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DISSERTATION

# STUDENT AWARENESS AND SATISFACTION WITH CAREER SERVICES, JOB RECRUITMENT, AND ACADEMIC PREPARATION

Submitted by

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School of Education

In partial fulfillment of the requirements

for the Degree of Doctor of Philosophy

Colorado State University

Fort Collins, Colorado

Fall, 1999

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WE HEREBY RECOMMEND THAT THE DISSERTATION PREPARED UNDER OUR SUPERVISION BY ANNIE WRIGHT FERNAN ENTITLED STUDENT AWARENESS AND SATISFACTION WITH CAREER SERVICES, JOB RECRUITMENT, AND ACADEMIC PREPARATION BE ACCEPTED AS FULFILLING IN PART REQUIREMENTS FOR THE DEGREE OF DOCTOR OF PHILOSOPHY.

Committee on Graduate Work

Advisor

Director

ABSTRACT OF DISSERTATION

STUDENT AWARENESS AND SATISFACTION WITH
CAREER SERVICES, JOB RECRUITMENT,
AND ACADEMIC PREPARATION

This research study sought to investigate the current level of student (a) awareness of and satisfaction with the Career Center services, (b) awareness of and satisfaction with the Hewlett-Packard Company's recruitment efforts and programs at Colorado State University, (c) satisfaction with academic preparation and student/faculty relations, and (d) perceived impact of diversity at Colorado State University. Additionally, this study further sought to investigate the relationships of age, ethnicity, and gender with the aforementioned variables. Specifically, the study used a stratified random sampling of clusters/classes of Colorado State University students during the Spring semester of 1999. Of the 740 surveys administered or distributed, 547 students returned their surveys in usable form.

The study findings demonstrated demographic variability in the participants. A large majority of the students were Caucasian/Euro Americans. Over half of the respondents were female, seniors, and between age 21 to 25.

The findings indicate a low level of awareness of services provided by the Career Center and that the Career Center has low visibility. Responses to satisfaction items probably indicate lack of awareness rather than low satisfaction with the Career Center services.

The study findings demonstrated an overall positive student perception of the Hewlett-Packard Company. Yet the findings show a low level of awareness of Hewlett-Packard's recruitment efforts and programs at Colorado State University. Satisfaction with Hewlett-Packard's recruitment efforts and programs was shown to be moderate.

The study findings indicate the level of student satisfaction with academic preparation and with student/faculty relations to be moderately high. Perceived impacts of age and gender were found to be low, whereas perceived impact of ethnicity was found to be moderate.

This research found a significant relationship between age and satisfaction with academic preparation and student/faculty relations. Additionally, a significant relationship was found between gender and perceived impact of diversity at Colorado State University. No other significant relationships were found between any of the variables.

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## DEDICATION

I dedicate this work to my mother, Josie Green Wright (July 14, 1914-April 14, 1991), a wise Southern woman with only a third grade education who said to me, "Annie Marie get an education and make something of yourself." Happy birthday, Mama. Thank you for giving me your stubbornness genes and for instilling in me the determination to finish what I start.

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# CHAPTER I

## INTRODUCTION

In this post-affirmative action era, it is important that colleges and universities develop methods to promote and retain diversity within their student bodies and faculties. In order to assure diversity, the availability of strong academic support programs such as career development and internship programs are necessary for all students. Since using the argument of the moral duty or obligation to educate ethnic minorities has not proven effective in providing equal access to higher education, perhaps one could acknowledge that self-interest is a better motivation in this society (Wright, Butler, Switzer, & Masters, 1988). This self-interest might be incorporated in terms of national economic prosperity to provide access to higher education for ethnic minorities.

Trends identified by the 2005 Task Force of the Chancellor's Office of California Community Colleges indicate that the shift to a multicultural society, which is already underway, will accelerate as we move beyond the year 2000. Demographically, California will see the emerging "baby-boomer echo" of 18-24 year olds, thereby increasing the cultural and learning diversity of students and adding high numbers of older non-traditional students (McIntyre, 1997). A feasibility report of the Maryland State Higher Education Commission identified similar trends in the eastern United States. They anticipate an increase of 34,000 students with an increase in diversity within the next ten years and an increase in the numbers of non-traditional students and employed adults (Clarke & Florestano, 1996). Further projections indicate that by the year 2010,

twelve of the most heavily populated states and Washington, DC will have large minority populations which will include about half of the nation's young people under 18 years old (Hodginson, 1992).

The Bureau of Labor Statistics (1998) projects a labor force increase of 14 percent between 1996 and 2006, with Hispanics accounting for 11.7 percent, African Americans 11.6 percent, and Asians and other (Asians, Pacific Islanders, American Indians, and Alaska Natives) accounting for 5.4 percent of the labor force. A large percentage of the labor market growth will occur in occupations that require less than a college degree and that usually have low pay and few benefits. Groups with low educational attainment, including African Americans and Latino/Hispanic Americans, will continue to be unable to obtain a share of the high-paying jobs unless they increase their level of education. While some occupations, such as electrical and electronic technicians/technologists and registered nurses, do not require a college degree and pay higher than average wages, most high-paying jobs will require a college degree.

According to the 1990 census, ethnic minorities comprised 13.7 percent of Colorado higher education enrollment in 1990 and only 10.9 percent in 1986 (Colorado Commission on Higher Education, 1992). These statistics suggest that Colorado colleges and universities, like others nationwide, must face the challenges posed by an increase in the cultural diversity of student bodies despite the demise of affirmative action.

According to Dr. Jim Sutton, Senior Academic Officer of the Colorado Commission on Higher Education, Colorado no longer has a statewide projection of higher education enrollment trends and diversity plan. Since 1990, each public institution

of higher education has developed its own diversity goals (personal communication, October, 1998).

Colorado State University developed its five-year diversity plan in 1990, and the results are promising. The percentages of women and minorities among faculty and other Colorado State University staff has increased. Furthermore, multicultural perspectives have been infused in many academic courses, and programs offering support for minorities were upgraded (Colorado State University, 1998). This dissertation study focuses on the two areas--gender and ethnicity--in which Colorado State University anticipates further corrective action.

Colorado State University's 1998-2003 diversity plan looks at several areas. First, Colorado State University's plan commits to increase the recruitment, persistence, and graduation of women students in those academic areas in which they are underrepresented, such as business, engineering, and science. A second goal is to increase the number of underrepresented minorities and women in faculty and other staff positions (Colorado State University, 1998). A third goal of Colorado State University's 1998-2003 diversity plan is to increase the enrollment and graduation rates of ethnically underrepresented students to a level that reflects several factors, one of which is the demographic profile of the state of Colorado. According to the 1990 census, minorities comprise 19 percent of the 3 million plus people in Colorado (Colorado Commission on Higher Education, 1992) while only 6.7 percent of the students graduating with baccalaureate degrees from Colorado State University were minorities (Colorado State University, 1990).

Between 1990 and 1995, the enrollment of minority students at Colorado State University increased, but it is not yet representative of the statewide minority population (Table 1). At Colorado State University, minorities comprise only slightly more than 11 percent of the student body (Colorado State University, 1998). It is, therefore, of immense concern to the University that methods be devised to increase and retain its diverse student population. One way to increase or retain diversity is to remove barriers that inhibit minority and women students' full participation in academic programs and services.

Table 1

Summary of Undergraduate Student Ethnicity - Fall Enrollments

| | 1988 | | 1990 | | 1995 | | 1998 | |
|---|---|---|---|---|---|---|---|---|
| | n | % | n | % | n | % | n | % |
| Undergraduate Enrollment | | | | | | | | |
| Total Minority | 1261 | 7.5 | 1572 | 9.1 | 1966 | 10.8 | 2056 | 11.1 |
| International | 179 | 1.1 | 161 | 0.9 | 185 | 1.0 | 230 | 1.2 |
| Other | 586 | 3.5 | 416 | 2.4 | 366 | 2.0 | 478 | 2.6 |
| White/EuroAmerican | 14763 | 87.9 | 15221 | 87.6 | 15619 | 86.1 | 15843 | 85.1 |
| Total | 16789 | 100.0 | 17370 | 100.0 | 18136 | 100.0 | 18607 | 100.0 |

Compiled from Colorado State University Office of Budgets and Institutional Analysis Enrollment Data Reports.

A first step was to ascertain what students perceive those inhibiting barriers to be. Consequently, between September 1997 and August 1998, Part A of the Colorado State University and Hewlett-Packard Collaborative Diversity Research Project was completed

by other researchers. The main objective of this project was to understand the perceptions and experiences of Colorado State University students as they go through the career development and recruitment/employment process at University. The study was conducted in order to assess barriers that prevent minority students from seeking career development assistance from the Career Center and/or pursuing Hewlett-Packard as a potential employer.

For Part A, the previously done qualitative study, sixty-eight people participated in sixteen focus groups. These focus groups were composed of Colorado State University students (representing the five major ethnic groups on campus--African American, Asian American, Hispanic American, Native American and European American), Colorado State University staff and faculty, Colorado State University graduates who are currently Hewlett-Packard employees, and Hewlett-Packard recruiters. The focus groups' participants discussed their experiences with and perceptions of the Colorado State University Career Center, the Hewlett-Packard recruiting process, and academic preparation/faculty relations at Colorado State University. In addition, they discussed the impact of their gender and/or ethnicity on their experience at Colorado State University.

