A. Olivas (ed.), *Latino college students* (pp. 1-25). New York: Columbia University, Teachers College Press.

Orfield, G. & Eaton, S.E. (1996). *Dismantling desegregation: The quiet reversal of Brown vs. Board of Education.* New York: The New Press.

Ortiz, V. (1986). Generational status, family background, and educational attainment among Hispanic youth and non-Hispanic White youth. In M.A. Olivas (ed.), *Latino college students* (pp. 29-46). New York: Columbia University, Teachers College Press.

Orum, L.S. (1985). *The education of Hispanics: Selected statistics*. Washington, DC: National Council of La Raza. (ERIC Document Reproduction Service No. ED 262121).

Pascarella, E.T. (2001, November/December). Cognitive growth in college. *Change*, 21-27.

Pascarella, E.T. & Terenzini, P.T. (1980). Predicting freshmen persistence and voluntary dropout decisions from a theoretical model. *Journal of Higher Education, 51*, 60-75.

Pascarella, E.T. & Terenzini, P.T. (1991). *How college affects students.* San Francisco, CA: Jossey-Bass Publishers.

Pavel, D.M. & Reiser, M. (1991, Spring). Using national databases to examine minority student success in higher education. *New Directions in Institutional Research, 9*, 5-20.

Peng, S.S. & Korb, R. (1991). *Improving minority participation in higher education: A national challenge.* San Francisco: Association for Institutional Research. (ERIC Document Reproduction Service No. ED 336021).

Petress, K.C. (1996, Fall). The multiple roles of an academic advisor. *Education, 117*(1), 91.

Pursel, T.M. (1989). The academic achievement of open-admission students and regular admission students at a comprehensive, independent Midwestern university. (Doctoral dissertation, Iowa State University, Ames, IA, 1989). *Dissertation Abstracts International, 51*, 93.

Reisberg, L. (1999, January 15). To help Latino students, a college looks to parents. *Chronicle of Higher Education, 45*(19), A43-44.

Rendon, L.I. & Valadez, J.R. (1993, February). Qualitative indicators of Hispanic student transfer. *Community College Review, 20*(4)*,* 27-37.

Rice, R., Keefer, J. & Elam, E. (1991). *An annotated review of the investigations on freshmen seminars and extended orientation courses.* Washington, DC: U.S. Department of Education. (ERIC Document Reproduction Service No. ED 339979).

Richardson R.C. & Bender, L.W. (1987). *Fostering minority access and achievement in higher education*. San Francisco. CA: Jossey-Bass Publishers.

Richardson, R.C. & De Los Santos, A.G. Jr. (1988). *Helping minority students graduate from college: A comprehensive approach.* Washington, DC: ERIC Clearinghouse on Higher Education. (ERIC Document Reproduction Service No. ED 308795).

Richardson, R.C. & Skinner, E.F. (1991.) *Achieving quality and diversity*. New York: Macmillan Publishing Co.

Rodriguez, E.M. & Ruppert, S.S. (1996, October). *Postsecondary education and the new workforce*. Washington, DC: U.S. Department of Education, Office of Educational Research and Improvement

Rodriguez, R. (1996). Life after Hopwood. *Black Issues in Higher Education, 13*, 8-11.

Romo, H.D. (1998, May). *Latina high school leaving: Some practical solutions.* Charleston, WV: ERIC Clearinghouse on Rural Education and Small Schools. (ERIC Document Reproductive Services No. ED 423096).

Ryland, E.B., Riordan, R.J. & Brack, G. (1994). Selected characteristics of high-risk students and their enrollment persistence. *Journal of College Student Development, 35*, 54-58.

Sanchez, J.E., Marder, F., Berry, R. & Ross, H. (1992). Dropping out: Hispanic students, attrition, and the family. *College and University, 67*, 145-150.

Santos, R. (1986). Hispanic high school graduates: Making choices. In M.A. Olivas (ed.), *Latino college students* (pp. 104-127). New York: Columbia University, Teachers College Press.

Schmidt, P. (2003, November 28). Academe's Hispanic future. *The Chronicle of Higher Education.* [On-line]. Available: http://chronicle.com/free/v50/i14/14a00801.

Schwartz, W. (2001, October). *Strategies for improving the educational outcomes of Latinas.* New York: ERIC Clearinghouse on Urban Education. (ERIC Document Reproductive Services No. ED 458344).

Shanley, M.G. & Witten, C.H. (1990, Summer). University 101 freshman seminar course: A longitudinal study of persistence, retention, and graduation rates. *NASPA Journal, 27*, 344-352.

