COLLEGE AND UNIVERSITY EXECUTIVE LEADERSHIP: THE IMPACT OF DEMOGRAPHY ON THE PROPENSITY FOR STRATEGIC CHANGE

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This study explores the relationship between diversity within executive decision-making teams at institutions of higher education and their propensity for strategic change. Previous research in the areas of strategic change, group decision making, and higher education was drawn from in this study. Statistically significant relationships were discovered the demographic background of executive decision-making teams at public colleges and universities, as measured by both the pursuit of new degree and certificate program offerings and multiple measures of student retention. The results also indicated the presence of an insufficiently diverse pool of potential executives for colleges and universities to draw from.
ACKNOWLEDGMENTS

I would like to acknowledge the support of my wife, Cynthia. Without her patience and encouragement this would not have been possible. I would also like to thank my dissertation committee. Stephen Katsinas, Ron Newsom, and Lynn Johnson have inspired me and have molded the educator I have become.
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CHAPTER I

Institutions of higher education are a unique type of organization both internally and in the way they interact with their environments. The forces that influence public and private nonprofit colleges and universities are somewhat different from those that influence for-profit corporations, but these institutions are still clearly bound by and reactive to the external environment in which they operate (Lenington, 1986).

All organizations are impacted by the environments in which they operate. Changes in the environment create threats and opportunities for the organizations operating within them. The response of an organization to changes in its environment is a critical step for ensuring its survival and competitiveness. Research on private for-profit business organizations demonstrates that those that are most effective are properly aligned with their environments. It is the responsibility, therefore, of the top managers of organizations to recognize relevant environmental shifts and to instigate strategic changes that better align the organizations with their respective environments (Dutton & Duncan, 1987).

Statement of the Problem

The relationship between the demographics of institutional executive management teams at colleges and universities and the propensity to pursue strategic change as measured by the decision to offer new degree or certificate programs has heretofore not been studied. In the private business sector, it is
generally accepted that a demographically diverse leadership team (with members of various race, ethnicity, gender, age and other groups) will be more willing to pursue strategic changes that will allow the organization to appeal to a wider set of market constituencies. This connection has been empirically proven for organizations in the private sector, as the literature below review show. Major corporations such as McDonald’s, Microsoft, and General Motors all work aggressively to appeal to fast-growing demographic segments in the U.S. While the importance of diversity within leadership may be accepted as true for nonprofit higher education institutions, the connection has not previously been empirically established.

Purpose of the Study

The purpose of this study is to examine the connection between the demographic makeup of the executive decision-making teams in higher education institutions and the propensity for strategic change in these organizations. The study of executive decision-making teams has a well-established history in organizational management. The executive decision making team will be defined as the group of individuals that is responsible for setting the strategy and direction of the organization (Hitt, Ireland, & Hoskisson, 2001). In the higher education setting, this is often referred to as the president’s cabinet.

Understanding the decision-making tendencies of this group is a critical step in the exploration of the strategy development process for higher education institutions. Strategic change for the purposes of this study will be defined in
higher education organizations as the decision to add new degree and certificate offerings to the organization’s curriculum. This study pilot tests the methodology developed in 1992 by Margarethe Wiersema and Karen Bantel for for-profit business organizations, and apply it to non-profit public colleges and universities. Wiersema and Bantel measured and compared the demographic characteristics of executive management groups to the relative number of new products that the organization introduced. Eighty-seven firms from the Fortune 500 largest industrial firms were used in their study. The Wiersema and Bantel study (1992) explored the relationship between top management teams and corporate change. They considered top management teams to be decision-making groups and the decisions that the groups produced to be the product of the interactions of the group members. Wiersema and Bantel sought to uncover a hypothesized relationship between the diversity of cognitive perspectives, as measured by differing demographic backgrounds, and strategic change, as measured by new product offerings in large for-profit corporations. They were interested in this relationship because, among other reasons, of the heightened priority American corporations have made of targeting the increasingly diverse, fast-growing minority markets to achieve corporate profitability and sustain corporate success.

Similarly, this study builds a theoretical argument for a relationship between the diversity of demographic backgrounds within executive management groups and an institution’s propensity to pursue strategic change in publicly funded institutions of higher education in the State of Texas. The demographic background of executive management group members of public
colleges and universities in this fast-growing state will be examined as a predictor of group cognitive variance, and the rate of new degree program offerings will be explored as a reflection of the propensity for strategic change. The demographic background traits of executive management teams will be examined for their impact on strategic change and by their effect on student retention. Are institutions of public higher education more responsive to key demographic trends if they include the presence of a more diverse leadership team? This issue provides the impetus for this study.

Significance of the study

While many states are becoming much more ethnically diverse, few have seen growth on the magnitude of the State of Texas, according to Steve Murdock, Texas State Demographer. Texas is now predicted to become a majority-minority state by 2008 (The Texas Higher Education Coordinating Board, 2001). This demographic transition has already occurred in California. The increasing diversity of the Texas potential student pool requires its public colleges and universities to generate strategic institutional change to make the institutions more accessible in fact, as well as in rhetoric. Yet it is abundantly clear that public colleges and universities in the State of Texas have a long way to go to achieve major advances in participation and to serve successfully for its fast-growing minority student populations.

Between 1999 and 2000, the Texas Higher Education Coordinating Board developed a new master plan with four goals titled “Closing the Gaps by 2015”. The four goals are: (1) Participation, (2) Success, (3) Excellence, and (4)
Research. According to “Closing the Gaps”, 57,000 more Texans would need to possess baccalaureate degrees and 500,000 more Texans would need to be enrolled in higher education by 2015 in order for the state to be above the average for the country (The Texas Higher Education Coordinating Board, 2001). It is critical, therefore, that the diversity of successful students as measured by degrees awarded reflect the increasing diversity of the potential student pool (The Texas Higher Education Coordinating Board, 2001).

Importance of the Study

Researchers and experts on diversity have argued the importance of minority role models in leadership teams at colleges and universities to propel minority student success for decades. It is unfortunate, however, that the demographic diversity of public college and university administrators in Texas has not markedly increased in recent years. Recognition of the importance of diversity does not appear to have occurred in the higher education community of Texas. This can be seen in the quotation “Civic, community, and private sector leaders are acutely aware of the implication of a growing Hispanic population. Higher education leaders, on the other hand, appear oblivious as to how critical the situation has become or what their role should be” (Apadoca, 2000, p. 3). According to the Texas Association of Chicanos in Higher Education (TACHE, 1986), through 1986, higher education demographic diversity in Texas had not significantly increased. In 2000, only 11.8% of higher education administrators in Texas were found to be of Hispanic origin, and according to the 2000 study (Apodaca, 2000), of the 100 colleges and universities in Texas that were
surveyed, forty-two had no Hispanic administrators (Apadoca, 2000).

Research Topics

There were three major research topics investigated in this study: (1) the propensity or ability of institutions of higher education to make or implement strategic change, (2) the demographic diversity of the senior management group and its relative impact on making change, and (3) the success or failure of institutions to make strategic change as reflected in data on student retention (success). The propensity or ability to make strategic change will be examined by assessing public institution decisions to offer new degree programs, all of which must be approved by the Texas Higher Education Coordinating Board (THECB). Aspects of demographic diversity in senior management included in the study are age, education, academic specialty, organizational tenure, top management team tenure, ethnic background and career background, which will be measured by various national higher education directories and other reports. Student retention, which is in fact the “success” goal for the THECB's master plan “Closing the Gaps by 2015” (2001), will be examined in total and broken down by race and ethnicity as an indicator of institutional decision making efforts to address diversity and, therefore, a reflection of institutional effectiveness. While American higher education lacks a truly definitive performance variable to measure success in strategic decision-making, retention (measured by both staying continuously enrolled and by degree achievement) is clearly a key measure of strategic importance to non-selective higher education institutions, and therefore offers valuable information about decision-making performance.
Sampling Frame

The proposed sampling frame is the publicly controlled state universities and community colleges in Texas. An examination of public college and university performance as related to diversity is appropriate because in Texas, well over 90% of all students attend public institutions. The vast majority of those 90% attend non-selective public community colleges and universities. The level of analysis will therefore be publicly controlled community colleges and non-selective four-year regional state universities. Selective universities such as the flagship campuses of the Texas A&M System and the University of Texas System, which receive federal and state land grant funding for their campus operating budgets, are clearly not as impacted by external forces related to student choice as are non-selective institutions. Such selective universities are also somewhat more insulated from external pressures by the fact that they can generally maintain capped enrollments and reject high numbers of applicants due to brand name recognition and superior funding (under the Texas Constitution, only the main campuses of Texas A&M and The University of Texas may use funds from the state’s Permanent University Fund – valued in 2002 at 13.8 billion – for operating expenses).

This level of analysis will allow for exploration of the strategic decision process at the very access oriented institutions that must grow by 500,000 students in 15 years if the THECB’s “Closing the Gaps” participation goal is to be met. Institutions that are part of a group of campuses under the authority of a single governing board of trustees, such as the eight campuses in the Texas
A&M System, will be examined only if they have the independent authority to decide if the state should be petitioned for the opportunity to add new degree programs. The senior management groups of these colleges and universities will not include regents or trustees of the institutions in question but will instead focus on the individuals at the president and vice-president levels due to their responsibility for making strategic decisions related to degree programs.

Delimitations

Offered here are three reasons for delimiting this study, and specifically the rationale for excluding the highly selective flagship campuses of the two largest public university systems in Texas, the Texas A&M and University of Texas Systems:

1. Wiersema and Bantel found that the demographic background of the top management teams of large for-profit corporations was related to their propensity to pursue strategic change. Their information added to the knowledge that can be used by large for-profit firms in forming their top management teams. This study of public higher education can potentially provide a strong impact on the makeup of future executive management teams for colleges and universities. While certain demographic make-ups would intuitively seem to be superior for managing higher education, the norm of all-male, Caucasian, older, career academics is highly dominant. This research has, over time, come to be accepted in for-profit organizations, and likely will become dominant as people that have been exposed to it move up the ranks of corporate authority. A similar effect can be expected in the higher education sector, as people who are
exposed to this type of information and orientation gain greater administrative opportunities. The full potential impact of this study, however, will likely not be seen for many years. Yet evidence about optimal top management make-ups will enable future presidents and boards to make better decisions (Klemperer, et.at, 2001).

2. Much like the situation that Wiersema and Bantel found in the context of large for-profit firms, strategic change is becoming more important as institutions of higher education are expected to do more with limited resources. The expectations and demands placed on higher education by state governments are rising (Fretwell, 1996). At the same time, funding for the same higher education institutions is falling (Ingram, 1993). An example of this is the curtailment of higher education funding in Texas while the ambitious “Closing the Gaps” agenda is also being pushed. The only way to produce more with limited resources is through superior resource and environment alignment. Strategic change is required to achieve this alignment, and it is hoped that this study will supply practical information about how this can be achieved.

3. There is a clear gap in the literature of higher education. Just as Wiersema and Bantel found in the for-profit literature, many things are assumed about this issue, but nothing has been supported by published research. For example, higher education researchers have long argued for a demographically balanced faculty and administrative professional workforce. Yet no empirical research has been published on the relationship between top management demographics and strategic change in nonprofit organizations such as colleges and universities that
must respond to rapidly changing social demands. The findings of this study will support the development of the literature in higher education and management. The Wiersema and Bantel’s 1992 study was performed using the research methodology used in this study, with a comparable delimitation and sample frame among for-profit firms. Their results were published in the Academy of Management Journal, a publication of rigorous standards, and properly replicating it will ensure results that are valid and add to the body of knowledge about public institutions of higher education.

4. Another limitation of this study is the lack of a comprehensive performance variable. It cannot be determined whether a certain demographic background in a top management team leads to effective strategic changes. This limitation is somewhat lessened in this study in comparison to the 1992 Wiersema and Bantel study, because the limited performance variables of retention, retention by gender, and retention of minority groups were added.

5. An additional limitation of this study is that strategic change is defined as adding new degree programs, as opposed to augmenting and thereby improving existing degree programs. Degree program changes can be major innovations. This limitation is similar to that of the Wiersema and Bantel study, which did not measure administrative changes or product improvements. This limitation is necessary for the study, but clearly lessens the generalizability of the findings. Nevertheless, it has value because establishing new programs is one significant way how institutions react to their perceived external markets, and institutions of higher education will have to establish many new programs to address
weaknesses in higher education such as those identified in Texas (The Texas Higher Education Coordinating Board, 2001).

Definitions

A number of terms are used repeatedly in this study. Some of the more prominent ones are defined as follows:

**African American Students**--Higher education students in the United States who are of African descent. This term does not denote citizenship.

**Asian Students**--Higher education who are of Asian descent. This term does not denote citizenship.

**Decision**--A choice between alternatives.

**Decision-Making**--The process of defining alternative and choosing between them.

**Demographic Background**--The set of characteristics in an individual's history.

**Demographic Traits**--The combination of demographic background characteristics of the members of a decision-making group.

**Educational Specialization**--The academic field of study in which an individual has focused.

**Executive Decision-Making**--The managers who make decisions on the strategic (organization wide) level.

**Executive Management Team**--The top-level managers in an organization.

**Group Decision-Making**--Decision making by multiple individuals in a collaborative process.

**Group Diversity**--The level of demographic differentiation within a group.
Group Effects--The extent to which the presence of certain demographic characteristics within a group predicts its perspective and interpretation.

Group Theory--The expectations associated with the behavior of groups.

Hispanic Student--Higher education students who are of Latino descent, or are from Spanish-speaking cultures in the western hemisphere. This does not denote citizenship.

Innovation--The process of creating and implementing new activities related to different products, process, and services.

Local Funding--Higher education funding from local municipalities such as cities and counties. In Texas, only community colleges receive local government funding.

Organizational Culture--The set of values, beliefs, behaviors, customs, and attitudes that helps an organization’s members understand what it stands for, how it does things, and what it considers important.

Organizational Decision Making--The process that an organization goes through while developing and choosing between various options.

Organizational Environment--The environment includes all elements that lie outside the boundaries of the organizations including people, other organizations, economic factors, objects, and events.

Products and Services Mix--The total package of goods and services that are offered by organizations to their customers or stakeholders.

Programs--Academic degree programs that are offered to current and potential students.
Propensity for Change--The level of acceptance of change that is present within an organization.

Resource-Based View--The view of organizations as a collection of unique resources and capabilities that provides the basis for its strategy and is the primary source of its returns.

Resource Development--The process of positively enhancing the resources of an organization.

Strategic Change--A change that materially augments the processes, products, or services of an organization. For this study, a strategic product change is a change between June 2000 and May 2002 in the degree and certificate programs that an institution offers.

Strategic Decision Making--Choosing between alternative approaches to achieve organization-wide goals.

Student Demography--The background characteristics of current and potential students of higher education.

Trait Effects--The extent to which a demographic trait in a decision-making team member influences his or her perspective and interpretations.

Assumptions

The empirical portion of this study includes two foundational assumptions. First, it is assumed that the pursuit of new degree and certificate programs is reflective of an institution of higher education’s propensity for strategic change. Other methods of strategic change are available to executive decision-making teams at colleges and universities that are not readily measurable. It is assumed
in this study that the propensity for strategic change measured by new degree and certificate programs will reflect the overall propensity of the institution to pursue strategic change. Second, it is assumed that the executives that hold the titles of president and vice-president at institutions of higher education properly represent the executive decision-making teams of each college and university. Individuals with titles such as dean, assistant vice-president, and director may have influence on the strategic decision-making process. It is assumed in this study that the individuals with titles of president and vice-president will have the greatest influence on strategic decision-making and are therefore a good representation of executive decision-making teams.

Summary and Preview of Dissertation

The remainder of this study is divided into four chapters. Chapter II provides an extensive literature review of the relevant published research. It includes an examination of the higher education environment, strategic actions, strategic-decision making, and organizational behavior. Pertinent research methods are also reviewed. Chapter III prevents a description of the statistical methods and sample used to explore the research questions developed from the literature review. Chapter IV describes the results found in the empirical analysis. Chapter V presents a summary, conclusions, and recommendations for further research.
CHAPTER II

REVIEW OF THE LITERATURE

This study is based on the analysis and integration of four major areas of research. These areas are strategic change, strategic decision making, organizational behavior, and higher education. Application of the first three areas of research to the field of higher education was examined in depth. The following literature review is provided as a description of the information used in the process of theory development for this study.

The first area explored in the literature review is the changing expectations and shifting student demographics that exist in higher education. The higher education environment is volatile and the areas where change is occurring were reviewed. Issues such as participation, access, funding, and the demographics of potential students were explored in depth.

The second major topic of the literature review is strategic actions. The topic of strategic actions is defined and examples are given. The internal and external forces that impact the need for strategic change are described. Trends in the current environment that affect strategic change are included in this discussion.

The higher education literature related to strategic change is explored in depth. The forces providing the impetus for strategic change in higher education are chronicled. The strategic change options available for executive management teams in institutions of higher education are explored. These include changes in program, service, location, quality, price, and the
A third major topic in the literature review is the strategic decision-making process. A principal aspect of the decision-making process is the resource-based view management. This view of the decision-making process examines organizations as a set of resources that can be developed and maximized. The higher education literature was examined followed by a review of the resource-based view of for-profit topics.

The field of organizational behavior is the fourth area included in the literature review. How organizational behavior effects decision-making was explored in depth. Of particular interest was organizational behavior in higher education.

Also included in the literature review is an in-depth examination of previous work by Wiersema and Bantel. The approach that was used in the 1992 article is valuable to this study. To add an increased awareness of the current demands placed on higher education, the “Closing the Gaps by 2015” paper produced by the State of Texas was reviewed.

Changes in the Expectations and Demographics of Higher Education

Some would argue that higher education has historically been a fairly stagnant field (Ashby, 1967). Institutions of higher education generally sought to provide a set product that did not vary sharply from institution to institution (Trow, 1988). The service they provided also became increasingly standardized (Goodchild, 1986). Demand was generally consistently high enough that institutions did not respond to the specific needs of students (Freeland, 1992).
summary, higher education was relatively unchanging and people who could
afford it either chose to accept it or did without.

Responsiveness

The lack of responsiveness of higher education to prospective students is
an extension of the perceived historical role of higher education. From early in its
history the transmission of culture to a small segment of society was seen as a
primary goal of higher education (Vine, 1976). The limited availability of higher
education and the affluent nature of the prospective student group (Moore, 1986)
led to a fairly price-elastic demand for higher education (Griffin, 1999) until the
latter half of the 20th century. The impetus toward cultural preservation and
elitism created a situation where a very narrowly-defined group of people were
thought to be proper recipients of higher education, and the system only catered
to these students. This was the nature of higher education competitive forces in
the United States throughout most of its history. Internal forces predominantly
controlled the activities of most institutions of higher education.