Prevalent themes arose from the focus groups' discussions. The groups identified inhibiting factors related to ethnicity, gender, and age in student perceptions of the Career Center, Hewlett-Packard recruitment, and academic preparation/faculty relations. Concerns related to the Career Center indicated that the Career Center has low visibility, is inefficient, and is perceived as not welcoming to students of color. Furthermore, the Career Center is perceived to serve only engineering students, business

students, and seniors looking for permanent employment, and excludes graduate students, older students, and some minorities groups. As well, the Career Center's Career Fair is perceived to be conducted primarily for engineering and technology students.

Concerns related to academic preparation/faculty relations included faculty sensitivity to age, gender, and ethnicity issues and a desire for more faculty who are of the same gender and/or ethnicity. Other concerns included faculty advising, faculty accessibility to students, and mentoring. Concerns related to Hewlett-Packard recruitment identified issues related to screening criteria for interviews, students' desire for a personal connection with the interviewer, lack of timeliness between the interview and the outcome, open information during the process, and diversity issues.

The current research project, the Student Awareness and Satisfaction with Career Services, Job Recruitment, and Academic Preparation, builds on the prevalent themes identified in the qualitative study (Part A) and will include the wider population of the University. The study will examine how the current career development and the recruitment/employment processes impact both ethnic minority and majority students at Colorado State University based on age, ethnicity, gender, and student level. In addition, the study will ascertain student awareness of and satisfaction with the Colorado State University Career Center services and Hewlett-Packard's recruitment efforts and programs at Colorado State University based on age, gender, ethnicity, and student level. Lastly, the project will ascertain student satisfaction with their academic preparation and relations with faculty at Colorado State University based on age, gender, ethnicity, and student level, as well as the perceived impact of diversity issues.

## Statement of the Problem

The first part of the research problem is to investigate students' current level of awareness and satisfaction with services provided by the Colorado State University Career Center, with Hewlett-Packard's recruitment efforts and programs at Colorado State University, satisfaction with academic preparation and student-faculty relations at Colorado State University, and the perceived impact of diversity (age, ethnicity, and gender) issues. The second part of the research problem is to investigate whether a relationship exists between student age, gender, ethnicity, or student level and student awareness and satisfaction with four areas of students' experience at Colorado State University: career development activities with the Career Center, recruitment activities with Hewlett-Packard, academic preparation and student-faculty relations, and the perceived impact of diversity (age, ethnicity, and gender).

## Research Questions

The research questions to be considered are:

1. What is the current level of awareness of services offered by the Colorado State University Career Center?
2. What is the current level of satisfaction with services offered by the Colorado State University Career Center?
3. What is the current level of awareness of Hewlett-Packard's recruitment efforts and programs at Colorado State University?
4. What is the current level of satisfaction with Hewlett-Packard's recruitment efforts and programs at Colorado State University?
5. What is the current level of satisfaction with academic preparation at

Colorado State University?

6. What is the level of satisfaction with the sensitivity to age issues at Colorado State University?
7. What is the level of satisfaction with the sensitivity to ethnicity issues at Colorado State University?
8. What is the level of satisfaction with the sensitivity to gender issues at Colorado State University?
9. What are the relationships of age, ethnicity, gender, and student level with student current level of awareness of services offered by the Colorado State University Career Center?
10. What are the relationships of age, ethnicity, gender, and student level with student current level of awareness of Hewlett-Packard's recruitment efforts and programs at Colorado State University?
11. What are the relationships between age, ethnicity, gender, and student level with student level of satisfaction with services offered by the Colorado State University Career Center?
12. What are the relationships between age, ethnicity, gender, and student level with student current level of satisfaction with Hewlett-Packard's recruitment efforts and programs at Colorado State University?
13. What are the relationships of age, ethnicity, gender, and student level with student current level of satisfaction with academic preparation and student/faculty relations at Colorado State University?
14. What are the relationships of age, ethnicity, gender, and student level

with student satisfaction with sensitivity to age, ethnicity, and gender issues at Colorado State University?

As will be seen in Chapter 3, data analysis necessitated a re-conceptualization and revision of the scales. This lead to changes in the phrasing of some of the research questions.

## Definition of Terms

Academic preparation includes coursework, academic advising, and interactions with professors.

African American is an American of African ancestry having origins in any of the black racial groups of Africa (except those of Hispanic origin).

Asian Pacific American is an American of Asian ancestry having origins in any of the original peoples of the Far East, Southeast Asia, the Indian Subcontinent, or the Pacific Islands.

Career Development is a lifelong process developing beliefs and values, skills and aptitudes, interests, personality characteristics, career exploration, knowledge of the world of work, and the development of work-related job skills (Zucker, 1986).

Diversity is distinct characteristics, qualities, or elements, such as culture, race, gender, and age. In this case, specifically ethnicity, gender, and age.

Ethnicity is a common and distinctive ancestry, national, religious, linguistic or cultural heritage. Different ethnic groups may exist within a racial group.

European American is an American having origins in any of the original peoples of Europe, North Africa, or the Middle East (except those of Hispanic origin).

International student is a person who is not a citizen or national of the United States and who is in this country on a temporary basis.

Internship is an organized and supervised work experience in a workplace designed to develop a student's knowledge of and skills in that particular type of work.

Latino/Hispanic American is an American of Hispanic or Latin American ancestry having origins in Mexico, Puerto Rico, Cuba, Central or South America, or in other Spanish cultures regardless of race.

Majority is the racial group that historically has represented and had access to power in United States institutions, typically European (white) Americans.

Minorities are the racial or ethnic groups that have been historically under-represented in United States institutions, typically Asian Americans, African Americans, Hispanic/Latino Americans, and Native Americans.

Native American is an American having origins in any of the original peoples of North America or Hawaii, and who maintains cultural identification through tribal affiliation or community recognition.

Recruitment is the process companies use to hire employees including developing a sourcing pool, screening, and interviewing prospective employees.

## Delimitations

According to Creswell (1994, p.110) delimitations "establish boundaries and narrow the scope of a study." The following delimitation is made with respect to this research. The scope of this study is to investigate students of Colorado State University in order to determine if relationships exist between student age, ethnicity, gender, and

student level and student awareness and satisfaction with career development services, with recruitment activities by a major employer, and satisfaction with academic preparation/faculty relations as well as sensitivity to age, ethnicity, and gender issues at Colorado State University.

## Limitations

The following limitations are made with respect to this research:

1. This study is limited to approximately 500 freshman, sophomore, junior, senior, and graduate students of Colorado State University.
2. Although the participants will represent each ethnic group in approximately the percentage they represent of the Colorado State University student population, given the low percentage of minority students enrolled at Colorado State University, the findings may not be generalizable to universities with higher percentages of minority students.
3. The analyses of data are limited to the responses to a questionnaire from minority and majority students at Colorado State University.

## Assumptions

1. Diversity of the student population in the United States will continue to grow at the rapid rate predicted by various researchers.
2. "The University has a fundamental responsibility to offer equal educational opportunities to all individuals with the courage, desire and dedication to pursue an education and fulfill their aspirations and dreams in a democratic and pluralistic society" (Colorado State University, 1998, p.1).

3. A well-educated female and minority population is essential to the social and economic prosperity of this country.
4. The respondents in the survey truthfully answered the questionnaire statements.

## Significance of the Study

The principal significance of this research resides in the accumulation of data on self-reported student satisfaction and awareness of the Colorado State University Career Center services and the Hewlett-Packard's recruitment process and programs at Colorado State University. In addition, student satisfaction with academic preparation and relations with faculty at Colorado State University is significant. This information should help to determine if the current Colorado State University services and programs promote or hinder ethnic minority and women students in their career development and employment processes especially in the areas of business, engineering, and computer science. Further, the results of these data should help Hewlett-Packard to determine if its recruitment efforts and programs meet their diversity recruitment goals for minorities and women at Colorado State University. Finally, it may be possible to generalize these results to Hewlett-Packard's other sites around the country.

# CHAPTER II

# REVIEW OF LITERATURE

## Introduction

The purpose of this chapter is to present a review of literature related to the career development and the recruitment/employment process for students of color and women students in higher education. The literature will be organized into six primary sections: historical view of minority groups and career development; identity and career development of ethnic minorities and their experience with career centers; the impact of faculty on minority students; career development of women and their experiences with career centers; career development of ethnic minority and women students in business, engineering, and computer science; and recruitment/employment of ethnic minorities and women. The final section will relate to efforts toward removing barriers for ethnic minorities and women toward fostering diversity in business, engineering, and computer science enrollments.

## Historical View of Minority Groups and Career Development

In order to understand the career development process for ethnic minorities, it is helpful to review the history of their minority status and how it impacts their perception of the White American education system. Fuchs (1990, p.5) speaks of "voluntary pluralism" in which White Europeans were encouraged to immigrate to the United States, accept the American identity and participate in the political life while maintaining their

ancestral cultures and religious affiliations and the exercise of civil rights. Fuchs (1990) also speaks of the exclusionary aspects of the United States system in the form of "caste pluralism," White domination over Blacks; "predatory tribal pluralism," White domination over (American) Indians; and "sojourner pluralism," immigration restrictions on Asian and Mexican immigrants that restricted their membership in the civic culture.