Sharp, J. (1997). *Texas: Where we stand.* Austin, TX: Comptroller of Public Accounts.

Sharp, J. (1998). *Bordering the future: Challenge and opportunity in the Texas border region.* [On-line]. Available: http://www.window.state.tx.us/border/border.html.

Smolkin, R. (1999, September 30). Getting Hispanics to college. *Corpus Christi Caller Times*, A1, A7.

Snyder, T. & Hoffman, C. (1992). *Digest of educational statistics.* Washington, DC: U.S. Department of Education, National Center for Education Statistics.

Solmon. L.C. & Wingard. T.L. (1991) The changing demographics: Problems and opportunities. In P.G. Altbach & K. Lomotey (eds.), *The racial crisis in American higher education*, (pp. 19-42). Albany, NY: State University of New York Press.

Sosa, A. (1990). *Making education work for Mexican Americans: Promising community practices.* Charleston, WV: ERIC Clearinghouse on Rural Education and Small Schools. (ERIC Document Reproduction Services No. 319580).

Stapleford, J. & Ray, D. (1996, Fall). Retention of college freshmen: A cross-sectional analysis. *On Target, 24*, 1.

Sterling, E. (1998, September 16). Poor student population on the rise in Texas. *Kingsville Record*, 2A.

Stoecker, J., Pascarella, E.T. & Wolfle, L.M. (1988). Persistence in higher education: A 9-year test of a theoretical model. *Journal of College Student Development, 29,* 196-209.

Suhler, J.N. (1999, March 22). Texas universities struggle for diversity. *Corpus Christi Caller Times*, A1, A6.

Sumner, K.E. & Brown, T.J. (1996, June). Men, women, and money: Exploring the role of gender, gender-linkage of college major, and career-information sources in salary expectations. *Sex Roles: A Journal of Research, 34*(11-12), 823-839.

Swail, W.S., Cabrera, A.F. & Lee, C. (2004, June 23). *Latino youth and the pathway to college.* Washington, DC: Pew Hispanic Trust. [On-line]. Available: http://www.pewhispanic.org/site/docs.

Taking a stand for Texas: Higher education coalition joins together to keep Texas strong. (1996, October). *System News*, 1-2.

Terenzini, P.T. & Pascarella, E.T. (1994). Living with myths: Undergraduate education in America. *Change, 26,* 28-32.

Terenzini, P.T., Springer, L., Yeager, P.M., Pascarella, E.T. & Nora, A. (1996). First-generation students: Characteristics, experiences, and cognitive development. *Research in Higher Education, 37*(1)*,* 1-22.

Texas A&I University Catalog. (1989-1992). (Available from the Office of the Registrar and Admissions, 700 University Blvd., Kingsville, TX 78363).

Texas A&M University-Kingsville Fact Book. (2003). (Available from the Office of Institutional Research, 700 University Blvd., Kingsville, TX 78363).

Texas A&M University-Kingsville University Catalog. (2002-2004). (Available from the Office of the Registrar and Admissions, 700 University Blvd., Kingsville, TX 78363).

Texas Academic Skills Program. (1996). *Annual report on the TASP and the effectiveness of remediation.* Austin, TX: Texas Higher Education Coordinating Board.

Texas Challenged: Population projections for a changing state. (1996, July/August). *System News,* 1-2.

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

Tinto, V. (1986). Theories of student departure revisited. In J. C. Smart (ed.), *Higher education: Handbook of theory and research*, Vol. II (pp. 359-384). New York: Agathon Press.

Tinto, V. (1987). *Leaving college.* Chicago: The University of Chicago Press.

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

Tinto, V. (1997). Classrooms as communities. *Journal of Higher Education, 68*(6), 599-623.

Tinto, V. (1998). Colleges as communities: Taking research on student persistence seriously. *The Review of Higher Education, 21*, 167-177.

Tracey, T.J. & Sedlacek, W.E. (1984, January). Noncognitive variables in predicting academic success by race. *Measurement and Evaluation in Guidance, 16*, 171-178.

Trejo, F. (1996, June 30). Latinas study offers insights on their status, importance. *The Dallas Morning News*, A34.

Turner, S.E. & Bowen, W.G. (1999, January). Choice of major: The changing (unchanging) gender gap. *Industrial and Labor Relations Review, 52*(2), 289-313.

U.S. Census Bureau. (1993). *Hispanic Americans today* (Current Population Reports P23-183). Washington, DC: Author.

U.S. Department of Education. (1998). *Two-year postsecondary students work most.* Washington, DC: Author.

U.S. Department of Education. (1999). *Immediate transition from high school to college.* Washington, DC: Author.