This situation has been changing markedly in the United States since the
1940s (Kerr, 1984). The previously stagnant and unresponsive nature of higher
education has become increasingly transformed (Metzger, 1987; Kerr, 1998).
Higher education in the U.S. has adapted to a rapidly changing external
environment (Trow, 1988). These changes have occurred in the four major
areas of mission, the expanding body of students, differentiation of services, and
higher education constituents.
Mission

One of the more volatile issues in higher education today is mission. Where many institutions were previously focussed on transmitting the culture to a small portion of the population, the modern mission of most colleges and universities includes providing career-oriented education to a larger portion of the population (Metzger, 1987). This pressure for inclusiveness of students and responsiveness of course offerings represents a strong external influence on higher education strategy in the U.S. (Kerr, 1984). This shift is based on several different factors. The Servicemen’s Readjustment Act of 1944 (popularly known as the G.I. Bill) changed the number of people who could afford to pursue a higher education. At approximately the same time (the late 1940s through the mid 1950s) an expectation developed among educational theorists that higher education could be useful to a higher percentage of U.S. citizens than had been previously thought (Truman Commission, 1947).

The forces for increased higher education access were bolstered in the 1950-1960’s by a societal appreciation of the importance of human capital development (Kuznets, 1954; Becker, 1992). Human capital theory posits that individuals can be invested in much as a tangible investment such as land or equipment (Schultz, 1961). The investment takes the form of education or training to enhance the productivity of an individual (Bowman, 1966). The Cold War was a great impetus for the U.S. to pursue human capital investment in order to develop a superior workforce to that of Soviet Union to support what was hoped to be a superior military sector (Sobel, 1978).

The societal pressure on institutions of higher education was increased by
a societal imperative for equal opportunity among different ethnic groups. Barriers that had overtly hindered members of ethnic minority groups from attending colleges and universities were slowly removed. This led to a more diverse group of potential students whom higher education institutions were expected to serve (Olivas, 1982).

Expanding Body of Potential Students

While higher education has been expected to serve an increasing number of people, society has been reducing the amount of support that underpins this effort (American Council on Education, 1984). The portion of higher education expenses that are borne by state and local governments has consistently diminished since the late 1960s (American Council on Education, 1986). The declining public support of higher education has increased the influence on educational institutions of the other entities that must fill in the gaps in payment (College Board, 1986). Since more of the cost is being paid by the students, parents, corporations, and charitable foundations, these constituent groups increasing influence what institutions of higher education can choose to do (Hitt, Ireland, & Hoskisson, 2001). Financial support is today increasingly flowing to institutions that respond to the needs of these constituent groups (Currie, Harris, & Thiele, 2000).

Demographic shifts in the pool of potential students have also changed the nature of higher education in the U.S. (Oblinger & Verville, 1998). In addition to the previously mentioned societal impetus for equality among ethnic groups, other forces are changing the profile or demographic characteristics of higher
education students in the first years of the 21st Century. At the dawn of the 20th century, a large majority of higher education students were unemployed Caucasian males between the ages of 18-23, from relatively affluent families (Lynch & Bishop-Clark, 1998). The latter half of the 20th Century saw a great increase in higher education students who did not reflect one or more of these demographic characteristics (Jarvis, 2001; Tinto & Russo, 1994). These diverse students have different needs and preferences as consumers of higher education than those who were previously served (Jarvis, 2001). While previous generations of students were sent to college to be prepared for life, many current potential students are choosing to go to college to enhance their already established lives.

The U.S. experienced a change in immigration patterns in the latter half of the 20th century. From the latter years of the 19th Century until the middle of the 20th Century, the vast majority of immigrants to the U.S. were from western or central Europe (Gibson & Lennon, 2001). This bolstered the existing Caucasian majority in the U.S. In the latter half of the 20th Century, a much larger portion of immigrants began to come from Asian and Latin countries according to an analysis of U.S. Census Bureau records published by the Texas Association of Chicanos In Higher Education (TACHE). At the same time, a birth rate gap exists between Caucasians and Hispanics. In the U.S., Caucasian women, like Asian, Native American, and African American women have just more than two children on average in their lives. Hispanic women in the U.S. average more than three children in their lifetime (National Vital Statistics Report,
Consequently, according to studies by TACHE and other organizations, the U.S. has a smaller Caucasian majority than in the past (Carnevale, 1999). Some states are at or near the attainment of majority-minority status, where the Caucasian majority represents less than 50% of the overall population (Carnevale, 1999). In summary, institutions of higher education are now expected to educate a more representative portion of the U.S. population, which is now more ethnically diverse rather than only educating young, affluent, males drawn from a population with a vast Caucasian majority.

A complicating factor evident in another TACHE study is that the shifts seen in student demographics are not reflected in the makeup of college and university executive management teams (Apadoca, 2000). The majority of these individuals come from the formerly standard demographic background for college students (Apodaca, 2000). This may sharply limit their ability to recognize and respond to the shifting demands of the changing constituents of higher education. A particularly descriptive statement in the Apodaca study (2000) indicates a disturbing lack of progress for one of the under-represented demographic segments.

“Civic, community, and private sector leaders are acutely aware of the implication of a growing Hispanic population. Higher education leaders, on the other hand, appear oblivious as to how critical the situation has become or what their role should be. Most college and university CEOs readily concede that Hispanic faculty and administrators are seriously under-represented at their institutions and that the representation lags far
behind that of the state and student enrollment. They also acknowledge that little has changed during their tenure and that the gap will most likely not improve in the near future. And yet annually, they give spirited presentations at legislative hearings and community meetings regarding the institutions commitment to diversity. Even after decades of promises, most institutions have failed to develop efforts that produce results. Most have not established creditable plans nor have identified key individuals who can be held accountable.” (Apodaca, 2000, pg. 3).

In 1997, approximately 6% of administrators at the flagship campus of the University of Texas at Austin were Hispanic, although Hispanics were the second largest and fastest growing ethnic group in the state. Thirty-four of the 100 Texas institutions of higher education surveyed had no Hispanic administrators at all (Apodoca, 2000). Further research may show whether this situation exists across other demographic traits among executive decision-makers in higher education.

The issue of the ethnic makeup of executive decision-making teams at institutions of higher education is further complicated by the concentration of African-American and Hispanic recipients of doctoral degrees in the field of education. In 1996, 45.7% of all doctorates awarded to African-Americans were awarded were in education (Gray, 1999). Similarly, 23.6% of all doctorates awarded to Hispanic candidates in 1996 were in education (Gray, 1999). (See Table 1)
Table 1
Number of Doctoral Degrees Awarded to African Americans by Major Field Groups 1977-1996

<table>
<thead>
<tr>
<th>Year</th>
<th>Math &amp; Engineering Sciences</th>
<th>Physical Sciences</th>
<th>Computer Sciences</th>
<th>Life Science</th>
<th>Psychology</th>
<th>Social Humanities</th>
<th>Education</th>
</tr>
</thead>
<tbody>
<tr>
<td>1977</td>
<td>% of all AA doctorates</td>
<td>2.0</td>
<td>3.9</td>
<td>1.0</td>
<td>6.7</td>
<td>9.2</td>
<td>10.8</td>
</tr>
<tr>
<td>1987</td>
<td>% of all AA doctorates</td>
<td>3.4</td>
<td>2.9</td>
<td>1.3</td>
<td>11.1</td>
<td>10.6</td>
<td>11.4</td>
</tr>
<tr>
<td>1996</td>
<td>% of all AA doctorates</td>
<td>5.8</td>
<td>4.4</td>
<td>1.4</td>
<td>12.7</td>
<td>12.7</td>
<td>11.4</td>
</tr>
</tbody>
</table>


Strategic Actions

Strategic actions of institutions of higher education are generally related to the education that is offered and the method in which it is delivered. A strategic action is defined as a significant application of resources of the organization that is difficult to carry out or reverse (Hitt, Ireland, and Hoskisson, 2001). All organizations must differentiate themselves from other similar organizations (Porter, 1985; Reed & DeFillippi, 1990). The educational services that are offered differ markedly from one institution to another (Blai, 93). It is these differentiations that affect the attraction of students, sources of private funding and public funding to institutions of higher education (Newman, 2001).
Differentiation in Higher Education

Colleges and universities can differentiate themselves from other institutions by offering different degree programs to students. In the same way that a for-profit firm can offer a specific product that attracts a specific customer (Porter, 1985), public and private colleges or universities can offer degree programs to attract a particular student group or to gain the support of some other stakeholder group (i.e., state or local funding). Universities and colleges in the United States are being pressured by business interests to produce programs that attract a larger and more diverse group of students (Merritt, 2002). An expansion in the number and geographic range of institutions of higher education has also increased the impetus for change that is felt by colleges and universities (Baker, G. 1992). Students now have more choices than ever before (Newman, 2001). Proprietary (for-profit) institutions are proliferating in both number and scope as well (Newman, 2001). These competitive forces are further intensified by a general trend in state higher education funding toward relative contraction (Hendley, 2000; Hesketh, 1999). As state legislatures assign a lower level of financial priority to higher education, the pressure placed on institutions of higher education to change increases.

Strategic actions in higher education include any steps that position an institution with respect to its direct competitors (Fretwell, 1996). These steps include pricing (Lenington, 1996), class size (Wallace, 2002), student services and degree offerings (Levin, 1993). Performance in these and other areas helps define the competitive position of higher education institutions. The pursuit of
change in these areas can be seen as a response to environmental change (Creamer & Dassance, 1995). The strategic positioning of institutions is an ongoing process that is always in transition (Donnelly, 1995).

The issue of strategic action is important to all organizations (Lei, Hitt, & Bettis, 1996). Strategic change occurs when an action is taken by top management that affects the overall direction and performance of the organization (Hitt, Ireland, & Hoskisson, 2001). Wiersema and Bantel (1992) viewed successful strategic actions as critical to the performance of for-profit corporations. A successful strategic action is one that effectively aligns organizational resources with the external environment (Andrews, 1971). The successful conception and implementation of strategic actions are critical to organizational goals. Clearly the concept of strategic action applies to the strategic position of non-profit institutions in a competitive environment.

Higher Education Constituents

All organizations have constituents (Frooman, 1999: Levine, 1995), sometimes referred to as stakeholders. These stakeholders can be divided into internal and external stakeholder groups, individuals, and groups that have an impact on the organization’s activities (Jones & Wicks, 1999). Internal stakeholders are members of the organization. They influence the organization by supporting or thwarting its intended activities (Mitchell, Agle, & Wood, 1997). Internal stakeholders tend to operate in a fashion that protects their own interests, unless those interests are hindered by the activities of external stakeholders. External stakeholders are the individuals and groups who are the
end-users of the product or service that is produced by the organization’s activities (Gioia, 1999). These stakeholders can be thought of as customers (Hitt, Ireland, & Hoskisson, 2001). In the nonprofit arena, the customers are those that support the activities of the organization. In nonprofit higher education, the customers are the governmental units, charitable groups, corporations, and students who financially support institutions (Levine, 1993). Stakeholders make decisions about the extent to which they will support the institutions (Frooman, 1999). Stakeholders of every type have their own agendas and choose to support organizations based on the extent to which they advance these individual agendas (Donaldson & Preston, 1994). The stakeholders supply the resources used by an organization to carry out its activities (Donaldson & Lorch, 1983; Christensen & Bower, 1996).

Today the students and business interests that are the most direct recipients of higher education services are able and willing to demand more from colleges and universities in return for their support (Chapman, 2000; Hesketh, 1999). State and local governments are becoming less supportive of the activities of colleges and universities (Hendley, 2000; Couldrake, 2001). These two forces create a situation in which many institutions must produce more attractive educational experiences with less financial support. The only way to do more with limited resources is to produce a superior alignment between organizational resources and external environments (Wernerfeldt, 1984). This requires superior strategic decision making and organizational change (Lado, Boyd, & Hanlon, 1994).
In the case of Texas, public two-year and four-year nonselective universities and community colleges must respond to a rapidly-changing state demography. In Table 2 below, data is presented that describes the demographic situation of Hispanics in Texas. The percentage of people in Texas who are Hispanic has grown markedly in recent years and is expected to continue to increase in the foreseeable future. This condition enhances the impact of Hispanic under-representation in higher education in Texas. By 2015,

<table>
<thead>
<tr>
<th>Year</th>
<th>Hispanic Pop. in Texas</th>
<th>Percent of Population</th>
<th>Hispanic Enrollment in Higher Education</th>
</tr>
</thead>
<tbody>
<tr>
<td>1995</td>
<td>5,067,682</td>
<td>28%</td>
<td>177,036 (4.0%)</td>
</tr>
<tr>
<td>2000</td>
<td>6,078,459</td>
<td>30%</td>
<td>234,902 (3.7%)</td>
</tr>
<tr>
<td>2005</td>
<td>7,428,278</td>
<td>33%</td>
<td>326,502 (4.4%)</td>
</tr>
<tr>
<td>2010</td>
<td>8,656,523</td>
<td>36%</td>
<td>446,844 (5.1%)</td>
</tr>
<tr>
<td>2015</td>
<td>9,852,670</td>
<td>38%</td>
<td>566,844 (5.7%)</td>
</tr>
</tbody>
</table>

Note: Percentages are Rounded. * Projections of Population Growth **Hispanic Enrollments To Be Attained To Reach Goals Set By The THECB Data in this table is compiled from the Texas Higher Education Coordinating Board (THECB) reports UE 201 and 401, Population Forecast for Texas by Race/Ethnicity: 1990-2030, and Closing the Gaps by 2015 (2001).

Texas must enroll 5.7% of its Hispanic residents, instead of the 3.7% enrolled in 2000, if it is to reach its stated goal (Texas Higher Education Coordinating Board).
As Table 2 clearly shows, higher education Texas has much ground to
cover and needs to respond rapidly to these demographic conditions if it is to
appropriately serve the people the state. The THECB’s “The Texas Higher
Education Coordinating Board by 2015” (2001) stated the view that if these goals
for student participation were not reached, the state’s workers would not be able
to support the Texas economy at its current level of prosperity. Another example
of a demographic imbalance in Texas higher education is the case of African-
American administrators. From 1989-2000 both the number and the percentage
of African-American administrators in Texas higher education actually decreased
from 136 or 5.7% to 124 or 4.8% (THECB, 2000). Clearly, Texas has a long way
to go to achieve demographic balance among its higher education stakeholders.

Strategic Decision-Making

Decision-making is defined as the act of choosing one alternative from
among a set of alternatives (Griffin, 1999). Strategic decision-making is choosing
between alternative approaches to achieve organization wide goals. Higher
education strategic decision making is often a complex process. It entails
applying highly limited resources (Birnbaum, 1988) to a changing customer base
(Colby, 2001) to achieve a complex set of objectives (Ortega y Gasset, 1944).
Organizational strategic decision making is founded on a view of what an
organization is and why it exists. The most appropriate view of organizations in
the higher education context is the resource-based view. The resource-based
view is also employed prominently in the for-profit strategic management
literature (Barney, 1991). In this view, organizations are seen as a set of
resources that can be used and combined in many different ways and can be traded for other resources (Wernerfeldt, 1984). The resource-based view would describe an academic department as a set of resources that enable the institution to do many things, rather than a mechanism for carrying out the tasks that the organization currently completes.

Resources

Resources can be used and mixed in a vast set of combinations (Markides, 1999). Many of these combinations will be detrimental to the pursuit of the organization’s goals. Some of these combinations will be more positively effective than others, and one or more will produce an optimal result (Reed & DeFillippi, 1990). The key to effective strategic decision making is determining which use of the organizational resources will allow the most effective pursuit of the organizational goals.

Organizational resources are those things and people that the organization controls. Physical property, money, information, reputation, structure, organizational culture, and personnel are all examples of organizational resources (Conner, 1991). All of these resources can be enhanced, diminished, or traded for other resources (Quinn, Anderson, & Finkelstein, 1996). The ease with which individual resources can be changed varies by the type of resource (Chi, 1994; Reed & DeFillippi, 1990). For example, changing personnel is a process that is somewhat difficult to control because the individuals involved also make decisions for themselves which cannot always be predicted or controlled (Lado & Wilson, 1994). The usefulness
of each type of resource is affected by the strategic decisions made by the organization that possesses them (Chi, 1994). Evaluating the usefulness of each resource is a critical step in finding its most effective use (Hitt & Ireland, 1986). If the value of each resource is understood and is enhanced rather than diminished, then the organization is in a position to employ its resources to best achieve its goals.

Higher Education Environment

The environment in which an organization operates determines what opportunities and threats exist for it (Young, 1999). The environment in which an institution of higher education operates is made up of social, technological, competitive, political, economic, and competitive forces (Hitt, Ireland, & Hoskisson, 2001). The effective analysis of this environment is a critical step in strategic decision making (Snell, 1999). Once the resources and capabilities of an organization are understood by top managers, an effective analysis of the external environment allows the choice of the best use of its resources to be made (Elenkov, 1997).

It is appropriate to first analyze and understand the resources and capabilities of an institution of a higher education before carrying out an analysis of the external environment. In an extremely stable environment, it can be effective to examine the environment first and build the organization to match that environment (Markides, 1999). The current higher education environment is unstable, however, and apparently is becoming less stable by the year (Hendley, 2000; Levine, 1993). This unfortunate trend toward instability and change in the
higher education environment is unlikely to be reversed in the foreseeable future (Newman, 2001).

In addition to the aforementioned changes in funding, a wide range of changes are occurring in the higher education environment (James, 1995). Significant changes are occurring in the popularity of specific degrees, the demographics of prospective students, the demographics of faculty members, and the expectations of students, businesses, and society in general (Fretwell, 1996). The shifts in these environmental conditions not only create a need for change, but they determine which types of changes can be effective for colleges and universities (Levin, 1995: Barney, 1986).