Ogbu (1990) has conducted extensive research on minority education seeking to account for the reasons why some minority groups perform poorly in academics while other minority groups perform much better. Ogbu (1990) and Deloria (1981) made distinctions between types of minorities and how their perceptions are shaped by the way they immigrated or were brought into the United States and how they were treated by White Americans, including institutional treatment such as through the education system.

Ogbu (1990) classified "voluntary" minorities, such as most Asian Americans, South American Latinos, and Cubans as those who immigrate or choose to come to the United States for economic and/or political reasons in the hope of a better life for themselves and their children. They may be refugees, forced to leave their homeland for various reasons (primarily politics, or economics), but they do not perceive that White Americans forced them to come to the United States. They identify with the people in their homeland, not White Americans or other minorities. They retain a sense of who they are after they immigrate and view their social identity as being different than, but not opposed to, the identity of White Americans. Their cultural backgrounds and social identities enable voluntary minorities to view their low socioeconomic status and the prejudice and discrimination they face as temporary. They tend to perceive education

and individual effort as the major ways to improve their economic status and fully expect to succeed in the American culture (Obgu, 1990).

Ogbu (1990) classified "involuntary" minorities, such as Native Americans, African Americans, and Latino/Hispanic Americans (of Mexican and Puerto Rican ancestry), are people who became part of the United State through slavery, conquest, or colonization. Collectively, they resent the loss of their ancestral freedom and cultural identity and perceive the economic, social, and political barriers against them as undeserved oppression. To them, the prejudice and discrimination they face seems permanent and institutionalized. They perceive their social identity as different from and as opposed to that of White Americans. Additionally, involuntary minorities have struggled with discrimination that has denied them access to education, and ultimately, the ability to improve their socioeconomic status. Because of discrimination and other educational policies, education programs may be viewed with some trepidation and distrust by involuntary minorities (Ross-Gordon, 1990; Martin, 1990). Because of socioeconomic factors and their efforts to preserve their cultural identity, many involuntary minorities have not been fully assimilated into the dominant culture. This necessitates that education helpers be sensitive to multicultural issues such as cultural and language differences that give minorities a sense of group identity yet impact learning, communication, and interaction styles (Ross-Gordon, 1990; Ogbu, 1990).

Oppressed groups in this country have progressed from a time when the lack of options for their group was accepted to a time when many groups have organized to change and increase their options (Schlossberg, Waters, & Goodman, 1995). This fight has been further complicated by the psychological factor inherent in the perception of

one's options. As stated above, because of generations of discrimination in education, jobs, and wages, some minority groups may still perceive a lack of options.

Sussman (as cited in Schlossberg et al. 1995), who developed "an option-maintenance model," suggested that the number of options people have influences their feelings of success when dealing with transitions such as career development. However, these options may be structural, related to actually available options, or psychological, related to what the individual perceives his/her options to be. The individual's perception of his/her options may be objective (e.g., at one time there were few professional jobs for minorities) or subjective (e.g., because I am a minority I will not apply to medical school). It is often difficult for the individual to distinguish between real options and what he/she perceives to be real options (Schlossberg et al. 1995). Nonetheless, career development activities can help people to identify new options, such as access to higher education, thereby continuing efforts to achieve greater equality.

## Cultural Values and Use of Career Development by Ethnic Minorities

Given this history of ethnic minority groups and career development, it is also important to recognize and to be sensitive to cultural differences in how they may view education and career development and how their needs may affect their experiences with career centers (Ivey, 1991). In order to avoid stereotyping, one of the important tasks of career development professionals is to sort out what are individual and what are cultural characteristics in the career development process. Ultimately, regardless of their race, ethnic background, or culture, individuals are more alike than they are different (Vontress, 1979). Yet cultures do impact individuals. It is, therefore, important to

balance appreciation of cultural influence with a focus on an individual and his or her career needs.

Ivey (1991) described minority identity development theory that suggests five developmental stages of African Americans, women, and other cultural minorities. Stage One of this paradigm, conformity to the status quo, is evidenced by appreciation of the dominant group and lack of appreciation of self or for one's own group. Dissonance, Stage Two, is evidenced by conflict between appreciation of the dominant group and awareness of inequities toward minorities in society. Stage Three, resistance and immersion, is evidenced by respect of self and one's own minority group and anger towards the dominant group. Introspection, Stage Four, is evidenced by a focus on pride in self as well as the heritage of one's own group and less focus on the dominant culture. Stage Five, synergetic articulation and awareness, is evidenced by respect for self and one's own group, as well as other minority groups, and a more selective view of the positive and negative aspects of the dominant group. Each of these stages has potential impact on the minority person's attitudes toward members of the same minority, toward other minority groups, and toward the dominant group.

The stages of minority identity development can indirectly influence academic achievement and have implications and challenges for majority group helping professionals in education. For example, the stages of minority identity affect the individual's self-concept, which has been shown to impact academic achievement (Love, 1993). For instance, a minority youth in the early stage of identity development may feel that in order to succeed, he or she must repudiate his/her cultural peers, cultural identity, and all of his/her cultural frames of reference. Conversely, a minority youth, also in an

early stage of identity development, may resist academic striving, conformance with standards of conduct, or anything within the White cultural frame of reference because to do so would be to "act White" and he or she might lose peer respect (Ogbu, 1990). The majority group professional may need to devise alternative ways to provide services even to the extent of referring the client to a helper of the same minority group (Ivey, 1991). Awareness of these specific stages and general multicultural awareness has specific implications for professionals working with minority groups.

For example, many Native Americans tend to be wary of mainstream educational services. For generations of Native Americans, mainstream education has represented a loss of language, family, and culture, in short, assimilation into the White culture (O'Brien & Zudak, 1998; Sims, cited in Rodriquez, 1997). It is crucial, therefore, that career counselors be sensitive to Native American students' orientation and strong desire to retain symbolic aspects of their culture (Zucker, 1986). Forbes (1973) has suggested that Native Americans generally have a different life perspective than many people in the dominant society because of their culture and value systems. According to Forbes, Native Americans generally place little value on the acquisition of wealth, the possession of material goods, or to the status of those who achieve wealth. Furthermore, Native Americans may be uninterested in the control of others, and may maintain an extremely democratic lifestyle.

Moreover, in addition to economic and social disadvantages geographic and cultural isolation greatly affect both access to higher education and academic achievement of Native Americans (O'Brien & Zudak, 1998). While comprising less than one percent of the United States population, about a third of the Native American

population lives on reservations often in isolated areas with few available jobs, with high rates of poverty, substance abuse, and suicide which further impacts academic achievement (Hodgkinson, 1992; O'Brien & Zudak, 1998). Their isolation is compounded by the enormous diversity within the more than five hundred tribes in the United States, and with the cultures of the tribes from different regions of the country, the Pacific Northwest and the Southwest for example, being vastly different. (Ivey, 1991; O'Brien & Zudak, 1998). Many Native Americans have been alienated by the competitive nature of historically white colleges and the academic studies that bear little relation to life on the reservation and are/or counter to the Native American culture.

Sims (as cited in Rodriquez, 1997) maintains that education is a traditional enemy of Native American people. The reason for the adversarial relationship is the boarding-school experience that forced Native American students to give up their cultural heritage. It is not surprising, then, that McAfee and Belgrade (as cited in Rodriquez, 1997) have found that many Native American students "step in and out" of college several times before receiving their baccalaureate degree. McAfee and Belgrade have also found that strong cultural identity (being grounded in their traditions) is key to the greater chance of Native American student graduating. Therefore, by being sensitive to Native American culture and value systems and the unique individual, professionals may help to facilitate the career development of Native American students (Ivey, 1991).

Latino/Hispanic Americans form the second largest ethnic minority group in the United States and one that is rapidly growing (Drummond & Ryan, 1995). However, because the term Hispanic covers many national origins, races, and cultures, the diversity within the group hinders a formulation of clear implications for career counselors beyond

simply being aware of the enormous variety of ethnic cultures who have a Spanish heritage (Benitez, 1998; Drummond & Ryan, 1995).

Given the varied cultures of Latino/Hispanic Americans, it would be easy to overgeneralize about Latino/Hispanic American students. Generally, Latinos do have strong family ties and are therefore less mobile than some other ethnic groups. Many Latino/Hispanic Americans cling to their traditional culture, which may cause difficulties in adjusting to school and the dominant culture (Zucker, 1986; Ogbu, 1990). In some states, Latino/Hispanic Americans experienced legal prohibitions that at one time limited their access to higher education similar to those imposed on African Americans (O'Brien & Zudak, 1998). Consequently, some Latino/Hispanic Americans may need increased support from career development services for basic skill building, including English language proficiency for recent immigrants.

African Americans are the largest of the ethnic minority groups in the United States, and approximately 80 percent live in urban areas (Drummond & Ryan, 1995). Vontress (1971) suggested that some African American students may have difficulty in adjusting to college, especially on predominantly White campuses where they experience loneliness and a sense of isolation. This may be compounded by feelings of frustration due to inadequate academic preparation and the perception that faculty are not interested in them and are unapproachable. Some African Americans, especially in predominately White areas, may have negative self-image and cultural identity due to lack of opportunities and loss of cultural heritage. Some may also engage in compulsive behavior such as perfectionism in order to disprove stereotypes of the Black image. Because African American self-concept influences academic achievement (Love, 1993),

therefore, career counselors should be sensitive to the impact of cultural influences on African American students' behavior and affect in order develop appropriate counseling interventions to facilitate their career development process.