Unemployment rates in the Coastal Bend. (1998, May 22). *Corpus Christi Caller Times*, D9.

Valdivieso, R. (1990). *Demographic trends of the Mexican-American population: Implications for schools.* Charleston, WV: ERIC Clearinghouse on Rural Education and Small Schools. (ERIC Document Reproduction Service No. ED 321962).

Valdivieso, R. & Davis, C. (1988). *U.S. Hispanics: Challenging issues for the 1990's.* (Occasional Paper 17). Washington, DC: Population Reference Bureau, Inc. (ERIC Document Reproduction Service No. ED 305213).

van Gennep, A. (1960). *The rites of passage.* Chicago, IL: The University of Chicago Press.

Velasquez, P. M. (1996). *Resisting the normative implications of Tinto: Student and institutional characteristics supporting the persistence of Chicanos in higher*

education. Memphis, TN: Association for the Study of Higher Education. (ERIC Document Reproduction Service No. ED 402828).

Vertuno, J. (1999, November 3). Special commission on 21st century colleges and universities: Perry says state economy, college grads tied together. *Kingsville Record*, 1C.

Vives, O. (2001, Fall). *Latina girls' high school drop-out rate highest in U.S.* [On-line]. Available: http://www.now.org/nnt/fall-2001/latinas.htm.

Walker, B.D. (1990, Fall). The impact of school finance litigation in Texas, 1968-1990. *Texas Researcher, 1*, 1-18.

Walker, D.P. (1989). Strategies for increasing retention of Hispanic students in community colleges (Arizona, New Mexico, Texas, California). (Doctoral dissertation, University of Texas, Austin, TX, 1989). *Dissertation Abstracts International, 49,* (9).

Weidman, J. (1986). Undergraduate socialization: A conceptual approach. In J.C. Smart (ed.), *Higher education: Handbook of theory and research* (pp. 33-37). New York: Agathon Press.

Wells, A.S. (1989). *Hispanic education in America: Separate and unequal*. New York: ERIC Clearinghouse on Urban Education. (ERIC Document Reproduction Service No. ED 316616).

Western Interstate Commission for Higher Education. (1987). *From minority to majority: Education and the future of the southwest.* Boulder, CO: WICHE

Regional Policy Committee. (ERIC Document Reproduction Service No. ED 287428).

White, W.F. & Moseley, D. (1995). Twelve year pattern of retention and attrition in a commuter type institution. *Education, 115,* 400-402.

White, W.F., Nylin, W.C. & Esser, A. (1985). Academic course grades are better predictors of a commuter type college than SAT scores. *Psychological Reports, 56,* 375-378.

Witherspoon, A.D., Long, C.K. & Chubick, J.D. (1999, January/February). Prediction of college student dropouts using EDS scores. *Journal of College Student Development, 40*, 82-86.

Wright, S.W. (1996, October). Community colleges and universities must turn out more graduates. *Black Issues in Higher Education,* 10-11.

Wyckoff, S.C. (1998, February). Retention theories in higher education: Implications for institutional practice. *Recruitment and Retention in Higher Education, 12*, 1-2, 7.

VITA

Susan Dollar
871 Road 225
Americus, Kansas 66835

EDUCATION

Texas A&M University — College Station, TX
Doctor of Philosophy degree in Higher Education Administration — May, 2005
West Texas State University — Canyon, TX
Master of Education degree, emphasis in Counseling — December 1976
West Texas State University — Canyon, TX
Bachelor of Science degree in Psychology — December 1974
University of London, England — Summer 1974
Studies in humanities, western civilization, and the arts

EXPERIENCE

Director, Career Services — January 2004-present
Emporia State University, Emporia, Kansas
Career Counselor (part-time) — October 2003-January 2004
Career Services, Emporia State University, Emporia, Kansas
Adjunct Instructor — August 2003-present
Butler County Community College, El Dorado, Kansas
Director, Career Services Center — August 1993-August 2003
Texas A&M University-Kingsville
Hispanic Serving Institutions National Program — July 2002
United States Department of Agriculture Fellowship, Washington D.C.

AWARDS AND HONORS

Nominated for the "Be All You Can Be" award, TAMUK, Spring 2000
Chaired the TAMUK 2000 State Employee Charitable Campaign (United Way)—received State SECC Award for Highest Participation in Higher Education (501-900 employees) and the local "Special Recognition Award"
University Distinguished Service Award for Continuous Meritorious Committee Service, TAMUK, 1999
Patrick McMann Memorial Award for Outstanding Service in the Division of Student Affairs, TAMUK, 1999
Kingsville Chamber of Commerce "Partners in Growth" Award presented to the Career Services Center, 1999