Resource and Environment Alignment

The third major task in the strategic decision-making process is the aligning of organizational resources and capabilities with the environment in which the organization operates (Lado, Boyd, & Hanlon, 1997). This alignment process requires a choice from among the different alternative uses of organizational resources based on their effectiveness in the environment (Markides, 1999). In a higher education context, an example of this would be when a college or university with an ability to use cutting-edge technology offers new degree programs in technology fields, if the external environmental forces were favorable to the new programs. Alternatively, if the pool of prospective students were not attracted to the new degree programs, the university could use its technological capability to enhance existing degree programs by making them technology centered or use the technology to change the way that existing
In the literature on for-profit firms, effective alignment between resources and environment requires a consideration of both efficiency and effectiveness. Absolute efficiency occurs when the greatest production possible is achieved from a set of resources. Absolute efficiency is not advantageous for an organization unless that is what the organizational constituents value (Luthans, 1988). Efficient production of an unwanted service will not satisfy constituents or further organizational goals. Constituents are also interested in effectiveness (Griffin, 1999). Absolute effectiveness occurs when an organization produces exactly what constituents desire (Hitt, Ireland & Hoskisson, 2001). This extreme is also problematic, since resources are never truly infinite and a devotion to effectiveness to the exclusion of efficiency will result in shortages of the perfect final product (Ghospal & Bartlett, 1995). Institutions of higher education have highly limited resources to work with (Lenington, 1996), and the allocation of these resources is a critical problem for these institutions (Birnbaum, 1988). In the higher education context, colleges and universities must strike a balance between offering education to the most students possible for the lowest cost with a corresponding drop in quality or rationing the highest quality education possible to a fortunate few. A compromise must be reached between these two demands since neither of these extremes is acceptable to all of the constituents of each institution. Finding the proper level of efficiency and effectiveness is part of producing the best alignment of internal resources and the external environment (Luthans, 1988).
The individual demographic differences between for-profit executive managers have been shown to have an impact on their propensity to make strategic decisions that require organizational change (Wiersema & Bantel, 1992). A wide range of individual differences have been thought to affect the decision-making process for individuals (West & Schwenk, 1996). These differences include age, education, experience, organizational tenure, and ethnic background (Tihanyi, Ellstrand & Dalton, 2000; Pelled, Eisenhardt, & Xin, 1999). While some research has been performed on this issue in the for-profit arena, none has been published on the impact of individual demographics on decision-making by executive personnel at nonprofit organizations such as colleges and universities.

Significant exploration has also been undertaken on the effect trait differences within executive management groups of for-profit organizations (Wiersema & Bantel, 1992; Pitcher & Smith, 2001). It is believed by some that differences in certain traits within the decision-making group can produce a group or team that is more likely to pursue strategic change than one which is made up of members who possess similar demographic traits (Miller, Burke, & Glick, 1998; Goll, Sambharya, & Tucci, 2001). As with individual differences, trait differences have not been studied in the area of higher education. Yet, as Table 2 above showed, with a quickly changing demographic in Texas higher education, pronounced trait differences among diverse groups are of amplified importance in designing effective programs and services. Responsive strategic decision-making groups in can optimize a higher education institution’s resources,
comprehend its complex environment and set goals to help it recruit and retain students.

Organizational Behavior in Higher Education

Organizational behavior at institutions of higher education does not generally lend itself to change (Levin, 1995). The complex processes at colleges and universities are now, however, being expected to change (Toombs & Tierney, 1992). The field of organizational behavior has a number of insights to offer on the issue of organizational change. Organizational behavior examines human behavior in institutions or firms, the organizations themselves, and the interaction between the two (Cummings, 1978). Institutions of higher education are a specific type of organization which have certain peculiarities that distinguish them from other organizational types. Most organizations have an inherent resistance to change (Hambrick, Geletkanycz, & Frederickson, 1993), but the nature of higher education lends itself to a greater resistance to change than most organizations (Tierney, 1998). Among the traditional functions of colleges and universities include the maintenance and distribution of knowledge and culture (Ortega y Gasset, 1944). This purpose to protect and conserve permeates the organizational behavior of higher education. Furthermore, key decision-makers in higher education (Kennedy, 1997), resist change even in areas unrelated to cultural dissemination, such as degree offerings, program decisions, student services, and student recruitment.

Most executive managers of colleges and universities have worked in higher education most of their lives and earlier in their lives spent extensive time
as college or university students. Higher education is also somewhat insulated from the forces of change by the concept of academic freedom (Chait, 1997). The necessary protections which ensure that college and university faculty members have the opportunity to freely explore new lines of inquiry and controversial issues also may offer them an ability to entrench themselves against from the pressure for change (Tierney, 1997). These issues and others make institutions of higher education particularly resistant to change (Bensimon & Tierney, 1993).

From the private sector literature, it is clear that more decisions are made by groups than by individuals within organizations (Moorehead & Griffin, 1998). A primary advantage of group decision-making over individual decision making is the incorporation of a broader range of knowledge and perspectives than would be available to one individual (Dumaine, 1993). Groups can be dominated by one point of view when an extreme level of cohesiveness exists among the members (Cartwright, 1971). The greater the similarity of the knowledge, experience, and attitudes of group members the more likely it is to narrow the range of alternatives that are considered by the group (Bensimon & Soto, 1997: Pitcher & Smith, 2001). This situation becomes very detrimental in practical decision making. If unlimited time, knowledge, and resources were available, and the people involved were totally dedicated to organizational goals, decisions could be made through a rational process.

Rational decision making is a process where all possible alternatives are generated and evaluated, and the best alternative is chosen (Moorehead &
Griffin, 1998). In most situations, however, the decision makers have preferences of their own and decisions are made with highly limited information (Rajagopalan, Rasheed, & Datta, 1993). Consequently, decision making groups that have a greater breadth of knowledge and viewpoints may be more capable of making good decisions. While this process has been studied by Wiersema and Bantel at 87 of the Fortune 500’s largest industrial firms in the for-profit sector, little examination of this process has been done in the higher education sector. For this reason additional description of the Wiersema and Bantel study is important.

The Wiersema and Bantel Theory of For-Profit Management Demographics

In 1992, Margarethe Wiersema and Karen Bantel published an article entitled “Top Management Team Demography and Corporate Strategic Change” in the Academy of Management Journal. The present study includes a replication of the Wiersema and Bantel article (1992) from the for-profit management arena. In an interview with Margarethe Wiersema (Personal Communication, January 9, 2002), the importance of top management demographic diversity in for-profit strategy was clearly evident. Many of the issues that made the study relevant in the for-profit arena are present in the higher education arena. Consequently, it was surmised that a replication of the Wiersema and Bantel methodology in a higher education could produce valuable information. To that end, it is beneficial for the purpose of this study to summarize the 1992 Wiersema and Bantel study.

The Wiersema and Bantel study was the first published study that
established a relationship between top management demography and the propensity for strategic change in large for-profit corporations. The study examined individual demographic traits and the homogeneity or heterogeneity of the top management teams at individual corporations. Both the background and the employment history of individual team members were examined.

Wiersema and Bantel believed that the study was justified by two major factors. First, the forces they studied that created the need for change in large corporations were in transition, which made the topic more important to practitioners and theorists alike. Second, a serious gap existed in previously published research.

The theory proposed by the Wiersema and Bantel was that two aspects of top management team demography had a significant impact on strategic decision making: individual traits and heterogeneity within the group. The literature review included in the study indicated certain individual traits were associated with receptivity to change and a willingness to take risks. Previous research also indicated that group decision making could be influenced by greater group heterogeneity to encourage or enable more creative decision making and greater diversity of information and viewpoints.

The demographic issues examined in the Wiersema and Bantel study (1992) were drawn from previous published research. Individual traits of interest were determined to be age, organizational tenure, team tenure, educational level, and technical specialization. The top management team heterogeneity issues studied were age, organizational tenure, team tenure, and educational
specialization.

Additional control variables were added to isolate the issue of demographic background from other extraneous influences. The variables used were prior organizational performance, organizational size, top management team size, and industry structure (Wiersema & Bantel, 1992). Controlling for these issues was intended to equalize the decision-making process as much as was possible.

The integration of these bodies of research allowed for the development of a testable theory of major corporations in the private sector. In the study at hand, organizational change is widely recognized to be a necessity for most institutions in the current higher education environment. This is not likely to change in the near future. Decisions to change in higher education are generally made by a group of individuals with executive management authority and responsibility. Certain background characteristics appear to make individuals more or less likely to make decisions that require change. Also, diversity of background within the members of decision-making groups in higher education may cause the groups to be more open to change. If this is true, then, the propensity to pursue change should be related to the individual differences between decision making group members, and diverse decision making groups should be more likely to pursue strategic changes.

The literature and theory development in the Wiersema and Bantel study (1992) led to the generation of five testable hypotheses, with four corollaries, secondary aspects of other hypotheses. The hypotheses are as follows:
H1: Average age of a top management team will be negatively related to change in corporate strategy.

H1b: Age heterogeneity within a top management team will be positively related to change in corporate strategy, but the association will decrease the more heterogeneous the team.

H2: Low average organizational tenure of a top management team will be positively related to change in corporate strategy.

H2a: Organizational tenure heterogeneity within a top management team will be positively related to change in corporate strategy, but the association will decrease the more heterogeneous the team.

H3: Average tenure of a top management team will be negatively related to change in corporate strategy.

H3b: Tenure heterogeneity within a top management team will be positively related to change in corporate strategy, but the association will decrease the more heterogeneous the team.

H4: Average educational level of a top management team will be positively related to change in corporate strategy.
H5: Academic specialization in science and engineering within a top management team will be positively related to change in corporate strategy.

H5b: Educational specialization heterogeneity within a top management team will be positively related to change in corporate strategy.

The sample used in the Wiersema and Bantel study (1992) was randomly selected from the Fortune 500 largest manufacturing firms. One hundred firms were chosen. Thirteen firms were dropped due to data limitations, leaving a final number of 87. Data was taken from the “Who’s Who in Finance and Industry” and the TRINET 1980 line of business data (business performance and strategy data gained through a survey of Fortune 500 firms) a decision made by the researchers due to data availability.

In addition to previously described independent variables, the Wiersema and Bantel study (1992) used strategic change as a dependent variable. This variable was created by calculating a size-relative measure of changes in product offerings over a three-year period.

The statistical method used in the Wiersema and Bantel study (1992) was multiple regression. A model was introduced that included all of the demographic measures and firm measures as independent variables, and the strategic change measure as a dependent variable. The theory tested was developed after an advanced review of the for-profit literature on strategic planning, corporate
control, group decision making, and market forces

The Wiersema and Bantel study documented how for-profit corporations cannot operate independently from their environments. Corporate environments are individuals, organizations, and economic forces with which corporations interact. Large corporations are often perceived as able to operate independently from outside influence due to their abundant resources. This perception has been based on some truth in the past. Today the largest corporations are all publicly traded and therefore owned by large numbers of investors. These investors have ultimate control over activities of the companies within the bounds that society sets through the passage of laws that regulate their activities.

In the first eighty years of the 20th century, the primacy of ownership power diminished. This diminishing of power occurred due to dilution of ownership (Jensen & Meckling, 1976). Larger corporations have generally come to be owned by a large number of small investors. None of these individual owners has the majority of voting stock which is necessary to exert their individual will on the corporation and its activities. In the absence of an agreement between the small owners, the members of the firm, led by its officers, will run the corporation as they see fit (Fama, 1980). This situation led to corporations being insulated from the influence of outside forces. Many firms accepted limited profitability in exchange for operating in a fashion that protected the interests of the firm’s employees (Jensen & Meckling, 1976). Too often activities that became prominent were a lack of responsiveness to consumers, an
aversion to change, inappropriate acquisitions, and inflated executive salaries. A large firm was protected from external influence because no individual could purchase enough stock in a large firm to take it over. This made it in the best interests of managers to pursue corporate acquisitions simply to increase the size of the firm and decrease the chances that they themselves, would be acquired (Davis & Thompson, 1994).

The Wiersema and Bantel study reflected how in the last twenty years of the 20th Century, the insulation that large corporations had previously enjoyed began to deteriorate. The dilution of ownership has been maintained, but the threat of controlling interest being purchased by an individual or group with a new agenda has grown markedly. It is now possible for controlling interest in the largest of firms to be purchased with borrowed capital by a small group of investors. These alternative owners are fundamentally a competing management team that borrows enough money from the capital market to purchase what is functionally a controlling interest in the firm (Hitt, Hoskisson, & Ireland, 1990). Such an acquisition leads to the replacement of the top management team and a new strategy for the firm. In summary, the original management team declines to make appropriate changes in the firm in response to the organization’s environment, and this failure can cause the stock price of the firm to fall and, in turn, allow another group of managers to purchase enough stock to take over.

The importance of responding to environmental pressures for strategic change has been enhanced by changes in the international market for
investment and lending capital (Stubbs & Underhill, 1994). In years past, the flow of capital has been impeded by national borders. This caused the competition for investment and lending capital to be much more limited than it would have been had all capital holders been able to choose from all the investment and lending opportunities in the world (Holm & Sorenson, 1995). In recent years, however, investment and lending have become more global in scope. It is now a reality that most major firms must compete directly for investment and lending capital with all of the other large firms in the world (Ohmae, 1990). This heightens the need for firms to respond to environmental forces by instituting strategic change (Wiersema & Bantel, 1992). These forces can even influence the need for education (Tikily, 2001).

The work of a number of scholars on the behavior of private sector firms was reviewed in the Wiersema and Bantel study, to determine the need for further research to explore the issue. The fields of strategic change, cognition, decision making, population ecology, and group decision making were included in this review. Andrews examined the impact of strategic choice (1971). Taking an opposite perspective, Aldrich (1979) reported a deterministic view of population ecology that dismissed much of the impact of individual strategic choice. An extension of these two lines of research was performed by Gupta (1984) which hypothesized the value of studying the decision making in a group context. This view was supported by a number of other studies (Dutton & Duncan, 1987). Research on demographic studies was examined to determine the potential impact of demographics on the process (Pfeffer, 1981; Zenger &
The impact of the demographics of top management team members on the propensity for strategic change had not yet been explored. The results of the Wiersema and Bantel study (1992) were highly significant. Prior organizational performance, mean team age, mean organizational tenure, mean educational level, science specialization, and educational specialization heterogeneity were all found to be significant variables. Mean team age and mean team organizational tenure were negatively correlated with the strategic change measure. The full model had a R2-value of .39 and a F-value of 3.08 (p<.001). The significance of variables that were valuable to the full multiple regression model can be seen in Table 3 below:

Table 3

<table>
<thead>
<tr>
<th>Variables in the Full Model</th>
<th>Level of Significance</th>
</tr>
</thead>
<tbody>
<tr>
<td>Mean Team Age</td>
<td>-.18*</td>
</tr>
<tr>
<td>Mean Team Organizational Tenure</td>
<td>-.27*</td>
</tr>
<tr>
<td>Mean Team Executive Tenure</td>
<td>.27**</td>
</tr>
<tr>
<td>Science Specialization</td>
<td>.18*</td>
</tr>
<tr>
<td>Educational Specialization Heterogeneity</td>
<td>.40***</td>
</tr>
</tbody>
</table>

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

The importance of the Wiersema and Bantel study can be seen in the highly significant relationship between demographic traits and the strategic change measure. In large industrial firms, it appears that propensity to change
has a relationship to the demographic makeup of the top management team members. This relationship was evident in large firms in a specific time frame, across industry boundaries. While not establishing causality, the study brings forward the possibility that the organizational propensity for change could be enhanced by the establishment of a more demographically diverse top management team.

In summary, Wiersema and Bantel developed a theory, based on previously published research, that the demographic background of top management team members in a for-profit organization influences its propensity for the pursuit of strategic change. The quantitative analysis performed by Wiersema and Bantel offered significant support for this theory. The study did not include any higher education or nonprofit institutions. Consequently, any assertions that could be made about higher education applications of this theory would be perilous without further research.

Higher Education in the State of Texas: Closing the Gaps by 2015

A good example of the need for effective strategic decision making can be found in the State of Texas. The Texas Higher Education Coordinating Board (THECB) is the organization that directly oversees all public higher education in the State of Texas. Created in 1963 at the urging of Governor John B. Connally and charged with developing a master plan for higher education in Texas, the THECB recently performed an internal analysis for the purpose of planning future higher education endeavors in the state. The analysis is titled “Closing the Gaps: The Texas Higher Education Plan” (The Texas Higher Education Coordinating
“Closing the Gaps” is not truly a plan, but rather a planning tool that can be used by institutions of higher education in goal setting. “Closing the Gaps” has been approved by the THECB as the official set of minimum goals for higher education in the State of Texas.

“Closing the Gaps” paints a vivid picture of the current condition of higher education in Texas. The gravity of the situation in higher education in Texas is evident in a quotation by Steven Murdock, Chief Demographer of the Texas State Data Center: “If participation rates remain low, the poverty rates in Texas will increase by 3 percent and the average Texas household income will decline by $3,000 in constant dollars by 2030.” (Closing the Gaps by 2015, 2001, pg. 5).

Although this state study was not a truly representative sample of the state of higher education in the U.S., the four major issues described in Closing the Gaps are commonly of importance to most public institutions of higher education are operating in 2002, and it is therefore a helpful example for analysis in this study.

The first issue discussed in “Closing the Gaps” is participation. Texas is projected, by its chief demographer Steve Murdock, to be deficient by 500,000 in higher education students by the year 2015. The essence of this prediction is that Texas will need to add half a million additional students in order to avoid a predicted economic downturn related to having a workforce with substandard skills. This estimate is very conservative, in that it is based on assumptions that do not include a continuation of current immigration and migration levels which have accelerated the population growth of Texas since 1990. Texas currently
has approximately one million students enrolled at its institutions of higher education. Increasing the number of higher education students in Texas by 500,000 in thirteen years will be extremely difficult unless two major deficiencies identified in “Closing the Gaps” are corrected. These deficiencies are in minority and rural resident participation. These two demographic groups are severely under-represented in Texas higher education, according to “Closing the Gaps”. This problem is being exacerbated by an increasing number of minority group members and an increase in the population of selected rural areas, particularly in the southern part of the state.

The second area of concern described in “Closing the Gaps” is that of degree completion. According to Murdock, Texas must generate an increase of fifty percent in the number of students who finish degree and certificate programs. This improvement would necessarily require that the rate of completion improve markedly among both the current student population and among future students to be added by 2015, if the goals are to be reached. For this improvement to be useful in maintaining the current competitiveness of the Texas workforce, Murdock suggests, it must come without an easing of the standards for completion (The Texas Higher Education Coordinating Board, 2001).

The third issue described in “Closing the Gaps” is that of achieving excellence. The analysis recognizes a sharp deficiency in the number of nationally recognized higher education programs in Texas. This may be partially related to limitations in new program offerings at state institutions. It is projected
that this problem could lower the perceived quality of Texas higher education with a corresponding lowering of the perception of Texas workforce quality (The Texas Higher Education Coordinating Board, 2001).

The fourth issue broached in “Closing the Gaps” is research. The Texas economy has become very technical and international in its orientation. This is a marked shift from the past. To continue this technological expansion, it is projected by the chief state demographer that Texas universities will need to attract fifty percent more federal funding for science and engineering by the year 2015. An increase in funding may also be facilitated by offering new programs and greater capacity in selected existing programs (The Texas Higher Education Coordinating Board, 2001).