Cheatham (1990) suggested that the western world view of autonomy and independence conflict with the cultural values of African Americans. The western world view values competition, the individual, and emphasizes rigid adherence to time. Furthermore, the western world view assumes cultural homogeneity, that all groups have the same beliefs, attitudes, and values, and that there is a common understanding of the meaning of different concepts such as work. The African American culture emphasizes interdependence of the group, rather than independence of the individual. Cooperation and communalism are valued instead of competition. Therefore, some African Americans may find themselves at odds with the values of mainstream culture as well as being the objects of prejudice, discrimination, racism, and classism. This situation not only inhibits career options but also may contribute to the negative self-image of African Americans.

Of significance to career centers is the fact that many African Americans and Latino/Hispanic Americans may believe that they have very little choice in their career development (Durodoye, Bodley, & Hildreth, 1997). Minorities who choose traditional social careers, such as education and the social sciences, need to be encouraged to explore alternative careers. However, Cheatham (1990) suggested that one reason for the over-representation of African Americans in education and social sciences might be due to their cultural value of working with others instead of in competitive fields. At any rate, insufficient career information, career awareness, and career planning results in

under-representation of African Americans and other ethnic minority groups (except Asian Americans) in certain areas such as science, mathematics, engineering, and computer science (Smith, 1980).

Asian Pacific American is a broad, inclusive term that includes Asian Americans and Pacific Islanders and encompasses many ethnic groups, national origins, languages, life experiences, education levels, and social classes (Hune & Chan, 1997). Asian immigrants over the past century have been exposed to discrimination in education, employment, wages, and housing, as well as racial attacks, harsh immigration, and naturalization laws.

Refugee immigrants from war-torn countries of Southeast Asia also represent many ethnic groups, national origins, languages, life experiences, education levels, and social classes and present different challenges than immigrants from East Asia and those who are many generations American-born (Hune & Chan, 1997). Ethnicity data too often clumps all Asian Pacific Americans under "Asian American" without regard to the country of origin. The implication for helping professionals in education is the varied educational aspirations and attainment between the various groups of Asian Pacific Americans. Additionally, Asian Pacific Americans are stereotyped as the "model minority" especially in terms of academic achievement in engineering, mathematics, and science. This stereotyping can put undue pressure on Asian Pacific Americans to live up to the stereotype while they have academic needs such as English language and mathematics proficiency that are not addressed by educators (Hune & Chan, 1997).

Kaneshige (1979) identified some characteristics associated with Asian Pacific American ethnic groups that are evidence of conflicts between the cultural values of

Asian Pacific American ethnic groups and the values of the Western world view. The Asian Pacific American culture values humility and modesty, will power, and control of verbal and emotional expression, as well as family honor, acceptance of authority, and avoidance of conflict. Therefore, Asian Pacific Americans tend to be reluctant to talk about personal achievements or shortcomings. Culturally, the group is more important than the individual, thus, since the discussion of family issues with outsiders might bring dishonor to the family name, it is inappropriate. Because of these cultural values, Asian Pacific Americans tend to misinterpret the role of counseling and its benefits.

In order to encourage the use of career services by Asian Pacific Americans, Swirkowski (1997) suggested that a distinction should be made between the use of career counseling services to further education and career goals versus the use of counseling services to resolve personal or family conflicts. This is because many Asian Pacific American students may stay away from a counseling center for cultural reasons if it addresses personal concerns.

Swirkowski (1997) interviewed three Hmong (from Laos) male university immigrant students and concluded that these cultural attitudes did influence the students' decisions to use the career center. One student was not aware of counseling services, another was aware but had not used them, and the third was aware of the services and had received help in career counseling; for the other two students it was not appropriate to speak to outsiders about problems. Therefore, by highlighting the non-personal nature of career counseling, professionals may increase the comfort level of Asian Pacific Americans' when visiting career development centers.

## Impact of Faculty on Students of Color

Research suggests that African Americans feel isolated in most United States colleges and universities. In a study comparing African American women at an historically Black university to African American women at a predominantly White university, researchers concluded the African American students at the predominately White university did not feel a sense of belonging to their campus (McCowan & Alston, 1998). Gossett, Cuyjet, and Cockriel (1998) found in another study that African American students felt marginalized, disconnected, insignificant, and not needed on their predominately White campus. African American students commonly feel ignored in classroom discussions and isolated from the social life of the campus (Love, 1993).

McCowan and Alston (1998) also found that half of their African American respondents did not feel comfortable with the faculty at predominantly White universities. African American students often perceive White faculty to be uninterested in them and to be unavailable to them for either social or academic interactions (Love, 1993).

Taylor and Olswang (1997) found that a diverse and supportive faculty can promote a positive match between African American students at predominantly White institutions. However, because mentoring relationships form most often between faculty and students of the same gender and ethnicity, the low percentage of African American faculty is discouraging, especially in scientific and technical fields (Taylor & Olswang, 1997). Increasing faculty ethnic diversity is a part of providing a welcoming college

environment, and therefore may lead to greater retention and graduation of minority students (Neisler, 1992).

Research has shown that college student socialization in the college environment is also correlated to retention and academic progress (Nettles & Johnson, 1987). A predictor of socialization has been found to be student contact with faculty. Strong student/faculty relationships thus have a positive influence on student socialization. When students feel faculty members care about students and show interest in them outside the classroom, they are more likely to show interest in their academic coursework (Griffin, 1992; Love, 1993). Their extracurricular student/faculty interactions can take many forms, leading to a mentoring relationship or allowing the student to acquire a better understanding of the classroom information.

Endo and Harpel (1982) stated that informal contact between students and faculty, in which faculty members develop more personal relationships with students and demonstrate concern for their emotional growth, influences not only the students' personal and social development but also their intellectual achievement. This informal connection in turn influences the students' overall satisfaction with their college experience. The frequency of informal student-faculty contacts outside of class has a positive effect on persistence and learning (Griffin, 1992; Love, 1993) and provides a powerful incentive for faculty to increase those contacts with their students.

From a very personal perspective, Massey (1992) relates the story of a 16-year-old African American student who was considered promising enough to attend Morehouse, an historically Black college. Although he had a supportive family and good and dedicated teachers, he was not prepared academically for college. He probably

would not have graduated had it not been for a physics teacher who mentored, guided, and challenged him until he graduated with a degree in physics. When this student began his doctoral program in physics, he again was academically unprepared in math. Once more a mentor, in this case an older Ph.D. student, worked closely with him during the first semesters and supported him throughout the next several years, teaching him self-discipline and perseverance. When the student became disconsolate about completing the thesis process, he went to his advisor and said that he wanted to quit. This time the advisor served as mentor and helped preserve the student's career. This student went on to become a researcher at two different universities, the director of Argonne National Laboratory, and then became the director of the National Science Foundation. The student was Massey himself. All three of his mentors were white.

Calvin Sims (1992) who graduated from Yale in 1985 with a degree in mechanical engineering and who currently reports on the world of science as a business and technology reporter for The New York Times relates his similar experiences in pursuit of a science degree. Sims, an African American, grew up in a poor inner-city community of Los Angeles with high crime rates and inadequate public education. However, Sims' father, an industrial engineer, sparked Sims' interest in science when he was young.

Sims' first encounter with people of science who questioned his ability because of his background occurred when he was picked as a finalist in a science fair. Although Sims had worked independently for months on his project and explained it well to the judges, he was given an honorable mention instead of a prize because the judges didn't believe Sims had done the project. The second was in his first week at Yale. During the

first meeting with his advisor, an engineering professor, the advisor suggested that Sims might get more from Yale if he studied humanities. The advisor also suggested that Sims would probably find himself outclassed at Yale, especially in engineering.

Sims did not quit, but due to poor performance in engineering classes in his sophomore year, he thought about changing his major to English or history. That summer, he received an encouraging letter from his new advisor, who subsequently mentored him and inspired him to successfully complete his degree in engineering.

While these two cases do not a study make, they do suggest the value of personal student-faculty relationships. Too often faculty members look at minority students and assume they are inadequate and discount the minority student's potential for growth (Massey, 1992). Too few faculty have the time or take the time to determine if the minority student has potential. When faculty do connect with their minority students, however, students can be motivated to achieve success.

## Career Development of Women

Prior to the 1960's, women traditionally did not work outside the home; they were socialized to focus on homemaking and child rearing (Allen, 1995). When women began working outside the home, the career fields open to them were in the so-called helping professions: teaching, nursing, or assisting administrators. Consequently, the general developmental patterns of women appear to differ from the life-stage patterns of men (Zucker, 1986). Partially because of the social and career limitations they face, gender-role stereotyping, women's self-identity has been slower to develop than men's. Until recently career choice as well as career development for women has been given a

secondary priority by society. Zucker (1986) suggested women's difficulty with career development issues has been associated with women's confusion about their roles and their lack of role models and support systems.

Due to the advent of the women's movement, federal civil rights legislation that prohibit discrimination based on gender, and economic conditions, many women have entered the work force (Zucker, 1986). It is projected that by 2006, women will account for slightly more than 47 percent of the labor force in the United States (Bureau of Labor Statistics, 1998). The work participation rate for women 20 to 65 years old is projected to increase as well.

Notwithstanding changes in recent years, Schlossberg et al. (1995) suggested that many girls in our society are still socialized to assume the traditional female role to be passive, dependent, and nurturing; whereas boys are typically socialized to assume the traditional masculine role to be active, independent, and aggressive. Thus, many women's identities are defined through those of their fathers, husbands, and children rather than through their own accomplishments. Many women, therefore, perceive themselves primarily in such roles as wife, mother, and homemaker; even those with jobs outside the home may de-emphasize their role as a worker in favor of that as a family nurturer.

Gutek and Larwood's (1989) summary of research of women's career development stated several reasons why they believe women's career development is now, and will continue to be different from men's career development. The first reason is society has different expectations for men and women regarding the appropriateness of jobs for each gender which limits women's options for job preparation. Secondly, wives

are more willing to accommodate themselves to their husbands' career needs than vice versa which can lead to the interruption of women's careers. A third reason women's careers will remain different from men's is that in this society, the parent role is defined differently for men and women; the mother role requires substantially more time and effort than the father role. For example, the mother is generally the parent who is responsible for arranging child care and for attending to ill children. Finally, women face more constraints than men in the workplace, including discrimination and stereotypes detrimental to their career advancement.

Moreover, all women face both internal and external barriers to success in work (Schlossberg et al., 1995). Many women's socialization to the more traditional female role creates internal barriers to their success in work. External barriers are the fact that generally, women do not yet receive equal pay with men for comparable jobs. Furthermore, women also have limited access to certain occupations or certain levels of responsibility, the so-called glass ceiling effect.

The career development of two subgroups of women—ethnic minority women and women over 40—is further complicated by cultural and family responsibility constraints. Ethnic minority women are often disadvantaged due to their lack of information about the world of work (Bingham & Ward, 1994). Further exacerbating minority women's career development is their cultural socialization which is often negative due to the combination of racism and sexism; the need for family support and approval; the influence of community, role models, and language; and family obligations that often include expended family (Bingham & Ward, 1994).

McCowan and Alston (1998) concluded from their study of first year and senior African American women at an historically Black university and a predominantly White university differences in career maturity to the two groups. While the African American women at the predominately White university appeared to have greater career maturity, the predominately Black university group appeared more naïve about predominately White work environments. McCowan and Alston concluded that both groups were in need of group-specific career advisement and suggested that programs specifically for African American women students would be beneficial in their career decision-making. Career counselors also need to pay careful attention to nontraditional women students' career development needs in order to facilitate their successful career and educational attainment.

The Digest of Education Statistics (1991; 1993) shows a trend of increasing numbers (more than 8 percent increase between 1987 and 1991) of women 40 years old and older enrolled in bachelor's degree programs. This trend is expected to continue through the end of the century (U.S. Department of Education, 1991 and 1993).

Schlossberg et al. (1995) suggest that culture, behavior, transitional, and life span changes impact adult career development. This is especially true for women who reached adulthood between the late 1950's and the early 1970's. They typically were not encouraged to seek a career but pursued a traditional role of homemaking, expecting their marriages to last into old age. However, contrary to their expectations, women of this generation often find themselves undergoing widowhood, divorce, or other transitional changes that require them to enter the work force. Such transitions create special needs that also must be addressed by career development professionals and career centers.

Allen (1995) interviewed 21 women of at least 40 years of age and who had graduated from college after 1992. None of the women had visited their college career center nor participated in any of the personality inventories or tests career centers offered. The reasons given for nonparticipation were being unaware that services were available for older students, not realizing they were free of charge for all students, and the perception that the career center served only the traditional-age student seeking a first career.

In another study of nine white women of at least 40 years of age and who had graduated after 1992, Allen (1995) found the women all described a similar lack of support and resources to help them deal with their multiple roles as mothers, wives and students. Career centers offered few services to assist them and, therefore, were not used by these students.

Allen (1995) proposed several suggestions based on the results of her study. First, colleges and career centers need to place greater emphasis on the career development of older women. Second, career centers should not just administer career choice or personality inventories that steer women into the traditional female career positions. Third, women should be encouraged to use their leadership and management skills to pursue careers in non-traditional fields. Fourth, career centers need to advertise their services to older graduates and provide them with career counseling and job hunting assistance. Fifth, career centers should provide services such as workshops on networking, workplace politics, and social opportunities for older women to meet successful alumni. The clear implication is that career center professionals need to

increase their sensitivity to the multiple roles of nontraditional women and the complications associated with their future career development.

## Career Development of Students of Color and Women Students in Business, Engineering, and Computer Science

### Overview of Educational Gains of Students of Color and Women

Twenty years ago, Smith (1980) reported that most members of ethnic minority groups had majored in and sought employment in social sciences, especially teaching and social work. However, minority representation in higher education was low, both in terms of enrollment figures and degrees granted in almost all four-year degree programs in the sciences and engineering. Furthermore, minority representation was even lower at the master's and doctoral level. Asian Americans were the exception to these trends, both at the bachelor's level and at the master's and doctoral levels.

The numbers of ethnic minorities enrolling in higher education are increasing. According to Carter and Wilson (1997) in the Annual Status Report of Minorities in Higher Education, college enrollment of students of color has seen steady increases between the mid-1980's and 1995. Their enrollment increased slightly less than 68 percent from 1984 to 1995, including a slightly more than 29 percent increase since 1990.

Furthermore, Carter and Wilson (1997) reported that between the late 1980's and 1994 students of color have shown gains in the numbers of degrees earned in all four degree categories: associate, bachelor, master, and doctorate. Between 1993 and 1994 students of color had a combined increase of nearly 10 percent in the number of associate degrees earned, 8.5 percent in the number of bachelor's degrees, 11 percent in master's degrees, and almost 10 percent in doctoral degrees.

Nonetheless, students of color and women still prefer education and social science. Carter and Wilson (1997) reported that students of color still appear to choose education and social sciences as majors, showing double-digit gains in degrees conferred in these areas between 1993 and 1994. These gains were shown at both the bachelor and master's degree levels. Female freshmen are more likely to plan a major in professional fields such as education, social sciences, or humanities than their male counterparts (Bae & Smith, 1997). Women are also less likely than men to earn a bachelor's degree in computer science or engineering.

Although the numbers of students of color are increasing in business, engineering, and computer science, more direct development is needed. Despite the large percentage of increases reported, the number of actual people (students of color and women) graduating in these disciplines is still small.

Students of Color and Women in Business

Enrollments of students of color and women in business are increasing at the bachelor's level. The U.S. Department of Education National Center for Education Statistics (1996) show that between 1985 and 1994, students of color exhibited a total increase of nearly 64 percent in the number of bachelor's degrees awarded in business. This reflected a 51.6 percent increase for minority men and a slightly more than 74 percent increase for minority women.

Master's level enrollments of students of color and women are also increasing. The National Center for Education Statistics (1996) also shows that between 1985 and 1994 students of color showed a total increase of nearly 108 percent of the number of master's degrees awarded in business: almost a 75 percent increase for men and nearly

171 percent increase for women. Despite the large percentages of increases reported, the actual number of degrees awarded to students of color and women at both degree levels in business remains low.

Students of Color and Women in Engineering

Ten years ago, the enrollment of students of color and women at all degree levels of engineering was shown to be increasing. The Engineering Manpower Commission's annual survey of engineering enrollments for 1988 indicated increases in the participation of students of color and women in engineering at the bachelor's, master's, and doctorate levels (Ellis, 1989). The number of Asian American students (who are not underrepresented in the engineering profession) also increased in 1988 at both the undergraduate and graduate levels.

Although the number of students of color graduations in engineering were increasing between 1993 and 1994, they showed the slowest growth rate in the number of engineering degrees earned at both the bachelor's and master's levels, (Carter & Wilson, 1997). At the master's level, engineering was the only degree category in which students of color did not experience double-digit increases for the year.

Bachelor's level engineering degrees awarded to students of color continue to increase. The National Center for Education Statistics (1996) showed a total increase of over 37 percent for bachelor's degrees in engineering awarded to minorities. This was almost a 33 percent increase for minority men and a 56.5 percent increase for minority women.

Showing the continuing increases in engineering degrees awarded to students of color and women, the Engineering Workforce Commission's survey of degree awards

(1997) reported that in 1996, women accounted for 18 percent of the new bachelor's degrees in engineering. Underrepresented African Americans, Latino/Hispanic Americans, and Native Americans accounted for slightly less than 11 percent of new bachelor's degrees in engineering. The share of all of the engineering bachelor's degrees earned by underrepresented minorities has almost tripled in the last generation. Furthermore, continuing this same trend, increases in master's level engineering degrees awarded to students of color and women were reported by the National Center for Education Statistics (1996). A total increase of more than 75 percent was reported for master's degrees awarded to all minorities, which reflected more than a 56 percent increase for men and more than a 208 percent increase for women. Again, although the increased engineering degrees awarded to students of color and women are welcomed, the large percentages reported do not equate to large numbers of actual people.