According to the “Closing the Gaps” analysis, failure to make positive changes in any or all of these areas of participation will lead to a noticeably large downturn in the economic fortunes of Texas and a corresponding downturn in the standard of living of its citizens. To project that such a failure will lead to a 3% increase in the poverty rate and a $3,000 decrease in the average household income for Texas by 2030 is only to give a minute indication of the possible consequences (The Texas Higher Education Coordinating Board, 2001). In the view of this author, it provides a good example for study in the area of higher education strategic decision making due to the combination of forces for change that are currently being recognized in Texas. While institutions in other states may have different sets of forces that are driving change, the pressure for change will generally be greater across the country than it has been in the past.
Summary

The forces for change in higher education in the United States are increasing. The nationwide influences that are driving change can be clearly seen in the case of Texas higher education. To reach its established goals, and in turn protect the viability of the Texas economy, higher education in Texas must add 500,000 students to its ranks. This must be accomplished while increasing graduation rates and student retention to national averages, and improving research success (The Texas Higher Education Coordinating Board, 2001). The state requires a 50% increase in the awarding of degrees and certificates if the change is to produce an acceptable level of success (The Texas Higher Education Coordinating Board, 2001). With its flagship university campuses already at full capacity, the ability of Texas to meet its public policy goal of expanded participation and success will increasingly be measured by the relative success of its non-selective 2-year and 4-year institutions. Many state higher education systems face similar challenges. This situation places a premium value on the ability of public colleges and universities to make strategic changes in order to adapt to their environments. One factor in the decision-making process that higher education institutions can influence is the demographic background of the executive management team. In certain types of organizations it has been shown that top management demographic characteristics are related to organizational propensity for strategic change. If this is the case in higher education, an understanding of the impact of executive demographics on decision making could be a very productive management tool.
for producing strategic change. Like most states, Texas faces many challenges.

Can it respond?
CHAPTER III

METHODOLOGY

This chapter presents the empirical methods that were used to explore the relationship between executive management demographics and the propensity for change in public institutions of higher education. It is organized into sections that describe the research design, sample, and variables that were used.

Research Design

This study uses a quantitative design. Statistical analysis was performed to test hypotheses. Multiple regression and analysis of variance were the statistical methods used in the study. Scatter plots on a normal curve were used in a data screening process to increase the generalizability of the results. The hypotheses were designed to answer the following research questions:

1. Does a relationship exist between the demographic makeup of higher education executive management teams and their propensity for pursuing strategic change?
   This question explores the higher education environment in the same fashion that Wiersema and Bantel examined the for-profit environment. Is the relationship the same under different sets of environmental conditions?

2. Does a relationship exist between the demographic makeup of higher education executive management teams and student retention?
   If demographic makeup influences organizational propensity for strategic in
institutions of higher education, does this lead to greater retention? Is greater change propensity leading an improved result in this important and measureable area?

3. Is there a significant difference between the demographic makeup of the executive management teams of state universities and those of community colleges? Does a difference exist between community colleges and universities in the form of executive management team demographic background? Are the executive teams of these two types of institutions significantly different?

Hypotheses

H1: College and university executive team demographic background is statistically related to the pursuit of strategic change as measured by institutional requests for new degree and certificate program offerings.

H2: College and university executive team demographic background is statistically related to total student retention.

H3: College and university executive team demographic background is statistically related to male student retention.

H4: College and university executive team demographic background is statistically related to female student retention.
H5: College and university executive team demographic background is statistically related to Caucasian student retention.

H6: College and university executive team demographic background is statistically related to African American student retention.

H7: College and university executive team demographic background is statistically related to Hispanic student retention

H8: College and university executive team demographic background is statistically related to Asian student retention.

H9: The demographic backgrounds of top management teams at state universities differ significantly from those of community colleges.

Hypothesis 1 was explored by performing the following multiple-regression with demographic data on the executive management teams in the sample:

\[
\text{Strategic Change Variable} = \text{classification, mean executive age, age heterogeneity, executive time heterogeneity, organizational time heterogeneity, average educational level, educational specialization, mean organizational time, mean executive time, ethnic heterogeneity, male percentage, number of executives, Caucasian percentage, higher}
\]
Hypotheses 2-8 were tested using seven separate regression equations with seven different retention variables on the same data set of demographic variables. The retention variables used as dependent variables for the seven multiple regression models were: Total Retention, Male Retention, Female Retention, Caucasian Retention, African Retention, Hispanic Retention, and Asian Retention.

Student Retention Measures = classification, mean executive age, age heterogeneity, executive time heterogeneity, organizational time heterogeneity, average educational level, educational specialization, mean organizational time, mean executive time, ethnic heterogeneity, male percentage, number of executives, Caucasian percentage, higher education career percentage

Hypothesis 9 was tested by analyzing the data set for differences between universities and community colleges. An analysis of variance procedure was performed, reflected in the following equation:

Community College Classification and State University Classification --> classification, mean executive age, age heterogeneity, executive time heterogeneity, organizational time heterogeneity, average educational
level, educational specialization, mean organizational time, mean executive time, ethnic heterogeneity, male percentage, number of executives, Caucasian percentage, higher education career percentage

Sample

The state universities and public community colleges in the State of Texas were used as a sample universe for analysis. The use of institutions from one state is advantageous due to the inconsistency of strategic change processes across states. Limiting the sample to Texas institutions limits this research to one reporting system, one governance system, and one state coordinating board that determines approval for new degree offerings. However, the Texas sample universe is also advantageous due to the number and diversity of the institutions. One hundred and two suitable cases exist among the public institutions of higher education in Texas. Institutions were deemed suitable if they had separate statistical reporting to the Texas Higher Education Coordinating Board. Consequently, multi-campus university and college systems that were considered by the state coordinating board to be different institutions for reporting purposes were considered to be separate institutions for this study. Conversely, multi-campus systems that were single reporting institutions were considered as single entities for this study. This sample universe size is appropriate for both multiple regression and multiple analysis of variance according to sample size calculations. Appropriate samples with the proposed number of variables should contain at least 39 observations for use with multiple regression equations.
Multiple analysis of variance requires a sample size of 31 or greater to properly measure relatively small differences (Al-Bayyati, 1971).

As specified previously, the sample universe excludes the flagship campuses of the two largest state university systems, the University of Texas at Austin and Texas A&M University at College Station. The sample also excludes health related institutions. These two classes of institutions were excluded due to capped enrollment that restricts the need to respond to altered environmental conditions and the narrow fields of study offered at the health related institutions. It can be argued that these institutions reach their enrollment capacity without responding to external environmental pressures.

This left a sample universe of 102 institutions. The Texas sample is also advantageous due to the diversity of its state institutions. Texas public institutions include urban, suburban, and rural institutions. A wide range of degree and certificate programs are offered by the institutions to an economically and ethnically diverse body of potential students. The data in question is available throughout the sample frame. Only colleges and universities with available and complete data were included in this sample. All observations in the sample universe with available full data were included in the data set. The number of included observations was forty-two (42). Nineteen (19) community colleges and twenty-three (23) universities were included in the data set. The sample represented approximately 49% of the enrollment in the sample universe. The university portion of the sample was made up of approximately 71% of the university enrollment in the sample universe and the community college portion
of the sample represented approximately 33% of the community college enrollment in the sample universe. (See table 4 below)

Table 4

Statistical Description of the Sample Used in the Study

<table>
<thead>
<tr>
<th>Sample Universe</th>
<th>Useable Sample</th>
</tr>
</thead>
<tbody>
<tr>
<td>Institutions</td>
<td></td>
</tr>
<tr>
<td>Comm.Colleges</td>
<td>State Univ.</td>
</tr>
<tr>
<td>68</td>
<td>34</td>
</tr>
<tr>
<td>19</td>
<td>23</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Total Universe</th>
<th>Total Sample</th>
<th>Perc. of Universe Enrollment in Sample</th>
</tr>
</thead>
<tbody>
<tr>
<td>813,800</td>
<td>397,000</td>
<td>49%</td>
</tr>
</tbody>
</table>

Data used to produce this chart was drawn from the Texas Higher Education Coordinating Board publicatons Fall Headcount Enrollment: Texas Public Universities, 1997-2001 and Fall Headcount Enrollment: Texas Public Community, Technical, and State Colleges, 1997-2001.

Multiple statistical methods were used in this study. Multiple regression was performed on the data to show the relationships between the independent variables on one hand and strategic change and retention, respectively, on the other. Analysis of variance was used to determine differences between the state university subsample and the community college subsample.

Definition and Measurement of the Independent Variables

Demography Measures

Data was collected on the top managers of each organization. The top managers were defined as the president and all vice-presidents. Individuals who filled these roles but have, different titles were included in the data collection.
The time frame examined in this study was the two-year period from January 2000 to January 2002. When transition occurred during this time period, the executive who held the position for the longest period of time was included in the data set. If an appropriate executive could not be found or if only limited information were available, then the institution was not included in the sample. The entire data set was explored for relationships to thirteen separate dependent variables. This process roughly followed the methodology of Wiersema and Bantel (1992) with necessary adjustments for differences between the for-profit businesses and the higher education sector.

A data set of demographic characteristics of the executive management team of each institution in the study was built by drawing information from a number of published sources. Only institutions with executives whose complete data could be found were included in the study. Demographic information on top managers was drawn from the 2000 Who’s Who in Education. Who’s Who in Education is the most comprehensive national source of demographic information on higher education administrators that is currently available. Other sources that were used in the information gathering process were the 2000 Higher Education Directory, Academic Administrators, the Contemporary Authors data base, and the Genealogy Index data base. These were supplemented by biographical information published on the web sites of the universities. When pieces of individual data were still unavailable, discussions with institutional research officers at certain universities were used to supplement published information. This demographic data was used to determine organizational time
of service, age, and top management team time of service.

Classification - Classification is a binary variable denoting an institution’s classification as a university or a community college. Universities were scored as a one (1) and community colleges were scored as a two (2). Consequently, any positive relationship that classification has to a dependent variable will indicate a greater occurrence among universities, while a negative relationship will indicate a greater occurrence among community colleges.

Mean Executive Age - The average age for each executive management team was calculated.

Age Heterogeneity - Age heterogeneity is a measure of the difference between the ages of the different executives at an institution. A coefficient of variation was used to determine the heterogeneity of the executive management team. The coefficient is defined as the standard deviation divided by the mean. The coefficient of variation is a more appropriate measure than the standard deviation, because it is a scale invariant measure (Allison, 1978). This will allow a distribution ranking as more or less unequal than another distribution.

Executive Time Heterogeneity - Executive time heterogeneity is a measure of the difference between consecutive times of membership as an executive of individuals within the executive management team. The coefficient of variation was used to calculate this variable, but consistent with Wiersema and Bantel (1992), a logarithm of the coefficient of variation was generated to reflect the expected shrinking effect of the dissimilarity of this variable on institutional strategy. A second logarithm was performed to correct for severe positive
Organizational Time Heterogeneity—Organizational time heterogeneity is a measure of the difference between consecutive times of service to the organization in any capacity by individuals within the executive management team. As with the executive time heterogeneity statistic, the coefficient of variation was used to calculate this variable and the logarithm was taken as Wiersema and Bantel (1992) had done previously.

Average Educational Level—The education level for each individual member of an executive team was averaged. Educational level was determined by highest degree attained. The highest degrees achieved were converted to expected years of higher education. The years of higher education were assigned to degrees as follows: bachelors = 4 years, masters = 6 years, professional degree (M.D., J.D, etc.) = 7 years, and doctorate = 10 years. The coefficient of variation was calculated for this variable. The data was transformed using an inverse procedure due to skewed data.

Educational Specialization—The educational specializations of the managers were divided into two categories. These are arts and sciences/professions. The “arts” classification is composed of liberal arts, fine arts, and education. The “sciences/professions” classification is composed of sciences, applied sciences, health fields, law, engineering, and social sciences such as sociology, business, economics and technological studies. The Wiersema and Bantel study (1992) divided the two educational background categories into “arts” and “science and engineering”. The arts category included the fields that made up the “business
establishment” while science and the engineering profession (S&E) made up the outsiders who might bring non-business ideas into the process. This interpretation was based on their judgement and was not discussed in any other study that they cited. For the present study, the category was adjusted to expand the engineering profession aspect of the S&E category used by Wiersema and Bantel (1992) to include other professional fields that were not part of the educational establishment. For the purposes of this study, engineering, business, law, medicine, and others are considered to be somewhat separate from the educational establishment as engineering was considered to be separate from the business establishment in the Wiersema and Bantel study. Considering the differences in what constitutes “the establishment” in higher education and business, this was the truest replication of what Wiersema and Bantel did that could be adapted to the higher education context. Individuals are categorized based on their highest completed degree. The variable was calculated as the percentage of the executive team members who were defined as arts majors. An inverse transformation was performed on the data set to compensate for skewness.

**Mean Organizational Time**-Mean organizational time is defined as the average length of service of the executive management team at their institution. This includes both time as an executive and time spent in non-executive positions. Only time of consecutive service is included in this variable. A square-root transformation was performed due to skewed data.

**Mean Executive Time**-The average years of executive service to the organization
was calculated for members of the executive management team.

**Ethnic Heterogeneity**-The level of ethnic heterogeneity of an executive management team was measured by the number of groups represented in the team. Four racial origin groups were recorded for the data set. These groups were people of Caucasian, African American, Hispanic, and Asian backgrounds. Cultural groups and countries of origin were not considered for this study. Institutions with only one ethnic group represented were coded as one for a minimum level of heterogeneity. Caucasian was considered to be equal to the other racial groups for heterogeneity purposes.

**Male Percentage**-The percentage of executives who were male was calculated for each institution.

**Number of Executives**-The number of executives at each institution was recorded.

**Caucasian Percentage**-The percentage of Caucasians was recorded for the executive team of each institution. An inverse transformation procedure was performed due to a skewed data set.

**Higher Education Career Percentage**-The percentage of executives who had spent their entire careers in higher education was calculated for each institution. An inverse transformation procedure was performed due to a skewed data set.

**Definition and Measurement of the Dependent Variables**

Eight separate dependent variables were gathered to attempt to adequately measure the performance of the decision-making process of institutions of higher education. A separate multiple regression model was run
with each dependent variable and the demographic data set.

**Strategic Change Measure**

The enhancement of diversification strategy was measured for the period of June 2000 through May 2002. This was defined as the number of requests made by the institution during this time period for permission to offer additional degree and certificate programs relative to the number of programs already offered at the institution. This portion of the data was obtained from the Texas Higher Education Coordinating Board. This is an indication of organizational attempts to enter into new areas of endeavor (Porter, 1987). In the context of higher education, this shows a strategic decision to change. This is a higher education version of the single dependent variable used by Wiersema and Bantel in their 1992 study.

**Retention Measures**

Measures of student retention were gathered from the Texas Higher Education Coordinating Board for each college and university in the survey. The rationale for adding these dependent variables and corresponding multiple regression models was to gain a more complete picture of the success of strategic decision making by executive teams. A weakness of the Wiersema and Bantel model (1992) was a limited measurement of the success of strategic changes. This was not a serious flaw as that study was on for-profit corporations where earning and stock price data are readily available. This is not the case in the higher education sector. The inclusion of retention data creates a picture that includes some measure of the success of the changes rather than the simple
propensity for change. The complete demographic data set was used in an individual multiple regression model with each of the retention measures as a dependent variable. The 2001 reporting year data was used.

**Total Retention**-The percentage of all first-time, full-time students that enrolled in the fall of 2000 that were still enrolled in the fall of 2001. This was the most recent data available for the study.

**Male Student Retention**-The percentage of male first-time, full-time students who enrolled in the fall of 2000 who were still enrolled in the fall of 2001.

**Female Student Retention**-The percentage of female first-time, full-time students who enrolled in the fall of 2000 who were still enrolled in the fall of 2001.

**Caucasian Student Retention**-The percentage of Caucasian first-time, full-time students who enrolled in the fall of 2000 who were still enrolled in the fall of 2001.

**African American Student Retention**-The percentage of African American first-time, full-time students who enrolled in the fall of 2000 who were still enrolled in the fall of 2001. This category does not discriminate by nationality.

**Hispanic Student Retention**-The percentage of Hispanic first-time, full-time students who enrolled in the fall of 2000 who were still enrolled in the fall of 2001.

**Asian Student Retention**-The percentage of Asian first-time, full-time students who enrolled in the fall of 2000 who were still enrolled in the fall of 2001.
CHAPTER IV

RESULTS

The study produced results that indicate a significant statistical relationship between demographic background characteristics of top management teams and each of the independent performance variables that were used. Eight different multiple regressions were run with the set of calculated demographic variables and eight different independent variables. The level of relationship varied according to the independent variable in question, but each independent variable appeared to be related to the demographic variable set. Each of the demographic variables was a significant contributor to the relationship of the demographic data set and at least one of the independent variables.

Average Executive Team

The study produced an average for each executive team category. The combination of these category averages can be considered as an average executive team. The average executive team had 4 members (4.0) and was made up predominantly of Caucasian (74.2%) males (74.3%). The average executive team contained representatives of 1 or 2 ethnic groups (1.5 groups). The average executive was 54 years of age (54.7), had been with his or her organization for 12 years (12.1), and had been an executive for 6 years (6.3). Executives in the study averaged 9.2 years of higher education (with 10 years representing a first-professional earned doctorate) and 79% had spent their entire careers in the field of higher education.
Average Institutional Performance

The study also produced an average for each institutional performance category. The combination of these category averages can be combined to produce an average institutional performance profile. Institutions averaged 6 (6.2) strategic changes between June 2000 and May 2002. Total student retention at the institutions in the sample averaged 61.4% from the fall of 2000 to the fall of 2001. Male student retention over the same time period averaged 58.8% while female student retention averaged 63.5%. Caucasian student retention was 59.1%; African American student retention was 54.3%; Hispanic student retention was 60.9%; and Asian student retention was 65.3% from June 2000 to May 2002.