Asian Americans are a notable exception to minority underrepresentation in engineering. The Engineering Workforce Commission (1997) also tracks Asian Americans, who, though not underrepresented in the engineering profession, are still subject to discrimination. Asian Americans are active in all areas of engineering but are concentrated in electrical and computer engineering where they account for slightly more than 18 and 21.5 percent, respectively, of all domestic undergraduate degrees. Asian Americans also account for a large portion of master's and doctoral degrees in electrical and computer engineering.

The attrition rate is high among students of color in engineering. Although enrollment of minority freshmen in engineering programs has increased more than six-fold during the last two decades, attrition continues to remain high (Morrison, Griffin, &

Marcotullio, 1995). Attrition is excessive for all engineering students and is disproportionately high among African Americans, Latino/Hispanic Americans, and Native Americans, who are underrepresented in engineering and other science-based fields. Over the past ten years while almost 45,000 students of color earned bachelor's degrees in engineering, more than 75,000 dropped out. This speaks to the need for more support services for students of color in order to aid their academic attainment and retention.

While underrepresentation of all women and students of color in engineering is still a concern, the severity of the underrepresentation of minority women is of even greater concern. Even with the large percentage of growth in degrees awarded, women and minorities are still underrepresented in science and engineering (NSF, 1996). Engineering and physics are the most exclusive male domain among the science-based disciplines, and minority women remain the most underrepresented group, a symptom of the effects of racial and gender discrimination (Campbell, 1996). At 15 percent of the college-age population, African American, Latina/Hispanic American, and Native American women together comprise a sizable minority. Yet minority women comprised only slightly more than 2 percent of total bachelor's degrees in engineering, only slightly more than 1 percent of the master's degrees, and 0.3 percent of doctorates. Obviously, ethnic minority women need more support to encourage their career development in science and engineering fields.

Students of Color and Women in Computer Science

According to a survey of mid-sized and large U.S. companies conducted by the Office of Technology Policy, U.S. Department of Commerce (1997), women, African

Americans, Latino/Hispanic Americans, and Native Americans are underrepresented in the computer and information science education disciplines. Women, who comprise 51 percent of the population and earn more than half of all bachelor's degrees awarded, earn about one-forth of the bachelor's degrees awarded in computer and information sciences. According to DeVoe (1998), African Americans, Latino/Hispanic Americans, and Native Americans are underrepresented in the information technology field, possibly not only because of racism but because members of minority groups have less interest in technology and less access to higher education. Their lack of interest could be related to inadequate academic preparation for college and lack of experience with technological resources.

While part of the problem with underrepresentation of students of color and women students in engineering, business, and computer science is due to ineffective recruitment and support of the students, the point should be made that the problem is exacerbated by the underrepresentation of women and ethnic minorities in the faculties of these disciplines. Despite gains between 1983 and 1993, ethnic minorities remain severely underrepresented among college and university faculty (Carter & Wilson, 1997). They accounted for only slightly more than 12 percent of all full-time faculty in 1993. Both male and female African Americans, Latino/Hispanic Americans, and Native Americans are underrepresented in business, math, science, and engineering faculties. Asian Americans, however, are not underrepresented in the business, math, science, and engineering faculties.

Research shows that advances have been made in the enrollment and graduation rates of ethnic minorities and women in business, engineering, and computer science, but more needs to be done. The next two sections give some possible solutions.

## Recruitment/Employment of Minorities and Women

In a survey of organizations employing new college graduates, Scheetz (1995) found that many organizations did not meet their recruitment/hiring goals on college campuses in 1995 because students wishing to major in certain academic disciplines or with the necessary qualifications were difficult to find. To recruit ethnic minorities, the organizations surveyed advertised in publications targeted to racially and ethnically diverse audiences. In addition, these organizations sent mailings to agencies specializing in services to minorities (Scheetz, 1995). The organizations reported a low supply of engineers of all types, computer scientists in all areas, and business majors in all areas. They also reported fewer women and minority applicants than they had anticipated, especially in engineering, chemical engineering, mechanical engineering, and commercial construction. A particularly low number of minority engineering applicants was also reported.

Despite these continued low recruitment rates, results of the 1994 College Relations & Recruitment Survey (CR&R Survey) found that the most frequently cited change in employers' college relations and recruitment practices between 1989 and 1994 was the increased focus on diversity with a continued emphasis on hiring women and minorities in science and engineering (National Association of Colleges and Employers, 1995). Results suggested that respondents had used various activities to achieve a

diversified work force. The most effective of these activities was to train recruiters in the value of diversity and cross-cultural communication, including interviewing techniques. Other frequently used activities that received a high effectiveness rating were conducting early identification programs for talented minorities, recruiting at historically Black colleges and universities, emphasizing the organization's commitment to diversity through recruitment literature, placing recruitment advertising in targeted publications, and supporting pre-college programs. In addition to these activities, employers suggested that companies need to develop strong, continuing relationships with a variety of campuses, involvement with minority educational programs, and recruitment strategies to attract candidates who will meet their diversity goals.

Many organizations support one or more nationally recognized programs aimed at enhancing minority students' academic preparation and providing support through scholarships and summer internships to increase the number of qualified minority students to meet their recruitment/diversity goals (National Association of Colleges & Employers, 1995). One such program is U S WEST, Inc.'s American Indian Leadership Initiative (AILI). This initiative includes supporting scholarship funds as well as recruiting from Indian tribal colleges. Furthermore, the organization is deeply involved with support of minority student engineering societies that maintain chapters on campuses nationwide and actively supports many minority public service organizations.

JC Penney is also involved in many programs that aid in fulfilling the company's goals for the recruitment and hiring of minority graduates (National Association of Colleges & Employers, 1995). The company is a corporate sponsor of a group that selects minority high school students to learn about the business world as well as a

program where management associates talk to college students about how the retailing business really works. The benefits are twofold: students learn about retail business by interacting with a company manager, and the company promotes its employment opportunities among potential minority recruitment candidates.

Other firms participate in feeder programs for high school students that promote diversity in technical fields (National Association of Colleges & Employers, 1995). For example, AMP Incorporated provides college scholarships to local high school graduates to study within a technical discipline. AMP also participates in internship programs for minority college students summer positions with the company. Westinghouse Electric Corporation provides summer internships and is participating in a scholarship fund that will provide scholarship aid and possible recruitment opportunities upon graduation for minority students.

KPMG Peat Marwick Foundation plans to award scholarships to minority information systems professionals who are willing to quit their jobs and enter information systems doctoral programs (King, 1997). KPMG hopes those who earn Ph.D.'s stay to teach information technology skills and to attract more African American, Latino/Hispanic American, and Native American students to the profession. The foundation's belief is that minorities are more likely to enter information systems educational programs if more faculty are from their own ethnic backgrounds. It is cost effective to have more minority faculty because businesses would spend less time and money on diversity training if students encountered more diversity at school.

The government, also, has recognized the need to support minorities in areas other than social sciences. In 1991, the National Science Foundation launched its Alliances for

Minority Participation (AMP) (Brennan, 1996). The program was intended to develop incentives to encourage and help minority science students stay in school and to increase the number of underrepresented minorities receiving bachelor's degrees in science, mathematics, engineering, and technology (SMET).

The six colleges that were awarded the first five-year AMP grants in 1991 established alliances with universities and community colleges in order to increase the number of prospective minority science students and to create a nurturing environment that would encourage minority student success (Brennan, 1996). The AMP developed programs such as summer transition programs for students to improve their academic preparation, peer mentoring and study groups, faculty mentoring, and paid undergraduate summer internships. The schools reported increases of approximately double the number of minority SMET graduates between 1991 and 1996.

The presence of minority science and engineering societies on many college campuses provides invaluable cultural and mentoring support, workshops, and networking opportunities, as well as scholarships for minority students (Brennan, 1998). Many professional science societies also fund scholarship programs for minority students and successfully encourage their member organizations to participate in such funding programs.

One hopes that such efforts from businesses, government, and science support groups will continue the recruitment and support of underrepresented minorities in the disciplines of business, engineering, and computer science.

## Remedies to Remove Barriers to Students of Color and Women and to Foster Diversity in Business, Computer Science, and Engineering

Historically, programs aimed at increasing access to science and engineering careers for students of color and women have focused almost exclusively on molding the minority student into the dominant white male form who typically has better academic preparation in mathematics and science (Campbell, 1996). However, very few conscious efforts have been directed toward identifying and eliminating the institutional and cultural barriers that inhibit students of color and women's participation in those disciplines.

Some institutional barriers for students of color and women may include low percentages of women and minorities in a college's student body and faculty and a narrow range of engineering subdisciplines (Campbell, 1996). Other common barriers are ignorance of multicultural issues both by administrators and faculty, local and regional demographics that make students of color feel vulnerable, lack of peer support, ineffective outreach and support programs, as well as financial aid policies that fail to account for students of color and women's financial issues. Many of the institutional barriers to students of color are also barriers for majority students, since a large percentage of all school children have inadequate academic preparation in mathematics and science. "Lack of diversity, itself, among students, faculties, and employees, places restrictions on the engineering profession" (Campbell, 1996, p. 10).