Strategic Change Variable

Strategic change, as measured by the relative number of new degree and certificate requests filed with the state during the measured time frame, was strongly related to the demographic data set. The SPSS backward regression procedure produced a model that included nine of the fourteen variables as significant contributors, as measured by the adjusted r-square measure. The model produced an adjusted r-square of .431 and an r-square of .563. The results support hypothesis number 1. To add perspective to this number, the Wiersema and Bantel study (1992) produced an adjusted r-square of only .26 and a r-square of only .39. A positive relationship was shown for age heterogeneity, executive time heterogeneity, ethnic heterogeneity, Caucasian percentage and educational specialization. Higher levels of these factors were
related to higher levels of strategic changes in institutional offerings. Negative relationships were shown to classification, male percentage, number of executives, and higher education percentage. Lower scores on these variables were related to lower levels of strategic change. The community college classification indicated that community colleges were generally likely to pursue fewer strategic changes than universities. (See Table 5 on pg. 69)

The outcome of the first model, using standardized beta coefficients was

\[
\text{strategic change} = 8.932 + \text{classification} (-.276) + \text{mean executive time} (.422) + \text{age heterogeneity} (.440) + \text{male percentage} (-.314) + \text{ethnic heterogeneity} (.206) + \text{higher education career percentage} (-.326) + \text{Caucasian percentage} (.225) + \text{educational percentage} (.285) + \text{number of executives} (-.246)
\]

Total Student Retention

Total student retention, as measured by the percentage of an institution’s first-time, full-time students in the fall of 2000 who were still enrolled in the fall of 2001 was strongly related to the demographic data set. Seven of the fourteen variables in the demographic data set were significant according to the SPSS backward regression. The optimal model had an adjusted r-square of .394 and r-square of .494. This result supports hypothesis 2. Total retention had a positive relationship with mean executive age, number of executives, and executive time heterogeneity. A negative relationship was found between total retention and classification, mean executive time, ethnic heterogeneity, and Caucasian percentage. Two of these relationships are curious in their direction of influence within the model. Higher average age of decision-team members was related to
higher overall retention. Lower ethnic heterogeneity was associated with higher retention. The direction of the influence of these variables suggests a need for future study of these factors (See Table 6 below).

The outcome of the second model, using standardized beta coefficients was total retention = 56.370 + mean executive age (.255) + classification (-.586) + mean executive time (-.350) + ethnic heterogeneity (-.165) + number of executives (.213) + executive time heterogeneity (.404)

Male Student Retention

Male student retention, as measured by the percentage of an institution’s male first-time, full-time students in the fall of 2000 that were still enrolled in the fall of 2001 was strongly related to the demographic data set. Seven of the fourteen variables in the demographic data set were significant according to the SPSS backward regression. The optimal model had an adjusted r-square of .384 and r-square of .494. The result supports hypothesis 3. The adjusted r-square and r-square scores were identical to two decimal places and the retained variables in the model were almost the same. This model includes the same variables with the same direction of influence as the model for total retention with the exception that educational specialization is included while number of executives is dropped (See Table 7 below).

The outcome of the second model, using standardized beta coefficients was

male retention = 59.827 + classification (-.536) + mean executive age (.272) + mean executive time (-.354) + ethnic heterogeneity (-.177) + Caucasian
Female Student Retention

Female student retention, as measured by the percentage of an institution’s female first-time, full-time students in the fall of 2000 who were still enrolled in the fall of 2001 was also strongly related to the demographic data set. This result supports hypothesis 4. Six of the fourteen variables in the demographic data set were significant according to the SPSS backward regression. The optimal model had an adjusted r-square of .388 and r-square of .482. A positive relationship within the model existed between the dependent variable of female retention and the independent variables of mean executive age and executive time heterogeneity. A negative relationship within the model existed between female retention and classification, mean executive time, Caucasian percentage, executive time heterogeneity, and educational specialization. This was very similar to the male retention multiple regression model with the exception of the dropping of the ethnic heterogeneity variable (See Table 8 below).

The outcome of the third model, using standardized beta coefficients was female retention = 66.556 + classification (-.506) + mean executive age (.208) + mean executive time (-.307) + Caucasian percentage (-.131) + executive time heterogeneity (.377) + educational specialization (-.206)

Caucasian Student Retention

Caucasian student retention, as measured by the percentage of an
institution’s Caucasian first-time, full-time students in the fall of 2000 who were still enrolled in the fall of 2001 was significantly related to the demographic data set. Seven of the fourteen variables in the demographic data set were significant according to the SPSS backward regression. The optimal model had an adjusted r-square of .229 and r-square of .367. This result supports hypothesis 5. Caucasian retention had a positive relationship with executive time heterogeneity. A negative relationship was found between Caucasian retention and classification, mean executive time, age heterogeneity, mean organizational time, ethnic heterogeneity, and educational specialization (See Table 9 below).

The outcome of the fourth model, using standardized beta coefficients was

\[
\text{Caucasian percentage} = 108.341 + \text{classification} (-.317) + \text{mean executive time} (-.275) + \text{age heterogeneity} (-.367) + \text{ethnic heterogeneity} (-.292) + \text{mean organizational time} (-.346) + \text{executive time heterogeneity} (.213) + \text{educational specialization} (-.282)
\]

African American Student Retention

African American student retention, as measured by the percentage of an institution’s African American first-time, full-time students in the fall of 2000 who were still enrolled in the fall of 2001 was significantly related to the demographic data set. Three of the fourteen variables in the demographic data set were significant according to the SPSS backward regression. The optimal model had an adjusted r-square of .101 and r-square of .170. This result supports hypothesis 6. African American student retention had a positive relationship with male percentage. A negative relationship was found between total retention and
classification and executive time heterogeneity (See Table 10 below).

The outcome of the second model, using standardized beta coefficients was

African percentage = 52.531 + classification (-.272) + male percentage (.185) + executive time heterogeneity (-.208)

Hispanic Student Retention

Hispanic student retention, as measured by the percentage of an institution’s Hispanic first-time, full-time students in the fall of 2000 who were still enrolled in the fall of 2001 was strongly related to the demographic data set. Six of the fourteen variables in the demographic data set were significant according to the SPSS backward regression. The optimal model had an adjusted r-square of .305 and r-square of .412. This result supports hypothesis 7. Hispanic retention had a positive relationship with mean executive age, number of executives, and executive time heterogeneity. A negative relationship was found between Hispanic retention and classification, mean executive time, and Caucasian percentage (See Table 11 below).

The outcome of the seventh model, using standardized beta coefficients was

Hispanic percentage = 39.294 + classification (-.413) + mean executive age (.261) + mean executive time (-.164) + Caucasian percentage (-.186) + number of executives (.283) + executive time heterogeneity (.363)

Asian Student Retention

Asian student retention, as measured by the percentage of an institution’s
Asian first-time, full-time students in the fall of 2000 that were still enrolled in the fall of 2001 was strongly related to the demographic data set. Five of the fourteen variables in the demographic data set were significant according to the SPSS backward regression. The optimal model had an adjusted r-square of .199 and r-square of .302. This result supports hypothesis 8. Asian student retention had a positive relationship with organizational time heterogeneity and executive time heterogeneity. A negative relationship was found between Asian student retention and ethnic heterogeneity, mean organizational time, and educational specialization (See Table 12 below).

The outcome of the eighth model, using standardized beta coefficients was

Asian percentage = 122.903 + ethnic heterogeneity (-.161) + organizational time heterogeneity (.333) + mean organizational time (-.175) + executive time heterogeneity (.363) + educational specialty (-.383)

Demographic Data Set

Descriptive statistics and a correlation matrix were produced for the demographic measure data set for the executive decision-making teams and their members. This information is provided in table form. (See Table 13 below)
<table>
<thead>
<tr>
<th>Variables in the Full Model</th>
<th>Full Model Coefficient</th>
<th>Adjusted Model Coefficient</th>
</tr>
</thead>
<tbody>
<tr>
<td>Classification</td>
<td>-.28t</td>
<td>-.27t</td>
</tr>
<tr>
<td>Mean Executive Age</td>
<td>-.10</td>
<td></td>
</tr>
<tr>
<td>Mean Executive Time</td>
<td>.38f</td>
<td>.42*</td>
</tr>
<tr>
<td>Age Heterogeneity</td>
<td>.44t</td>
<td>.44*</td>
</tr>
<tr>
<td>Male Percentage</td>
<td>-.34t</td>
<td>-.31*</td>
</tr>
<tr>
<td>Ethnic Heterogeneity</td>
<td>.23</td>
<td>.20f</td>
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<tr>
<td>Organizational Time Heterogeneity</td>
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<td></td>
</tr>
<tr>
<td>Average Educational Level</td>
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<tr>
<td>Higher Education Career Perc.</td>
<td>.34t</td>
<td>-.32*</td>
</tr>
<tr>
<td>Caucasian Percentage</td>
<td>.20</td>
<td>.22t</td>
</tr>
<tr>
<td>Educational Specialization</td>
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<td>.28f</td>
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<tr>
<td>Mean Organizational Time</td>
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</tr>
<tr>
<td>Number of Executives</td>
<td>-.25</td>
<td>-.24f</td>
</tr>
<tr>
<td>Executive Time Heterogeneity</td>
<td>-.01</td>
<td></td>
</tr>
</tbody>
</table>

*a = Values shown are the standardized regression coefficients. N = 42
f p<.15
t p<.10
*p<.05
**p<.01
***p<.001
Table 6  
Results of the Full Model Regression Analysis (a)  
Total Student Retention Variable Model

<table>
<thead>
<tr>
<th>Variables in the Full Model</th>
<th>Full Model Coefficient</th>
<th>Adjusted Model Coefficient</th>
</tr>
</thead>
<tbody>
<tr>
<td>Classification</td>
<td>-.52**</td>
<td>-.58***</td>
</tr>
<tr>
<td>Mean Executive Age</td>
<td>.20</td>
<td>.25t</td>
</tr>
<tr>
<td>Mean Executive Time</td>
<td>-.40f</td>
<td>-.35*</td>
</tr>
<tr>
<td>Age Heterogeneity</td>
<td>-.23</td>
<td></td>
</tr>
<tr>
<td>Male Percentage</td>
<td>.02</td>
<td></td>
</tr>
<tr>
<td>Ethnic Heterogeneity</td>
<td>-.22</td>
<td>-.16</td>
</tr>
<tr>
<td>Organizational Time Heterogeneity</td>
<td>-.08</td>
<td></td>
</tr>
<tr>
<td>Average Educational Level</td>
<td>-.03</td>
<td></td>
</tr>
<tr>
<td>Higher Education Career Perc.</td>
<td>.09</td>
<td></td>
</tr>
<tr>
<td>Caucasian Percentage</td>
<td>-.16</td>
<td>-.18</td>
</tr>
<tr>
<td>Educational Specialization</td>
<td>-.11</td>
<td></td>
</tr>
<tr>
<td>Mean Organizational Time</td>
<td>-.18</td>
<td></td>
</tr>
<tr>
<td>Number of Executives</td>
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<td>.21f</td>
</tr>
<tr>
<td>Executive Time Heterogeneity</td>
<td>.39*</td>
<td>.40**</td>
</tr>
</tbody>
</table>

\( a = \text{Values shown are the standardized regression coefficients.} \ N = 42 \)

\( f p<.15 \)
\( t p<.10 \)
\( *p<.05 \)
\( **p<.01 \)
\( ***p<.001 \)
Table 7
Results of the Full Model Regression Analysis (a)
Male Student Retention Variable Model

<table>
<thead>
<tr>
<th>Variables in the Full Model</th>
<th>Full Model Coefficient</th>
<th>Adjusted Model Coefficient</th>
</tr>
</thead>
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<td>-.53***</td>
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<td>.27t</td>
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<tr>
<td>Mean Executive Time</td>
<td>-.31</td>
<td>-.35*</td>
</tr>
<tr>
<td>Age Heterogeneity</td>
<td>-.22</td>
<td></td>
</tr>
<tr>
<td>Male Percentage</td>
<td>.04</td>
<td></td>
</tr>
<tr>
<td>Ethnic Heterogeneity</td>
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<td>-.17</td>
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<tr>
<td>Organizational Time Heterogeneity</td>
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<td>Average Educational Level</td>
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</tr>
<tr>
<td>Higher Education Career Perc.</td>
<td>.04</td>
<td></td>
</tr>
<tr>
<td>Caucasian Percentage</td>
<td>-.18</td>
<td>-.21f</td>
</tr>
<tr>
<td>Educational Specialization</td>
<td>-.14</td>
<td>-.23f</td>
</tr>
<tr>
<td>Mean Organizational Time</td>
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<td></td>
</tr>
<tr>
<td>Number of Executives</td>
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<td></td>
</tr>
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<td>Executive Time Heterogeneity</td>
<td>.35*</td>
<td>.30*</td>
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a = Values shown are the standardized regression coefficients. N = 42
f p<.15
t p<.10
*p<.05
**p<.01
***p<.001
<table>
<thead>
<tr>
<th>Variables in the Full Model</th>
<th>Full Model Coefficient</th>
<th>Adjusted Model Coefficient</th>
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</thead>
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<td>-.27t</td>
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<tr>
<td>Mean Executive Time</td>
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<td></td>
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<tr>
<td>Age Heterogeneity</td>
<td>.05</td>
<td></td>
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<tr>
<td>Male Percentage</td>
<td>.18</td>
<td>.18</td>
</tr>
<tr>
<td>Ethnic Heterogeneity</td>
<td>.10</td>
<td></td>
</tr>
<tr>
<td>Organizational Time Heterogeneity</td>
<td>.04</td>
<td></td>
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<tr>
<td>Average Educational Level</td>
<td>-.12</td>
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<tr>
<td>Higher Education Career Perc.</td>
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<tr>
<td>Educational Specialization</td>
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<tr>
<td>Number of Executives</td>
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<td></td>
</tr>
<tr>
<td>Executive Time Heterogeneity</td>
<td>-.22</td>
<td>-.20</td>
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</table>

a = Values shown are the standardized regression coefficients. N = 42

f p<.15

**p<.01

***p<.001
Table 9  
Results of the Full Model Regression Analysis (a)  
Caucasian Student Percentage Variable Model

<table>
<thead>
<tr>
<th>Variables in the Full Model</th>
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<th>Adjusted Model Coefficient</th>
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</thead>
<tbody>
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<td>Classification</td>
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<tr>
<td>Mean Executive Age</td>
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<tr>
<td>Mean Executive Time</td>
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</tr>
<tr>
<td>Age Heterogeneity</td>
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<td>-.36t</td>
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<tr>
<td>Male Percentage</td>
<td>.04</td>
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</tr>
<tr>
<td>Ethnic Heterogeneity</td>
<td>-.35t</td>
<td>-.29t</td>
</tr>
<tr>
<td>Organizational Time Heterogeneity</td>
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</tr>
<tr>
<td>Average Educational Level</td>
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<td></td>
</tr>
<tr>
<td>Higher Education Career Perc.</td>
<td>-.03</td>
<td></td>
</tr>
<tr>
<td>Caucasian Percentage</td>
<td>-.10</td>
<td></td>
</tr>
<tr>
<td>Educational Specialization</td>
<td>-.26</td>
<td>-.28t</td>
</tr>
<tr>
<td>Mean Organizational Time</td>
<td>-.25</td>
<td>-.34f</td>
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<tr>
<td>Number of Executives</td>
<td>.17</td>
<td></td>
</tr>
<tr>
<td>Executive Time Heterogeneity</td>
<td>.20</td>
<td>.21</td>
</tr>
</tbody>
</table>

a = Values shown are the standardized regression coefficients. N = 42

f p<.15
   t p<.10
   *p<.05
   **p<.01
   ***p<.001
Table 10
Results of the Full Model Regression Analysis (a)
African American Student Retention Variable Model

<table>
<thead>
<tr>
<th>Variables in the Full Model</th>
<th>Full Model Coefficient</th>
<th>Adjusted Model Coefficient</th>
</tr>
</thead>
<tbody>
<tr>
<td>Classification</td>
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<td>-.27t</td>
</tr>
<tr>
<td>Mean Executive Age</td>
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<tr>
<td>Mean Executive Time</td>
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<td>.42*</td>
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<td>.44*</td>
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<tr>
<td>Male Percentage</td>
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<td>-.31*</td>
</tr>
<tr>
<td>Ethnic Heterogeneity</td>
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<td>.20f</td>
</tr>
<tr>
<td>Organizational Time Heterogeneity</td>
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<tr>
<td>Average Educational Level</td>
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</tr>
<tr>
<td>Higher Education Career Perc.</td>
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<td>-.32*</td>
</tr>
<tr>
<td>Caucasian Percentage</td>
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<td>.22t</td>
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<tr>
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<td>.27</td>
<td>.28f</td>
</tr>
<tr>
<td>Mean Organizational Time</td>
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<td></td>
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<tr>
<td>Number of Executives</td>
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<td>-.24f</td>
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</table>

*a = Values shown are the standardized regression coefficients. N = 42
f p<.15
t p<.10
*p<.05
**p<.01
***p<.001
Table 11
Results of the Full Model Regression Analysis (a)
Hispanic Student Retention Variable Model

<table>
<thead>
<tr>
<th>Variables in the Full Model</th>
<th>Full Model Coefficient</th>
<th>Adjusted Model Coefficient</th>
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<tbody>
<tr>
<td>Classification</td>
<td>-.39*</td>
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<tr>
<td>Mean Executive Age</td>
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<td>Mean Executive Time</td>
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<td>-.16</td>
</tr>
<tr>
<td>Age Heterogeneity</td>
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<td></td>
</tr>
<tr>
<td>Male Percentage</td>
<td>-.15</td>
<td></td>
</tr>
<tr>
<td>Ethnic Heterogeneity</td>
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<tr>
<td>Organizational Time Heterogeneity</td>
<td>.08</td>
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</tr>
<tr>
<td>Average Educational Level</td>
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</tr>
<tr>
<td>Higher Education Career Perc.</td>
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<tr>
<td>Caucasian Percentage</td>
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<td>-.18</td>
</tr>
<tr>
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</tr>
<tr>
<td>Mean Organizational Time</td>
<td>.09</td>
<td></td>
</tr>
<tr>
<td>Number of Executives</td>
<td>.24</td>
<td>.28t</td>
</tr>
<tr>
<td>Executive Time Heterogeneity</td>
<td>.39*</td>
<td>.36*</td>
</tr>
</tbody>
</table>

a = Values shown are the standardized regression coefficients. N = 42
f p<.15
t p<.10
*p<.05
**p<.01
***p<.001
### Table 12
Results of the Full Model Regression Analysis (a)
Asian Student Retention Percentage Variable Model