The National Action Council for Minorities in Engineering (NACME) has developed and analyzed data on the minority engineering student retention and graduation rates of higher education institutions since 1981 (Morrison et al., 1995). This analysis showed that a strong commitment to the task of educating minority engineers,

which involved program development and evaluation, allocation of resources, and commitment on the part of faculty and staff, determined the success of the schools. Successful schools carefully identified the barriers to academic performance of minority students and invested significant time and resources to eliminate them.

Analysis showed that Minority Engineering Programs (MEPs) at institutions committed to minority engineering student success have qualified personnel whose role is to promote academic excellence and to enhance the career development of minority engineering students (Morrison et al., 1995). These MEPs do not remediate, rather they sponsor on-campus math and science enrichment programs for young students in their catchment area who become a sourcing pool for applicants to enter the program.

Data showed that institutional commitment to minority engineering education at the most successful schools resulted from the top leadership of the institution. Leadership commitment in some cases resulted in major policy changes (Morrison et al., 1995). One institution changed its faculty reward structure to include teaching method innovation, advising, and classroom teaching as well as research, and included teaching method innovation in the definition of research. Endo and Harpel (1982) suggested that administrators use the faculty reward structure to promote the significance of student/faculty interactions. Massey (1992) also, suggested rewarding faculty for successful teaching as well as creating incentives for them to mentor minority students.

Data from the research have shown inadequate preparation for college and lack of financial resources are barriers to both access and retention of students of color pursuing an engineering degree (Morrison et al, 1995; Canabal, 1995). It is not surprising then that students facing the discouragement and frustration of inadequate academic preparation

and lack of a support structure, coupled with the need to work long hours to meet their financial obligations decide to drop out of college (Canabal, 1995). Since scholarships are so critical to minority engineering students' graduation, the institutions that provide research for industry and the government should find a way to graduate students of color and women engineers who can contribute to the economic vitality and progress of our diverse society (Morrison et al, 1995).

Efforts are also underway in both the private and public sectors to increase women and minorities participation in technical fields (The Office of Technology, 1997). As previously mentioned, the National Science Foundation sponsors programs to encourage minorities and women to enter the fields of science and technology. Professional organizations also support such efforts. Furthermore, members of the Association of Women in Computing participate in a National Science Foundation sponsored telementoring program aimed at encouraging young women to enter technical fields. MentorNet is an Internet-based program that matches mentors working in the field of science and engineering with women students in science and engineering (DeVoe, 1998). An additional example, the Center for Advancement of Hispanics in Science, Engineering, and Education is a program that tutors high school students in math and sciences to academically prepare them to pursue science college degrees.

In the wake of recent legislative decisions, many colleges and universities are demonstrating their commitment to a diverse student and faculty population by maintaining programs and initiatives designed to enhance the recruitment, education, and retention of minority students. One such program allows students to combine a liberal arts program with their technical degree in engineering (Chenoweth, 1997). Moreover,

what was once a remediation program for minority students in engineering has now become an accelerated program that also includes White students. The University of Wisconsin plans to raise funds for minority student scholarships through their private, non-profit foundations in addition to asking the state legislature for money to expand pre-college programs aimed at minority students (Selingo, 1999).

Many institutions demonstrate their diversity commitment by recruiting minorities in leadership positions that include minority presidents of institutions such as an African American woman at Smith College and African American males at numerous colleges and universities including Colorado State University, an African American woman as provost at Stanford, African American and Native American coaches, and minority faculty and visiting minority scholars in the classroom (St. John, Morgan, Roach, Chenoweth, 1997). Other institutions support outreach and academic support efforts to public high schools as well as creating scholarships that do not use race as a criterion yet still manage to support minority students.

According to Campbell (1996), universities must shift the focus from the victimization of discrimination and exclusion to a focus on changing institutional cultures and policies that are barriers to minority and women's academic achievement. The most effective institutional tool to improve diversity will be to offer improved educational development services and expand the educational opportunities for all students. With a decline in interest in engineering, colleges should direct retention efforts to all students to improve the educational attainment and career development for the benefit of all students (Reidhert & Absher, 1997).

## Summary

Minority participation rates in higher education during the last half of the Twentieth century increased as a result of affirmative action legislation and court cases which ensured equal access and opportunity in higher education for minorities. However, in the late 1990's, referenda and court cases in states such as California, Texas, and Washington, as well as pending court cases, has caused the demise of affirmative action (Greve, 1999, March 19; Selingo, 1999, May 28). Of interest is a recently released report based on a review of social science literature in which a panel of social scientists and legal experts concluded that colleges need to retain affirmative action policies to redress continuing racial inequities in educational opportunity for minorities (Schmidt, 1999, June 4).

Despite the demise of affirmative action the recruitment and retention of minority students in higher education is of prime concern for colleges and universities. Given the social and economic impacts of an undereducated minority population and projections of increases in minority populations and minority labor force representation, it is imperative that minority education attainment be improved.

Literature and research have shown the positive influence of a diverse and supportive faculty on the retention and academic progress of students of color and women (Taylor & Olswang, 1997; Neisler, 1992; Nettles & Johnson, 1987; Griffin, 1992; Love, 1993; Endo & Harpel, 1982). Additionally, there is research to support the idea that student success in career development and recruitment activities is impacted by age, ethnicity, and gender (Love, 1993; Allen, 1995; Schlossberg et al. 1995). There appears to be a need for further research to focus specifically on the relationships of age,

ethnicity, and gender on student awareness and satisfaction with career development services and job recruitment activities, as well as satisfaction with academic preparation and student/faculty relations at the university.

# CHAPTER III

# RESEARCH DESIGN AND METHODOLOGY

## Introduction

This chapter describes the design of the study and the methods that were used to answer the research questions outlined in Chapter I. Included in this chapter are the basic research design, descriptions of the population, instrumentation, and data collection techniques. Additionally described are the data analysis that were used to investigate the relationships between demographics (age, gender, ethnicity, and student level) and students' current level of awareness and satisfaction with Colorado State University Career Center services, Hewlett-Packard recruitment efforts and programs at Colorado State University, as well as satisfaction with academic preparation and faculty relations at Colorado State University.

## Research Approach

A survey design was used for this research. The purpose of a survey design is to ask questions of a small number of respondents which will allow the researcher to make inferences about characteristics and attitudes of the larger population (Creswell, 1994; Gliner & Morgan, 1998; Huck & Cormier, 1996; Salant & Dillman, 1994). The survey is the data collection procedure of choice because of the advantages of less expense of the design, time spent on data collection and analysis, and the ability to make inferences to the larger population (Creswell, 1994; Gliner & Morgan, 1998; Huck & Cormier, 1996).

The survey is cross-sectional, as the information was collected at one point in time, specifically between February 26 and March 18, 1999 (Creswell, 1994).

The research approach combined two of the basic quantitative research approaches: the descriptive and the comparative approach using a between groups design classification (Gliner & Morgan, 1998; Morgan & Griego, 1998). Quantitative research such as this is more objective and measurement of data can be numerically scored. The descriptive approach was used to provide information about how the participants responded to items. The comparative approach was used to compare the groups in the study (age groups, ethnic groups, gender groups, and student level groups) to find the relationships o the independent variables (age, ethnicity, gender, student level) with the dependent variables (awareness and satisfaction with Career Center services and Hewlett-Packard recruitment efforts and programs, satisfaction with academic preparation and faculty relations, and perceptions of diversity (age, gender, and ethnicity) issues.

## Participants, Sampling, and Data Collection

The site of the study was Colorado State University, which has an enrollment of 22,523 students (Colorado State University, 1998). The participants were Colorado State University male and female students ($N$ = 740 participants). The sampling design was probability sampling using stratified random sampling of clusters of Colorado State University students; probability sampling is unbiased selection of participants who have an equal chance of being selected (Gliner & Morgan, 1998; Huck & Cormier, 1996). Cluster sampling involves the selection of specific groups of participants using a probability sampling technique such as stratified random sampling followed by the

selection of participants from the clusters (Gliner & Morgan, 1998). Stratified random sampling involves dividing the population on some key variable, i.e. college and course level, student level, and using a random number table. In this research, one department from each of the eight colleges that make up Colorado State University was randomly selected using a random number table. The clusters, comprised of one 200 level course and one 400 level course, were then randomly selected from courses listed in the Colorado State University Spring 1999 Schedule of Classes and all participants (students in the classes) were selected to participate in the survey. The colleges are the College of Agricultural Sciences, the College of Applied Human Sciences, the College of Business, the College of Engineering, the College of Liberal Arts, the College of Natural Resources, the College of Natural Sciences, and the College of Veterinary Medicine and Biomedical Sciences. The randomly selected department from each college included the departments of Animal Science, Design Merchandising and Consumer Sciences, Information Systems, Electrical Engineering, Economics, Natural Resources Recreation and Tourism, Chemistry, and Microbiology.

The department head of each selected department was contacted by telephone as well as by letter and permission was requested to contact the professors of the classes for permission for the researcher to administer the questionnaire to the students in the respective classes. Upon department head approval, the professor of each class was contacted and permission was requested for the researcher to administer the questionnaire to the students in his/her class. Fifteen professors were contacted: eleven granted permission for the researcher to administer the questionnaire to the students in the class, and four agreed to distribute the questionnaire to the students.