<table>
<thead>
<tr>
<th>Variables in the Full Model</th>
<th>Full Model Coefficient</th>
<th>Adjusted Model Coefficient</th>
</tr>
</thead>
<tbody>
<tr>
<td>Classification</td>
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<tr>
<td>Mean Executive Age</td>
<td>.13</td>
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<tr>
<td>Mean Executive Time</td>
<td>.16</td>
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<tr>
<td>Age Heterogeneity</td>
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</tr>
<tr>
<td>Male Percentage</td>
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</tr>
<tr>
<td>Ethnic Heterogeneity</td>
<td>-.18</td>
<td>-.16</td>
</tr>
<tr>
<td>Organizational Time Heterogeneity</td>
<td>.36f</td>
<td>.33t</td>
</tr>
<tr>
<td>Average Educational Level</td>
<td>.16</td>
<td></td>
</tr>
<tr>
<td>Higher Education Career Percentage</td>
<td>-.13</td>
<td></td>
</tr>
<tr>
<td>Caucasian Percentage</td>
<td>-.03</td>
<td></td>
</tr>
<tr>
<td>Educational Specialization</td>
<td>-.39f</td>
<td>-.38f</td>
</tr>
<tr>
<td>Mean Organizational Time</td>
<td>-.38</td>
<td>-.17</td>
</tr>
<tr>
<td>Number of Executives</td>
<td>.09</td>
<td></td>
</tr>
<tr>
<td>Executive Time Heterogeneity</td>
<td>.23</td>
<td>.21</td>
</tr>
</tbody>
</table>

---

\( a = \) Values shown are the standardized regression coefficients. \( N = 42 \)

\( f \) \( p < .15 \)

\( t \) \( p < .10 \)

\( * \) \( p < .05 \)

\( ** \) \( p < .01 \)

\( *** \) \( p < .001 \)
Table 13

Descriptive Statistics and Correlation Matrix
for the Multiple Regression with Strategic Change as a Dependent Variable

<table>
<thead>
<tr>
<th>Variables</th>
<th>Mean</th>
<th>S.D.</th>
<th>1</th>
<th>2</th>
<th>3</th>
<th>4</th>
<th>5</th>
<th>6</th>
<th>7</th>
</tr>
</thead>
<tbody>
<tr>
<td>1 Classification</td>
<td>1.45</td>
<td>.50</td>
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<td></td>
<td></td>
<td></td>
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<tr>
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<td>.014</td>
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</tr>
<tr>
<td>5 Male Percentage</td>
<td>74.34</td>
<td>21.35</td>
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<td>-.010</td>
<td>.260</td>
<td>.264</td>
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</tr>
<tr>
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<td>.087</td>
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<td>.248</td>
<td>.254</td>
<td>.062</td>
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<tr>
<td>7 Org. Time Hetero.</td>
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<td>.090</td>
<td>.050</td>
<td>.390</td>
<td>.245</td>
<td>.225</td>
<td>.058</td>
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</tr>
<tr>
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<td>-.021</td>
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<td>.274</td>
<td>-.080</td>
<td>.400</td>
<td>.061</td>
<td>.359</td>
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<tr>
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<td>-.158</td>
<td>.103</td>
<td>-.097</td>
<td>.190</td>
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<tr>
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<td>.051</td>
<td>.079</td>
<td>.125</td>
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<td>-.226</td>
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<td>.071</td>
<td>-.104</td>
<td>.35</td>
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</table>
Table 13
Descriptive Statistics and Correlation Matrix
for the Multiple Regression with Strategic Change as a Dependent Variable
Page 2

<table>
<thead>
<tr>
<th>Variables</th>
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<th>9</th>
<th>10</th>
<th>11</th>
<th>12</th>
<th>13</th>
<th>14</th>
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<td></td>
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<td>3 Mean Executive Time</td>
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<td></td>
<td></td>
</tr>
<tr>
<td>4 Age Heterogeneity</td>
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<td></td>
</tr>
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<td>5 Male Percentage</td>
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<td></td>
</tr>
<tr>
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<tr>
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</tr>
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<td>.279</td>
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</tbody>
</table>
Analysis of Variance

The demographic, retention, and strategic change variables used in the multiple regressions of this study were analyzed for differences using an analysis of variance procedure. Classification, denoting the university or community college designation of the institutions, was the differentiating category of analysis. Nine of the fourteen variables were significantly different based on the classification variable. This result provided limited support for hypothesis 9. Seven of the variables were significantly different at the .05 level. These were educational specialization, total retention, male retention, female retention, Caucasian retention, African American retention, and Hispanic retention. The statistically different retention variables were predictable due to the difference between the goals of community colleges and universities. Universities are generally considered to be successful if their students graduate or transfer to similar universities. Community colleges are successful in those situations plus situations where students transfer to universities without necessarily graduating from the community college. Consequently, the standard of retention success is lower for community colleges than for universities. Educational specialization of decision-making personnel is a non-retention variable that differs sharply on the basis of classification. The community colleges in the survey had 75.63% of their administrators with arts backgrounds while the universities in the survey only had 45.90% of their administrators with arts backgrounds. The reason behind this difference is less obvious than that of the retention variables.

Two variables were found to be significant at the 0.10 level in the Anova
procedure. These were mean organizational time and age heterogeneity. Mean executive time, meaning the average years of executive service of an institution’s executive group, was higher at universities (7.04 years) than at community colleges (5.43 years) in the data set. Age heterogeneity, the amount of difference in age between members of an institution’s executive management team, was higher (.1516) in community colleges than in universities (.1123) in the data set (See Table 14 below).

Hypotheses Support

Each of the hypotheses in the study was supported at the 0.10 level or higher. This support is summarized in table form below. (See Table 15 below)

Variable Analysis

Executive Time Heterogeneity

Executive time heterogeneity was significant for all seven of the retention multiple regression models. The standard deviation within each group of executives (representing basic heterogeneity) of the amount of time of executive service of individual members was 3.88. The university subgroup had a standard deviation of 4.43 and the community college subgroup had a standard deviation of 3.23. The difference between these two subgroups was not statistically significant at the 0.1 level. Relatively high executive time heterogeneity (differences in time of executive service among executive management team members) was associated with relatively high retention in all of the retention multiple regressions except for African American retention. Executive time heterogeneity was unique in being negatively associated with African American
retention. This indicates that it is possible that retention levels could be enhanced through increasing diversity in the amount of time that individuals have been serving in an executive capacity. This is an interesting outcome in that it could mean that a broad range of executive service time may be satisfying two different needs for the successful pursuit of student retention. A diverse group may be producing an advantageous mix of more experienced executives and executive team newcomers with new ideas while groups lacking diversity may lack some ideas and views that facilitate greater retention. The opposite direction of influence that this variable has on African American retention could be an indication that African American retention may be complicated by additional factors. This may indicate a need for additional study. Executive time heterogeneity was not a significant variable in the multiple regression model on the strategic change variable.

Mean Executive Time

Mean executive time, the average time of executive service for the members of an executive team, was a significant variable in six of the eight regressions that were performed in this study. Executive time of service in the sample averaged 6.3 years. The variable had a positive standardized beta coefficient in the regression with the strategic change variable. Mean executive time had, however, negative standardized beta coefficients in five of the retention variable models. This negative relationship appeared when total retention, male retention, female retention, Caucasian retention, and Hispanic retention were calculated. The variable was not included in the models for African American
and Asian retention variables. The split directional effect of mean executive time on the strategic change variable and the retention variables may be indicative of a difference in the situations that lead to strategic changes and those that lead to increased retention. The analysis of variance procedure showed that mean executive time was significantly different in the university subset from the community college subset. In the sample, university executive management teams averaged 7 years while the community college groups averaged 5.4 years. This difference was statistically significant at the .1 level.

Mean Executive Age

Mean executive age, the average age of executive management team members, was a valuable variable in the examination of retention. The mean executive age for the sample was 54.7 years. The university and community college subgroups were 55.4 and 53.7 years respectively. This difference was not statistically significant at the .1 level. It was an included variable in four of the multiple regression models on retention variables. The mean executive age variable was associated with total retention, male retention, female retention, and Hispanic retention. It was not included in any of the other multiple regression models including the one examining strategic change. Higher executive age was associated with higher retention in the total, male, female, and Hispanic retention models.

Ethnic Heterogeneity

Ethnic heterogeneity, the number of ethnic groups in the top management team, was an included variable in the strategic change variable
multiple regression and in four of the retention variable regressions. The average number of ethnic groups represented in the executive management groups in the survey was 1.57. Many groups included representatives of only one two or two ethnic groups although some did include three. The university and community college subgroups were very similar on this variable with averages of 1.65 and 1.42 groups respectively. This difference was not statistically significant at the .1 level. The direction of the influence, as with mean executive time, was split. The influence was positive in the strategic change model and negative in the retention models. The retention models that included ethnic heterogeneity with a negative beta coefficient were total retention, male retention, Caucasian retention, and Asian retention. Higher levels of retention were associated with executive management groups with representatives of fewer ethnic groups. Higher levels of strategic change were associated with executive management teams that included more ethnic groups. As with mean executive time, a difference appears to exist in how this factor is related to retention and strategic change. The relationship of this variable to institutional performance appears to be complex and further investigation might be fruitful.

Caucasian Percentage

Caucasian percentage, the percentage of an executive management team that are Caucasian, was included in the multiple regression model for the strategic change variable and in four of the multiple regression models for the retention variables. The average executive team in the survey had 74.2% Caucasian members. In the survey, universities had executive groups that
contained an average of 75.9% Caucasians while community colleges had executive groups with an average of 72.1% Caucasians. The difference between these two subgroups was insignificant at the .1 level. The retention models that included Caucasian percentage were those for total retention, male retention, female retention and Hispanic retention. Executive management teams with a higher percentage of Caucasians were associated with a higher level of strategic change, while teams with a lower percentage of Caucasians were associated with higher retention. The results indicate a complex relationship between institutional performance and Caucasian percentage. It is possible that different Caucasian percentages could lead to a different executive management group perspective on the respective importance of program offerings and retention.

Education Specialty

Education specialty, the percentage of executive management teams that have a highest completed degree from an arts field, was included in the multiple regression model for strategic change and four of the models for retention. According to the definition used in this study, 57.9% of the executives in the survey had a highest completed degree in an arts field. A positive standardized beta coefficient, indicating a greater percentage of Arts majors, was associated with greater levels of strategic change while a lower percentage of Arts majors was associated with higher retention. Higher levels of science and professional degree recipients were associated with higher retention in the multiple regression models for male retention, female retention, Caucasian retention, and Asian
retention. Educational specialty was highly significant in the analysis of variance procedure. The educational specialty norm was markedly different in the community college subset from the university subset. In the data set, community colleges had an average of 74.6% Arts majors while universities had only 45.0% Arts majors. This difference proved to be significant at the .001 level.

The data uncovered for this variable contained a number of additional details about specific fields of study that may merit further examination (See Table 16 below). First, people with education majors as their highest degree were far and away the most numerous among community college executives. They made up 55.5% of community college executives. Similarly, the largest portion of university executives had attained their highest earned degree in business (26.4%). Given these proportions, education and business each featured prominently in both university and community college executive teams. Education majors made up 37.1% of the executives in the survey while business majors made up 21.3%. Liberal Arts was the only other major with a double digit percentage of the executives in the survey (18.5%). This data indicates a possibility that the performance of executive management teams may be further influenced by the prominence of certain education categories. This result raises the possibility that an effective mix of the different fields exists that could be a goal of the executive team assembly process. It is also possible that certain executive positions may be dominated by certain degree fields. Additionally, the choice of a person’s final degree relative to the commencement of a career as a university or college administrator could influence the final degree field. People
who begin a career in university or college administration may choose to pursue an Ed.D., or M.B.A. degree to increase their opportunities along their career path. Two primary paths to executive positions exist in higher education. Many executives begin as professors, become deans, and then become vice presidents. Other executives start as lower-level administrators and gain increasingly responsible administrative positions. A third, less prominent, path is that of people who are hired into executive positions due to success in fields outside of higher education. The prominence of education and business majors may be a reflection of a large number of executives who are career administrators rather than professors who have moved into administration. (See Table 16 on page 95).

It should also be noticed that business and education include certain degree fields that specifically equip graduates for administrative careers. The fields of management and business administration teach general administrative principles and methods while higher education and educational leadership teach administrative principles from a higher education prospective. Higher education for example has, as a field, long been strongly associated with the preparation of community college administrators (Fife & Goodchild, 1991). A certain level of representation of these fields may be advantageous for executive decision-making teams.

Number of Executives

The number of executives in the executive management team was a retained variable in the strategic change multiple regression model. Institutions
in the study had executive teams with an average of 4 members. University executive teams had an average of 4.6 members while community college executive teams averaged 3.7 members. The two subgroups were not significant at the .1 level. The regression model for the strategic change variable had a negative standardized beta coefficient, while two regression models for retention variables had positive coefficients. The two regression models that retained the number of executives variable were those for total retention and Hispanic retention.

Male Percentage

The percentage of executive management team members who were men was a retained variable in the multiple regression models for strategic change and African retention. Executives in the survey were 74.3% male. Universities executive in the survey were 78.3% male while community college executives were 69.6% male. This difference was not significant at the .1 level. The strategic change regression model retained Caucasian percentage with a negative standardized beta coefficient and the African American retention model retained it with a positive coefficient.

Mean Organizational Time

Mean organizational time, the average time that executive management team members have been members of the organization, was included in the multiple regression models for Caucasian and Asian retention. The average mean organizational time for executive teams in the study was 12.1 years of service. Average means in the two subgroups were similar and not significant at
the .1 level. The variable had a negative standardized coefficient in both models. This would be indicative of lower organizational tenure for executives being associated with higher retention levels.

Age Heterogeneity

Age heterogeneity, the difference in age among executive management team members, was retained in the multiple regression models for the strategic variable and for the Caucasian retention variable. The average level of age heterogeneity was significantly different in the two subgroups. University executive groups in the sample had a heterogeneity coefficient of .1123 while executive groups of community colleges had a coefficient of .1516. This is significant at the .1 level. This finding indicates that in this sample, community college executive groups have a greater level of age differentiation than executive teams at universities. Age heterogeneity had a positive standardized beta coefficient in the strategic change model and a negative coefficient in the Caucasian retention model. Age heterogeneity had the highest coefficient of any variable included in the strategic change model. Age heterogeneity was also significantly differentiated by subgroups in the analysis of variance procedure.

Organizational Time Heterogeneity

The difference in organizational time of service was included in the Asian retention multiple regression model. Institutions in the sample had an average standard deviation of 7.8. The different subgroups did not have significantly different standard deviations at the .01 level. The positive standardized beta coefficient is an indication that within this sample increased heterogeneity of
organizational time is associated with higher Asian retention.

Higher Education Career Percentage

The percentage of executive management team members that had spent their entire careers in higher education was related to the strategic change variable. More than 79% (79.3) of the executives in the survey had spent their entire careers in higher education. In this area, the university and community college subgroups were not significantly different with averages of 78% and 80.8% of executives in the survey having their entire careers in higher education. Institutions of higher education appear to value an extreme level of higher education experience. It may be that this situation discourages or limits the use of skills and ideas from outside the field. A negative standardized beta coefficient was found for the included variable. This indicated an association between higher percentages of executive team members with professional experience outside the field of higher education field and a higher propensity for strategic change.

Educational Level

Educational level, the heterogeneity in the average number of years of education within each executive management team, was not retained as a variable for any of the multiple regression models. This is an indication that it does not uniquely contribute to the explanation of the dependent variables in this study. The community college and university subset of this variable were not significantly different according to the analysis of variance procedure. The average number of years of higher education for the sample was 9.2 years with
the university subgroup executives averaging 9.7 years and the community college subgroup executives averaging 8.6 years. Ten years of higher education is the highest number reflected in this study. An advanced professional degree such as a J.D. or M.D. is considered a 7 year degree and a master’s degree is considered a 6 year degree. This would indicate that the majority of executives in the survey have attained an earned doctorate.

Classification

Classification, the designation of university or community college, was an included variable in all of the regressions with the exception of Asian retention. Universities were given a 1 designation and community colleges were given a 2 designation. It had a negative standardized beta coefficient in each model other than the Asian student retention model. This is an indication that institutions in the community college subgroup were generally less likely to pursue strategic change and had lower retention levels than universities. This difference appears to be a reflection of fundamental differences in the nature of universities and community colleges.

Limitations of the Empirical Analysis

The Exploratory Nature of the Study

This is the first study of its type performed in higher education. It is testing the theoretical connection between many variables for the first time. As such, causality is only implied and not proven. This analysis supports the theory that changes in the demographic makeup of higher education executive management teams could produce changes in strategic change propensity and student
retention. Additional data collection, analysis, and experimentation would be required to substantiate a claim of causality.

Demographic Inconsistencies Reflected in the Data

The target bodies of the institutions in the study are not the same. Local demographic conditions lead to a skewed pool of potential students. Some institutions had no African American students while others had no Asian students. It is unknown if this was the result of previous decisions by the executive management team or simply of local population demographics. Any inferences that are drawn between only these dependent variables and an independent variable would be of questionable importance in that their statistical validity is not as certain. Such relationships must be considered with skepticism.

Demand Differences

Local differences may exist in the demand for degree and certificate programs. Such a difference could press some institutions to pursue change at a higher rate than other institutions. This difference in pressure could lead to a difference in strategic change requests without a difference in the propensity of the executive management team to pursue change.

External Influences on Retention

Market forces that influence the need for or affordability of higher education may impact the differences between institutions in strategic change and retention. Job opportunities, financial availability, and population shifts may impact the change and retention measures.
Table 14
Analysis of Variance
Measured Variables Differentiated Class of Institution
Statistical Results (part 1)

<table>
<thead>
<tr>
<th>Variable Name</th>
<th>Levene Statistic</th>
<th>Mean Square</th>
<th>F-Value</th>
<th>Sig.of F</th>
</tr>
</thead>
<tbody>
<tr>
<td>Mean Executive Age</td>
<td>2.275</td>
<td>30.672</td>
<td>1.581</td>
<td>.216</td>
</tr>
<tr>
<td>Mean Executive Time</td>
<td>2.493</td>
<td>26.994</td>
<td>3.317</td>
<td>.076t</td>
</tr>
<tr>
<td>Age Heterogeneity</td>
<td>11.322</td>
<td>0.016</td>
<td>2.947</td>
<td>.094t</td>
</tr>
<tr>
<td>Male Percentage</td>
<td>2.992</td>
<td>787.628</td>
<td>1.759</td>
<td>.192</td>
</tr>
<tr>
<td>Ethnic Heterogeneity</td>
<td>.064</td>
<td>0.331</td>
<td>0.664</td>
<td>.420</td>
</tr>
<tr>
<td>Org. Time Heterogeneity</td>
<td>.657</td>
<td>0.072</td>
<td>1.155</td>
<td>.289</td>
</tr>
<tr>
<td>Average Educational Level</td>
<td>.088</td>
<td>0.000</td>
<td>0.068</td>
<td>.796</td>
</tr>
<tr>
<td>Higher Ed Career Percentage</td>
<td>1.068</td>
<td>0.002</td>
<td>0.154</td>
<td>.697</td>
</tr>
<tr>
<td>Caucasian Percentage</td>
<td>3.569</td>
<td>457.384</td>
<td>0.809</td>
<td>.374</td>
</tr>
<tr>
<td>Educational Specialization</td>
<td>16.587</td>
<td>0.002</td>
<td>10.087</td>
<td>.003**</td>
</tr>
<tr>
<td>Mean Organizational Time</td>
<td>3.490</td>
<td>0.544</td>
<td>0.594</td>
<td>.445</td>
</tr>
</tbody>
</table>

Degrees of Freedom = 41

f p<.15
  t p<.10
  *p<.05
  **p<.01
  ***p<.001
Table 14

Analysis of Variance
Measured Variables Differentiated Class of Institution
Statistical Results (part 2)

<table>
<thead>
<tr>
<th>Variable Name</th>
<th>Levene Statistic</th>
<th>Mean Square</th>
<th>F-Value</th>
<th>Sig. of F</th>
</tr>
</thead>
<tbody>
<tr>
<td>Number of Executives</td>
<td>.682</td>
<td>3.884</td>
<td>2.551</td>
<td>.118f</td>
</tr>
<tr>
<td>Exec. Time Heterogeneity</td>
<td>.215</td>
<td>0.011</td>
<td>0.505</td>
<td>.482</td>
</tr>
<tr>
<td>Strategic Change Variable</td>
<td>.008</td>
<td>1.327</td>
<td>0.019</td>
<td>.890</td>
</tr>
<tr>
<td>Total Retention</td>
<td>2.182</td>
<td>943.106</td>
<td>13.636</td>
<td>.001**</td>
</tr>
<tr>
<td>Male Retention</td>
<td>3.972</td>
<td>1013.228</td>
<td>13.789</td>
<td>.001**</td>
</tr>
<tr>
<td>Female Retention</td>
<td>.936</td>
<td>957.121</td>
<td>13.491</td>
<td>.001**</td>
</tr>
<tr>
<td>Caucasian Retention</td>
<td>8.927</td>
<td>546.572</td>
<td>5.545</td>
<td>.024*</td>
</tr>
<tr>
<td>African Retention</td>
<td>2.823</td>
<td>1876.775</td>
<td>4.546</td>
<td>.039*</td>
</tr>
<tr>
<td>Hispanic Retention</td>
<td>.171</td>
<td>728.850</td>
<td>8.676</td>
<td>.005**</td>
</tr>
<tr>
<td>Asian Retention</td>
<td>.013</td>
<td>531.322</td>
<td>0.635</td>
<td>.430</td>
</tr>
</tbody>
</table>

Degrees of Freedom = 41

f p<.15
t p<.10
*p<.05
**p<.01
***p<.001
Table 15

Hypotheses Results

<table>
<thead>
<tr>
<th>Hypothesis and Category</th>
<th>Results</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Strategic Change</td>
<td>Supported</td>
</tr>
<tr>
<td>2. Total Student Retention</td>
<td>Supported</td>
</tr>
<tr>
<td>3. Male Student Retention</td>
<td>Supported</td>
</tr>
<tr>
<td>4. Female Student Retention</td>
<td>Supported</td>
</tr>
<tr>
<td>5. Caucasian Student Retention</td>
<td>Supported</td>
</tr>
<tr>
<td>6. African American Student Retention</td>
<td>Supported</td>
</tr>
<tr>
<td>7. Hispanic Student Retention</td>
<td>Supported</td>
</tr>
<tr>
<td>8. Asian Student Retention</td>
<td>Supported</td>
</tr>
<tr>
<td>9. University and Community College Differentiation</td>
<td>Supported</td>
</tr>
</tbody>
</table>

Supported = Statistically Significant at the 0.10 Level or Higher

Table 16

Executive Field of Study Breakdown

<table>
<thead>
<tr>
<th>Field of Study</th>
<th>Comm. College</th>
<th>Univ.</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>Arts</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Liberal Arts</td>
<td>18.4%</td>
<td>18.6%</td>
<td>18.5%</td>
</tr>
<tr>
<td>Fine Arts</td>
<td>0.0%</td>
<td>3.9%</td>
<td>2.1%</td>
</tr>
<tr>
<td>Education</td>
<td>55.5%</td>
<td>22.5%</td>
<td>37.1%</td>
</tr>
<tr>
<td>Sciences/Professions</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Sciences</td>
<td>4.9%</td>
<td>11.7%</td>
<td>8.7%</td>
</tr>
<tr>
<td>Applied Sciences</td>
<td>0.0%</td>
<td>4.9%</td>
<td>2.7%</td>
</tr>
<tr>
<td>Health Fields</td>
<td>2.4%</td>
<td>3.9%</td>
<td>3.2%</td>
</tr>
<tr>
<td>Law</td>
<td>1.2%</td>
<td>1.9%</td>
<td>1.0%</td>
</tr>
<tr>
<td>Engineering</td>
<td>2.4%</td>
<td>4.9%</td>
<td>3.8%</td>
</tr>
<tr>
<td>Business</td>
<td>14.8%</td>
<td>26.4%</td>
<td>21.3%</td>
</tr>
<tr>
<td>Technology Studies</td>
<td>0.0%</td>
<td>0.9%</td>
<td>0.5%</td>
</tr>
<tr>
<td>Economics</td>
<td>0.0%</td>
<td>0.9%</td>
<td>0.5%</td>
</tr>
</tbody>
</table>

Some totals do not equal 100% due to rounding.
CHAPTER V
INTRODUCTION

The purpose of this chapter is to summarize the rationale for this study and describe the results and their implications, and to discuss their relationship with the literature. The chapter begins with a description of the study itself, and is followed by a presentation of findings, conclusions, and recommendations for policy and practice.

Leaders of public institutions of higher education must make decisions that allow them to operate effectively in their environments. Acknowledged here is that the challenges of running public community colleges are very different than running accessible four-year colleges and universities, and flagship universities. Yet the leadership teams of all institutions must work to ensure that the strategic decisions that their institutions make fit stated statewide higher education system goals, albeit accomplishing that “fit” in very different ways. In the State of Texas, for example, all public institutions are expected to contribute to the participation and success goals of the Texas Higher Education Coordinating Board’s (THECB) Closing the Gaps Master Plan. While every two- and four-year college and university is involved in work to achieve the 50 percent increase in enrollment from 1 million to 1.5 million students from 2000 and 2015, and the 50 percent increase in the success (or degrees awarded) goal, only research-intensive institutions will likely be involved in achieving the stated research goal of doubling externally funded federal contracts and grants.

The purpose of this study is to examine the connections between the
demographic makeup of the executive decision-making teams in higher education institutions and the propensity for strategic change in these organizations. While this relationship has been studied in the setting of for-profit corporations, it has never been studied at public institutions of higher education. This study is patterned after the methodology pioneered used by Margarethe Wiersema and Karen Bantel in their 1992 study of for-profit executive decision making teams at major corporations identified as members of Fortune Magazine's 100 largest corporations. Two key findings of Wiersema and Bantel relevant to this study were (1) for-profit corporate leadership teams were much more likely to be sensitive to emerging minority markets if their executive management teams were diverse (gender, race, ethnicity, etc.). (2) these same for-profit corporations were more likely to develop and execute strategic change—in this case, measured by the introduction of new product lines—if their executive management teams were diverse, than if they were not. Testing whether or not these same findings applicable to the environment of a large corporation can append to public institutions of higher education is the impetus for this study.

Effective decision-making teams are of critical importance to public institutions of higher education. The two decade-long slippage of state support for public higher education is well known in the research and practitioner communities. For example, Tom Mortensen documented a 20 percent decline in the inflation-adjusted investment by states into public higher education between 1979 and 1999 (1999). At the same time, missions have expanded: at the community college level, for example, institutions are asked to play lead roles in
area economic development and workforce training efforts, yet are not funded by their states for this mission (Katsinas, 2003). In Texas and in the nation, the pool of students who expect opportunities for advanced education beyond high school has grown significantly, both in numbers and in diversity. Thirty-three states saw an increase in high school graduation classes above 10 percent between 1993-94 and 1999-2000, while 15 additional states project increases in high school graduating classes above 10 percent between 2000 and 2006 (Katsinas, 2003).

The very title of the 1996 book, Educating the New Majority, reinforces the notion of ever-increasing diversity seen in such ways as student age, gender, ethnic background, family life, and economic class. In years past, the normal collegiate student was 18-22 years of age, male, affluent, single, attended on a full-time basis, and Caucasian. Today’s colleges and university students include a very wide range of ages, ethnic backgrounds, and social situations. Today, the majority of the higher education students in the nation are either female, employed, or both. (Rendon & Hope, 1996) It is expected that diversity of the student body is likely to increase rather than decrease in the future.

Declining state investment and increasing enrollments experienced by colleges and universities are raising the importance of effective decision-making to previously unknown levels. Colleges and universities are being asked to be more productive with fewer resources. This is only possible if decisions made by the executive decision-making teams of these institutions improve their performance.

Executive leadership teams are generally expected to produce better
decisions than individual decision-makers. This is due to the greater abundance of knowledge, skills, and perspectives found in a group compared to an individual. It logically follows that this advantage of team decision-making can be enhanced with a greater level of diversity within the decision-making team, particularly if the organization is to make decisions designed to market the entity toward ever-diversified populations (as but one example, using Spanish-language media). Individuals in a team can differ on a wide array of factors beyond expert knowledge of a specific functional area such as finance or human resources. These factors can include age, gender, education, ethnic background, time of service, and career path. Since the knowledge and creativity of the executive leadership team is dependent on the knowledge and creativity of its individual members, a greater range of knowledge and experience possessed by the group should lead to a decision-making capability to make better, more innovative decisions. It is expected that more diverse leadership teams will lead to the generation of a broader range of options and improve the chance that the best option is chosen. This is precisely what Wiersema and Bantel found in their study of major corporations, which were much more likely to introduce new product lines and permeate new market segments if their executive leadership teams were more diverse.

The testing of this expectation was done using non-selective, public institutions of higher education in Texas. Texas was deemed an appropriate subset of U.S. higher education due to the large number of institutions in a wide range of locations available for study. Public institutions were chosen due to the
availability of uniform data. Methodologically, the study involved several steps: First, the executive management team was defined as the president and vice presidents of an institution. This clearly does not capture the range of contributors to the decision-making process, but it does provide a picture of the extant diversity within institution's leadership. Second, strategic change was measured directly measured by assessing the number of new degree or certificate programs submitted for approval between June 2000 and May 2002 by the Texas Higher Education Coordinating Board. It was assumed that the strategic change propensity of each institution would be reflected in the relative number of new program requests.

This method of measurement identifies colleges and universities pursuing a type of strategic change, but may not identify all institutions pursuing strategic change. As with the Wiersema and Bantel study (1992), it is possible some institutions are pursuing strategic change through improvements of existing programs and not requesting approval for new programs. To overcome this potential weakness, performance variables on student retention were added to indirectly measure strategic change through the outcome of decisions made by the executive management teams. It was expected that in the current volatile higher education environment, institutions that pursued strategic change, whether through new programs or program improvement, would produce superior performance that would be reflected in retention levels. Retention was subdivided by gender and ethnic groups to reflect differences in the effect of decisions on students of different ethnic backgrounds. It should be noted that
improving student retention was identified as one of the four overarching goals of the THECB in its plan to improve Texas higher education (see pg. 44).

Building on the methodology developed by Wiersema and Bantel (1992), this study examines 13 dimensions of the individual backgrounds of executive decision-making team members that include classification (four-year university or community college), mean executive age, age heterogeneity, executive time heterogeneity, organizational time heterogeneity, level of educational attainment across the executive management team, educational specialization of the highest degrees awarded to members of the executive management team, mean organizational time, mean executive time, ethnic heterogeneity of the executive management team within four racial origin groups (Caucasian, African American, Hispanic, and Asian), male percentage, number of executives at each institution, Caucasian percentage, and Higher Education Career Percentage. Data were obtained from published information and was augmented by institutional information requests when necessary. A statistical analysis of each direct and indirect strategic change measure was statistically compared to each demographic measure using multiple linear regression. An analysis of variance procedure was performed to explore for possible differences in the demographic makeup of community college executive teams and university executive teams. There are 68 community and technical colleges in Texas, and 34 four year institutions other than flagship university campuses and medical institutions. Within the four-year sector, flagship universities and medical institutions were not examined because they are insulated from demand effects by capped
enrollments and stable funding. Useable descriptions of the executive management teams from 19 community colleges and 23 four year institutions were examined in this study, representing 28 and 68 percent, respectively, of the total population within those two sectors. These results are presented in Chapter Four, above. Attention is now turned to the findings.

Findings

1. A relationship exists between the demographic makeup of executive management teams at Texas institutions of public higher education and their propensity for pursuing strategic change. This is evident from the multiple regression model produced for the sample studied. Eight of the 13 demographic variables studied were included, and an adjusted $r$-square of 0.431 and an $r$-square of 0.563 were produced. Almost one half of the variation in strategic frequency was statistically connected to the demographic makeup of the 42 top executive teams in the study. To put this in perspective, the relationship found between top executive team demographics and strategic change in this study was far stronger than what was found in the Wiersema and Bantel study on for-profit corporations. (See Table 5 on page 69.)

Two critical components of the relationship between executive team demographics and strategic change deserve special mention. First, smaller executive decision-making teams pursue more strategic changes as measured by new degree and certificate program requests. Conversely, larger executive decision-making teams were associated with fewer new degree and certificate
program requests. This finding is similar to findings in for-profit business studies on the impact of the size of executive decision-making teams (Markham, Dansereau, & Alutto, 1982). Second, executive decision-making teams with more diverse ages were more likely to pursue strategic change than teams that were made up of people of similar age.

This finding reflects what was found in the Wiersema and Bantel study (1992) on for-profit corporations (See Table 17 on page 123). As in the Wiersema and Bantel study, this finding is somewhat tempered by the fact that some forms of strategic change in the “new product lines” of higher education without creating entirely new degree or certificate programs (for example, hiring new faculty to redesign an existing curriculum, an act which does not require THECB approval and therefore would not appear in the data reviewed in this study). Still, this is only a small limitation since propensity for change should generally be reflected in both new degree and certificate programs and in improvements in existing programs.

2. A relationship exists between the demographic makeup of executive management teams in Texas institutions of public higher education and student retention. Each of the seven retention measures studied (Total Retention, Male Retention, Female Retention, Caucasian Retention, African American Retention, Hispanic Retention, and Asian Retention) was related to the demographic variable set. The total retention variable was related to a model containing 6 demographic variables (Mean Executive Age, Number of Executives, Executive
Time Heterogeneity, Mean Executive Time, Ethnic Heterogeneity, and Caucasian Percentage), and produced an adjusted r-square of 0.394 and an r-square of 0.494. This relationship reflected more than one third of the variation observed in the data. A strong connection between the demographic makeup of the executive management team and the indirect measure of propensity for strategic change assessed in this study was found. (See Tables 6-12 on pages 70-76)

Two highly significant aspects of this finding were related to executive team size and executive team time heterogeneity. First, larger executive decision-making teams were associated with higher levels of retention. This is an opposite direction relationship from what was discovered with the strategic change variable. Second, higher executive decision-making team heterogeneity was strongly associated with higher retention.

Since seven different aspects of retention were measured in this study (Total Retention, Male Retention, Female Retention, Caucasian Retention, African American Retention, Hispanic Retention, and Asian Retention), it follows that the different measures of retention were not impacted in the same way by the different dimensions of diversity in the executive management teams. A partial exception is that higher retention rates were associated with universities rather than community colleges for all measures except Asian student retention. Each retention measurement was studied individually.

Total student retention was strongly related to executive decision-making team demographics. A higher mean executive age, a higher number of executives, and a lower mean executive time heterogeneity were associated with
greater total retention. Lower ethnic heterogeneity and Caucasian percentage had a lesser relationship with total student retention. Lower mean executive time was also associated with greater total retention.

Male student retention was strongly related to executive decision-making team demographics. Like total retention, this variable was positively related to mean executive age and executive time heterogeneity while it was negatively related to mean executive time. Male student retention was also negatively related to Caucasian percentage and educational specialization. Ethnic heterogeneity had a lesser, negative relationship with male student retention. A lower percentage of both Caucasian members and Arts majors was associated to higher male retention.

Female student retention was also strongly related to executive decision-making team demographics. Executive time heterogeneity was strongly related to female retention. Greater heterogeneity in the age of the members of executive teams was associated with greater female retention. Male percentage had a lesser, positive relationship with female student retention while executive time heterogeneity had small negative relationship.

Caucasian student retention was statistically associated with executive decision-making team demographics. Age heterogeneity, ethnic heterogeneity, educational specialization, and mean organizational time were all negatively associated with Caucasian student retention. Mean executive time had a limited, negative relationship with Caucasian student retention while executive time heterogeneity had as small positive relationship with the measure.
African American student retention had a small but statistically significant relationship with executive decision-making team demographics. Age heterogeneity, ethnic heterogeneity, and Caucasian percentage were all positively related to African American student retention. Male percentage, higher education career percentage, and executive time heterogeneity were all negatively related to African American student retention.

Hispanic student retention was strongly related to executive decision-making team demographics. Mean executive age, number of executives, and executive time heterogeneity were positively related to Hispanic student retention. Mean executive time and Caucasian percentage had limited negative relationships with Hispanic student retention.

Asian student retention had a statistically significant relationship with executive decision-making team demographics. Organizational time heterogeneity had a strong, positive relationship with Asian student retention while executive time heterogeneity had a lesser positive relationship. Educational specialization had a strong, negative relationship with Asian student retention and ethnic heterogeneity and mean organizational time had limited negative relationships with that measure of retention.

3. Few differences were found between university executive management teams and community college management teams. Only three of the demographic variables were significantly different in the analysis of variance procedure. This provides an indication that from a demographic standpoint, both types of higher
education institutions have similar executive management teams. (See Table 14 on page 92)

4. The demographic variables of educational specialization, field of degree, and age of two- and four-year college and university executive management teams produced no functional differences as it relates to institutional classification. The executive teams of community colleges and universities appear to be demographically similar. Three demographic variables studied showed statistically significant differences between the university and community college subgroups. Educational specialization, the field of the highest degree held by executives, has a statistically significant difference at the 0.003 level for the university and community college subgroups. Higher percentages of executives with arts degrees (including education) were found in community colleges than in universities. This may be more reflective of the dominance of education majors in community college leadership and the frequency of business majors in university leadership (See Table 16 in Chapter IV). Mean executive time, the average amount of time that executives had served as executives, was significantly different in the universities and the community colleges. The difference was significant at the 0.076 level. The average university executive had 7.4 years of executive service at his/her institution while community college executives averaged only 5.43 years. Age heterogeneity, the level of age difference between members of an institution’s executive management team, was significantly different at the 0.094 level. Community college executive
management teams were more heterogeneous by age than those of universities. Other demographic measures in the study were not significantly different on the basis of classification. This finding was important in that while some aspects were found to be different between groups, on most measures the demographic background of executive teams in universities and community colleges were statistically similar.

Conclusions

1. It makes a positive difference in student retention rates for executive management teams at Texas community colleges and four-year universities to be diverse. This study found measurable differences in the retention rates were related to a diverse makeup of executive management teams. The research literature has long argued, often without the benefit of empirical data, that diversity makes a difference. This study replicated Wiersema and Bantel’s 1992 study, which found that higher levels of ethnic diversity among executive management teams at Fortune 100 corporations was related to higher levels of strategic change. This study found similar results for Texas institutions of public higher education.

Inasmuch as the Texas Higher Education Coordinating Board has increased participation and increased success (as measured by retention) as two of the four key long term goals of its master plan, the conclusion that executive management team diversity matters is highly significant. Performance may be enhanced by an effective manipulation of executive management team selection
process.

This study does not prescribe a specific, optimal demographic makeup for all higher education institutions. Such a result is beyond the scope of this study and will be very difficult to develop due to complications of performance measurement and institutional differences. The necessity of using both direct and indirect performance variables to capture the effectiveness of decision-making teams creates a situation where the increase of the presence of a demographic factor may improve some performance measures while weakening others. No single, comprehensive variable exists at this time that effectively encompasses the performance of higher education decision-making. Differences in the resources and environments of institutions of higher education may markedly effect the optimal demographic makeup executive decision-making teams. Optimal demographic makeup may vary by type of college or university or even by institution.

It can, however, be concluded that the optimal executive decision-making team demographic makeup includes a significant level of diversity on a wide range of factors. This study indicates that colleges and universities should seriously consider increasing the diversity of their executive level decision-makers.

2. The diversity of the executive management goes beyond race and ethnicity, to include executive time heterogeneity, diversity of professional experience, age heterogeneity, and field of study of highest degree attained. Each retention
regression model retained this variable and it has the highest or second highest standardized beta coefficient in six of the seven models. There is a positive relationship between executive time heterogeneity and six of the seven retention variables. Only African American retention is negatively related to this variable and that result was of questionable validity due to data limitations. This is a strong indication that executive management teams with greater differences in executive time of service are associated with greater student retention. This supports the expectation that an executive management team with greater time of service heterogeneity will produce higher retention. While this study does not prove a causal relationship, it does support the possibility that one exists.

The percentage of executives with career backgrounds exclusively in higher education is negatively related to the strategic change variable. It can be inferred, therefore, that a lower percentage of executives with their entire career experience in higher education will lead to a greater level of strategic change. This supports theory developed from previous research. This is a logical, although unproven, conclusion based on the expectation that groups with heterogeneous professional experiences will be more open to change.

Age heterogeneity was found to be strongly related to the strategic change variable. Executive management teams with individuals of different ages were found to be associated with higher levels of strategic change. This variable had the highest standardized beta coefficient in the strategic change multiple regression model. Since this was the theorized relationship in this study and in the Wiersema and Bantel study (1992), it is likely that an increase in executive
age heterogeneity would lead to an increase in the strategic change variable.

Mean executive time appears to have a significant relationship to both strategic change and student retention. This relationship is, however, split in its direction of influence. If a causal relationship exists, it is complicated by an outside factor or factors. This study indicates that higher executive time is related to higher strategic change. The Wiersema and Bantel study (1992) produced similar results with the for-profit data set. This study also indicates that higher retention was related to lower mean executive time of service. This may reflect the time frame necessary for making changes that lead to increased retention. Some steps that increase retention may be achievable for new executives, while strategic changes as represented by new program and certificate requests may not be achievable until executives have worked together for some time. Initiatives that improve enrollment may often require adjustments to existing programs. An adjustment to an existing activity may not require the broad-based support that is necessary for a new program. New program generation may require an organizational impression that members of the executive team have a long-term commitment to the organization and the necessary experience to avoid mistakes that have been made in the past. Executive newcomers to a college or university may be perceived as building resume items for the next step in their progression up the career ladder. Executives who have been with a college or university for a long period of time may be perceived as creating a legacy to leave behind when they are gone. These legacy builders may bring an image of trustworthiness that is needed to
produce the broad consensus that is needed to pursue new programs.

3. There is a high concentration of executive decision-making team members in two key fields, business and education. The educational background of executive management teams was a significant variable for both strategic change and student retention. Educational specialization in an arts field (including education) was positively related to strategic change. An alternative specialization in a science or profession was positively related to student retention. Education was the first (55.5%) and second (22.5%) most frequent major in the executive decision-making teams of community colleges and universities, respectively (See Table 16 on pg. 96). Business was the most frequent major among university executive decision-making teams (26.4%) and the third most frequent among community college decision-making teams (14.8%). It is likely that the frequency of these majors in executive decision-making teams occurs because of the appropriateness of the training received in some business fields (management, strategy, and business administration) and some education fields (higher education, educational leadership) for higher education executives. Higher education programs in particular have historically been intended to produce leaders for community colleges (Fife & Goodchild, 1991). It is likely that the available pool of graduates from these fields impacts the choices made in the makeup of executive decision-making teams. This complex relationship indicates a relationship that deserves more extensive study.
4. There is a clear need to expand the pool of qualified and diverse applicants for executive management positions at Texas public community colleges and four-year universities, particularly for Hispanics. It is very clear that Texas’ Hispanic population is growing fast (Texas Higher Education Coordinating Board, 2001), and that a vacuum of qualified Hispanics exists within the ranks of senior management officials at Texas public community colleges and four-year universities (Texas Associations of Chicanos in Higher Education, 1986). While society in general has embraced the need for an ethnically diverse student body at colleges and universities, this has yet to translate into producing an ethnically diverse pool of potential executives with the requisite education and experience necessary to perform effectively as higher education executives.

This is a problem that has been created over the last 30 years. Too few non-Caucasians have gone into higher education careers and even fewer have progressed up the career ladder to positions of responsibility (Maldanado & Willie, 1996). Too few non-Caucasians have pursued and attained the terminal degrees that are often prerequisites for executive level positions. It is unlikely that this situation will change quickly or without some sort of intervention by universities and their supporters. Unless or until larger numbers of non-Caucasians gain terminal degrees and move into positions of responsibility in higher education within Texas and across the nation, the pool of potential executives will lack the necessary diversity to produce optimal decision-making
teams. This may be the source of the apparently conflicting results found for the factors of Caucasian percentage and ethnic heterogeneity. Perhaps the limited pool of qualified, non-Caucasian executive candidates leads colleges and universities to place non-Caucasians without an optimal level of education and experience into executive positions to gain the advantages of diversity. Also, it is likely that the limited supply of qualified non-Caucasian executive candidates is more aggressively pursued by the institutions that have the greatest problem with retention and are therefore more cognizant of the need for more diverse executive management teams. Unless this situation is changed, Texas colleges and universities will continue to face the uncomfortable reality of having executive management teams without the broadly diverse experiences and educational attainment needed for the obvious challenges outlined in THECB’s ambitious “Closing the Gaps” master plan.

Ethnic heterogeneity appeared to produce a split direction of influence on the dependent variables in this study. The presence of a higher number of ethnic groups represented in the executive management team was positively related to the strategic change variable of new program implementation. At the same time, this type of executive management team was negatively associated with student retention. Executive management teams with representatives of fewer ethnic groups, as recorded in the study, were associated with higher student retention levels. Previous research would have indicated that greater heterogeneity would be associated with greater levels of strategic change and student retention.

The percentage of executives on a management team that are Caucasian
has a significant relationship with both strategic change and student retention. Once again the direction of influence on these two issues was split in this study. A higher percentage of Caucasians in the executive management team was related to a higher level of strategic change as measured by requests for new degree and certificate programs. This differs from its impact on student retention. On retention models for total, male, female, and Hispanic retention, a higher Caucasian percentage appears to be related to lower retention. This divergence of findings appears to reflect a complex relationship between the forces that lead to strategic change and those that lead to retention. It is notable that an increased Caucasian percentage was positive for strategic change. It had been expected that a lower Caucasian percentage would lead to a greater level of strategic change. An increased Caucasian percentage limits the opportunity for ethnic heterogeneity. Perhaps some ideal mixture of ethnic groups increases strategic change as seen in the age heterogeneity variable, but if this extends to the point that it limits the use of Caucasian executives, it may start to hinder the strategic change process. It is very interesting that Caucasian percentage and ethnic heterogeneity have a positive relationship with the strategic change variable.

This appears to be an indication that the representation of various ethnic groups on executive management teams is related to strategic change, while the exclusion of Caucasian executives is not. The combination of these findings would indicate that while the optimal makeup of an executive management team for strategic change would include a large percentage of Caucasian executives, it
would also include representatives of multiple ethnic groups. This may be a reflection of the expected value of a decision making-team that is drawn from throughout the available talent pool on the basis of ability, rather than the pursuit of a specific ethnic profile. If true, this implies a need for upgrading the training and education opportunities for people from all ethnic backgrounds so that the talent pool of trained and qualified potential executives would contain sufficient diversity to provide institutions with the opportunity to select a qualified and diversified executive group.

Recommendations for Policy, Practice, and Further Study

Based on the conclusions of this study, a number of recommendations can be made for practice and policy. These recommendations are made are directed toward researchers, trustees, presidents, universities, legislators, and state education commissions. To allow for the specificity, public policy recommendations will be toward the Texas State Legislature and the Texas Higher Education Coordinating Board (THECB).

Recommendations for Policy and Practice

1. Institutions that wish to enhance student retention should endeavor to create more diversity in their executive management teams. This includes diversity as measured by race and ethnicity, the range of age possessed by the executive management team, and experiences possessed by the executive management team. This study found a relationship between diverse executive management teams and higher rates of general retention and retention by specific minority
group. This suggests that broadening the executive management team's diversity (race, ethnicity, age, and gender) would likely increase the time heterogeneity and probably lead to greater retention levels, particularly for ethnic minorities identified by THECB as critical for achievement of Closing the Gaps goals 1 and 2, participation and success. Key players in this are trustees and the chief executives they hire. Trustees should empower their chief executives to enhance the strategic change ability of their institutions by creating over time executive management teams that are as diverse as possible, including age, gender, ethnicity, and persons with significant professional experience outside of higher education.

2. To enhance student retention, state policy should focus on creating more diversity in two- and four-year college and university executive management teams through strategically targeted investments in leadership development programs. The finding of a positive relationship to strategic change propensity found for groups with ethnic heterogeneity can be acted upon by public policymakers. Initiatives to increase the number of qualified executives from ethnic groups currently under-represented on executive management teams of universities and community colleges should be developed, initiated, and supported. Policy initiatives to enhance the pool of ethnically diverse higher education executives would improve the chances that future executive management teams would have more ethnic groups represented among their individual members. The Texas Legislature could alleviate this problem by
providing scholarship programs (Maldonado & Willie, 1996) and expanding their geographically dispersed doctoral programs. Universities could implement executive development programs could that enhance the ethnic diversity of the pool of potential executives that future executive teams are drawn from. Actions taken in the present could improve higher education decision making in the future by providing a wide-ranging group of individuals with the requisite skills necessary to make the best decisions. This is an opportunity where public policymakers can directly influence the demographic diversity of future higher education executive management teams. In light of the extremely high concentration of community college executives with education degrees, specifically degrees in higher education or educational leadership, state legislators should give special attention to providing opportunities for the study of these fields. This is particularly advisable in light of the large portion of African-American and Hispanic doctoral students who study in education fields. In 1996, 45.7% of African-American students who received doctoral degrees received them in education fields. Similarly, 23.6% of all doctorates awarded to Hispanics in that time period were in education (Gray, 1999).

3. **Select trustees who are committed to diversity in its broadest sense,** specifically charged to concern themselves with supporting efforts to diversify executive management teams in two- and four-year colleges and universities. The Governor of Texas, who appoints all trustees of four-year universities in
Texas, can and should promote executive decision-making team diversity by choosing trustees who aggressively support hiring of demographically diverse executives. The Texas Senate, which confirms gubernatorial trustee appointments to four-year universities, can act by raising the issue of commitment to executive management team diversity in its appointments confirmation process. And while community college trustees are locally elected and therefore not subject to the appointment-confirmation process, the Texas Higher Education Coordinating Board could periodically study (every 4 years) the extant diversity of two- and four-year trustees and the executive management teams statewide, to provide useful benchmark information. Trustees can pursue greater executive heterogeneity by ethnicity, age and time of service, and professional backgrounds that include some time out of higher education. The time to assess that commitment is before the appointment is formally made.

4. Presidents of colleges and universities should support diversity in its broadest sense in the development of their executive management teams. Presidents choose the makeup of their executive management teams. This study indicates that a president can produce an executive team that is better able to pursue change and retention by appointing a diverse team of executives. This includes ethnic diversity, age and length of service, experience inside and outside of higher education, and highest level of degree awarded. The formation of diverse executive management teams appears to be a very wise approach for those chief executives concerned with improving student retention and promoting
strategic change.

5. Improved data collection by the state would be advantageous for future research. The findings in future studies could be made more precise by the accurate collection of more precise data on strategic change and the demographic background of higher education executives.

6. A special focus on increasing age-heterogeneity is warranted. While younger groups comprised in large numbers of immigrants are coming into higher education, the existing population continues to age. Normal retirement age, once 62 or 65, is now 70, and may rise again at some point in the future. Trustees and presidents should aggressively promote increased age-heterogeneity in executive decision-making teams as a method of pursuing strategic change. The finding that increased age-heterogeneity was strongly associated with an increased pursuit of strategic change in this study supported the Wiersema and Bantel (1992) finding in for-profit corporations. This level and consistency of support is an indication that increasing the diversity of ages in the executive decision-making team is an effective way of promoting strategic change. An examination of the retention-enhancing strategies that are favored by executives of different age groups might offer valuable information on this relationship.

Recommendations for Further Study

1. The impact of new executives on student retention deserves further study. This is important because the effect of new executives on decision-making seems to be both strong and complex. Student retention could be further studied
by examining the breadth of consensus that is needed to improve retention in comparison to that needed to enhance strategic change. An interesting companion area of study would be of the forces that produce legacy builders (persons who are serving what they think will be their final institution), and the role they play in managing executive leadership teams over time. A method of studying this effect would be to look for a relationship between different change measure and the presence of legacy builders.

2. Additional study of direct measurements of strategic change is needed. This study examined the relationship of strategic change, as measured by institutions submitting new programs for approval to the THECB. It was assumed in this study that new program initiatives were an effective proxy for strategic change, but it is quite possible that institutions may pursue a greater (or lesser) percentage of strategic change through program improvements what is normal across all institutions of higher education. Additional study of direct measurements of strategic change is needed that goes beyond requests for new degrees and certificates is needed. This might be accomplished using survey data that measures program improvements.

3. Additional study of indirect measurements of strategic change is needed. These additional measures could include, but are not limited to studying the relationship of each executive academic major to strategic change propensity and student retention, more precisely identified membership of all members of
executive decision-making teams (since some institutions likely define their executive management teams to include sub vice-presidential reports), and data segregated by age rather than ethnic background or gender. The impact of executive decision-making team demographics on different age groups could provide very valuable information, particularly for institutions interested in improving their rates of non-traditional student retention.

4. Further study of the optimum size of executive management teams is needed. The number of executives in a management team was a significant variable for both strategic change and retention. Smaller executive teams were related to greater strategic change while larger executive teams were related to higher retention. A relationship between retention and the number of executives was only detected in the total retention and Hispanic retention models. The positive relationship between a smaller number of executive and strategic change was expected due to the difficulty of gaining agreement on strategic change with large decision-making teams. It seems possible that increases in the number of executives may be made with the intention to pay more attention to student retention issues. It is also possible that factions in the executive decision-making team pursue strategic chance through program improvements rather than new programs in order to avoid the challenge of gaining consensus in a large group.

Summary

This study reveals that selected concepts from the world of strategic management of large for-profit corporations are applicable to the strategic
management of institutions of higher education. The replication of the Wiersema and Bantel study (1992) shows a similarity in the impact of demographic background on for-profit executive teams with their higher education counterparts. The most similar results can be seen in table 16 below. While these two types of strategic decision-making clearly are not interchangeable, some commonality exists. This commonality indicates that further replication studies could provide valuable information for higher education.

<table>
<thead>
<tr>
<th>Common Variables in the Full Model</th>
<th>W&amp;B Level of Sig.</th>
<th>Fincher Level of Sig.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Mean Executive Age</td>
<td>-.18*</td>
<td>-.10</td>
</tr>
<tr>
<td>Mean Team Organizational Time</td>
<td>-.27*</td>
<td>.15</td>
</tr>
<tr>
<td>Mean Executive Time</td>
<td>.27**</td>
<td>.38*</td>
</tr>
<tr>
<td>Educational Specialization</td>
<td>.18*</td>
<td>.275f</td>
</tr>
</tbody>
</table>

Values shown are standardized regression coefficients. Notations for level of significance in the adjusted model of each study are as follows:
* p<.05  
** p<.01  
*** p<.001

Partial data drawn from Wiersema & Bantel, 1992, pg. 110

Questions of strategic change and student retention may be very different from one another. Some variables in this study are positively related to one of these issues and negatively related to the other. Perhaps strategic change is focused on attracting students as opposed to retention. The struggle between the competing goals of student attraction and student retention is an important issue in higher education strategy and decision-making. This is clearly a
complex relationship.

The issue of executive management team demographics is significant for higher education strategy and decision-making. The makeup of executive management teams appears to be strongly related to strategic change as measured by both new degree and certificate offerings and student retention. These two issues are of great importance to the successful management of higher education institutions. As expectations for better performance increase, these issues will become even more important in the future. The drive to produce more with limited resources requires superior decision-making. This study has provided a greater relational link among the impact of executive demographics on the decision-making process as defined in chapter 2. The results provide information that may be helpful in the efforts of institutions to produce executive management teams that can make effective decisions. The decisions that are made by an executive management team are a function of the environment in which they operate and the way that they view that environment. An institution can do little to change its environment but it can choose an executive management team that can do the best job of navigating within that environment.
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