## Measures

The key independent variables of this research study are attribute (characteristics of the person), age, ethnicity, gender, and student level. The scale of measurement for the independent variable of gender is dichotomous. The scale of measurement for the independent variables of age and student level is approximately interval. The scale of measurement for the independent variable of ethnicity is nominal.

The scale of measurement for each of the proposed dependent variables was approximately interval. The key dependent variables are:

1. Current level of satisfaction with Colorado State University Career Center services.

2. Current level of satisfaction with Hewlett-Packard recruitment efforts and programs at Colorado State University.

3. Current level of satisfaction with academic preparation and faculty relations at Colorado State University.

4. Current level of awareness of Colorado State University Career Center Services.

5. Current level of awareness of Hewlett-Packard recruitment efforts and programs at Colorado State University.

6. Current level of satisfaction with the sensitivity to age issues at Colorado State University.

7. Current level of satisfaction with the sensitivity to ethnicity issues at Colorado State University.

8. Current level of satisfaction with the sensitivity to gender issues at Colorado State University.

## Instrumentation

The instrument (Appendix B), a questionnaire survey, was developed to measure the relationships between the study's independent variables and the dependent variables. The types of items on the questionnaire are close-ended questions with ordered choices. The items are single Likert-type items in which a statement was made and the respondents were asked to rate his/her reactions to that statement. All item responses were numerically coded (1 = "strongly disagree," 2 = "mildly disagree," 3 = "unsure or undecided," 4 = "mildly agree," 5 = "strongly agree"). The questionnaire is composed of seven sections. Sections A and Section B relate to student perceptions of awareness of and satisfaction with the Colorado State University Career Center services and to student perceptions of the impact of diversity (age, ethnicity, and gender) issues and the Career Center. Section C and Section D relate to student perceptions of awareness of and satisfaction with Hewlett-Packard recruitment efforts and programs at Colorado State University and to student perceptions of the impact of diversity (age, ethnicity, and gender) issues and Hewlett-Packard. Section E relates to student perceptions of satisfaction with academic preparation and student/faculty relations at Colorado State University. Section F relates to student perceptions of the impact of diversity (age, ethnicity, and gender) issues at Colorado State University. Section G relates to demographic information about the respondents. A letter of introduction (Appendix C) explaining the purpose and potential value of the study, that participation was voluntary and with assurance of confidentiality was included with the questionnaire.

## Validity and Reliability

A student validity pilot study was performed. The questionnaire was administered to two classes of engineering students, one of juniors and one of seniors. The combined total number of students was sixty-three, four of whom chose not to participate. The students were interviewed after completion of the questionnaire and asked questions about any ambiguities in wording, clarity of directions, and comments on the scaling of the items. This allowed the researcher to determine the time needed to complete the questionnaire and to assess the respondents' general reactions to the instrument. The results demonstrated that the average time to complete the questionnaire was approximately ten minutes. The students' opinions of the questionnaire were that the statements were non-offensive, the instructions were brief and clearly stated, and the time allotment was appropriate. The only change to the questionnaire at this time was to drop a response item NA (not applicable) from the Likert type scale.

In order to establish face and content validity of the instrument, the questionnaire was submitted to a panel of experts in the fields of education, statistics, career development, and recruitment. The judges were asked to determine whether the instrument appeared to measure student perceptions of (a) awareness and satisfaction with the Career Center services; (b) impact of diversity issues and the Career Center; (c) awareness and satisfaction with Hewlett-Packard recruitment efforts and programs at Colorado State University; (d) impact of diversity issues and Hewlett-Packard; (e) satisfaction with academic preparation and student/faculty relations; and (f) impact of diversity issues at Colorado State University. The panel suggested some reorganization of the questionnaire, specifically, creating separate sections that became Perceived

Impact of Diversity Issues: Career Center and Perceived Impact of Diversity Issues: Hewlett-Packard as well as some added items.

The questionnaire was administered or distributed to all of the students in the randomly selected classes (N = 740). The data from the sample (N = 532) were used for the Cronbach's alpha analysis to determine the internal consistency reliability of the eight instrument scales: awareness and satisfaction with Colorado State University Career Center services; awareness and satisfaction with Hewlett-Packard recruitment efforts and services at Colorado State University; satisfaction with academic preparation and student/faculty relations at Colorado State University; and satisfaction with age, ethnicity, and gender issues at Colorado State University.

The internal consistency reliability alphas for some sections of the instrument, specifically those dealing with awareness of the Career Center services and awareness of Hewlett-Packard recruitment efforts and programs at Colorado State University were shown to be quite low. Further review of the instrument and analysis of the data lead the researcher to re-conceptualize and to revise the scales. Even with revisions to the scales, the awareness of the Career Center services and the awareness of Hewlett-Packard's recruitment efforts and programs at Colorado State University scales were shown to not provide satisfactory summated scales and thus were dropped. As can be seen in Table 2, the revisions resulted in changed scales to include (a) Career Center attention to diversity (age, ethnicity, gender); (b) Hewlett-Packard attention to diversity (age, ethnicity, gender); and (c) perceived impact of diversity (age, ethnicity, and gender): Colorado State University.

Table 2

Revised Grouping and Labeling of the Summated Scales

| Item Number | Awareness | Satisfaction | Attention To Diversity | Perceived Impact of Diversity CSU |
|---|---|---|---|---|
| Career Center | | | | |
| A – 1, 6, 8-12 | X | | | |
| A – 2, 3-5, 7 | | X | | |
| B – 14-17 | | | X | |
| Hewlett-Packard | | | | |
| C – 2-4 | X | | | |
| C – 1, D6, D12 | | X | | |
| C – 5, D7-11, D13-15 | | | X | |
| CSU-Academic Preparation | | | | |
| E – 1-9 | | X | | |
| CSU-Diversity | | | | |
| F – 1-14 | | | | X |

The internal consistency reliability Table 3 presents the data the internal consistency reliability procedure. As can be seen in Table 3, the internal consistency reliability for Awareness of the Career Center Services was shown to have a low alpha, .51. Satisfaction with the Career Center services was shown to have a high alpha, .71. Awareness of Hewlett-Packard's Recruitment Efforts and Programs at Colorado State University was shown to have a very low alpha, .34. Satisfaction with Hewlett-Packard's recruitment efforts and programs at Colorado State University was shown to have an acceptable internal consistency reliability alpha, .60. The internal consistency reliability for Career Center Attention to Diversity and for Hewlett-Packard Attention to Diversity were also shown to have high alphas, .71 and .87, respectively. The internal consistency

reliability for Section E, Satisfaction with Academic Preparation and Student/Faculty Relations and for Section F, Perception of Impact of Diversity (age, ethnicity, and gender): Colorado State University were shown to have high alphas, .83 and .76, respectively. As mentioned previously, because of low alphas the Awareness of Career Center Services and the Awareness of Hewlett-Packard Recruitment Efforts and Programs scales were dropped. Nonetheless, those individual items were used for the descriptive statistics and chi-square analyses which analyzed the items one at a time.

Table 3

Cronbach's Alpha Internal Consistency Reliability of Summated Instrument Scales

| Inter-Item Correlations | N Items | N Cases | Alpha |
|---|---|---|---|
| Career Center Awareness | 7 | 512 | .51 |
| Career Center Satisfaction | 5 | 210 | .71 |
| Career Center Attention to Diversity | 3 | 216 | .71 |
| Hewlett-Packard Awareness | 3 | 519 | .34 |
| Hewlett-Packard Satisfaction | 3 | 40 | .60 |
| Hewlett-Packard Attention to Diversity | 9 | 40 | .87 |
| Academic Preparation and Student/Faculty Relations Satisfaction | 9 | 528 | .83 |
| Perceived Impact of Diversity (age, ethnicity, and gender): Colorado State University | 14 | 522 | .76 |

## Analysis Plan

The Statistical Package for the Social Sciences (SPSS) was used for analysis to answer the research questions.

The analysis included descriptive statistics on each of the original eight scales to indicate the number of participants, frequency distribution, and percentage of responses to each item. Crosstabulations and Pearson Chi-Square were computed on each item on the questionnaire to determine if a relationship existed between the response and each of the independent variables. The Crosstabulations and Pearson Chi-Square computations on Section A were performed only on those participants with response codes of "1 through 4" (number of visits to the Career Center) to item A13 because of the high percentage of "Undecided" responses to the items of those sections by respondents with a response code of "0" (number of visits to the Career Center) to item A13.

Four one-way ANOVA's (analysis of variance) were computed on each of the six revised scales to compare means of the groups in order to make inferences about the population in terms of relationships between age, ethnicity, gender, and student level on each of the awareness, satisfaction and perceived impact of diversity issues scales. The post hoc Tukey honestly significant differences test was performed on those one-way ANOVA's with an overall statistically significant F ($p = .01$) in order to determine which means were different from which other ones.

# CHAPTER IV

## RESULTS

The purpose of this associational and comparative study at one large Western state university was twofold. The first purpose was to ascertain the current level of student (a) awareness of and satisfaction with Colorado State University Career Center services; (b) Career Center attention to diversity (age, ethnicity, and gender); (c) awareness of and satisfaction with Hewlett-Packard's recruitment efforts and programs at Colorado State University; (d) Hewlett-Packard's recruitment efforts and programs attention to diversity (age, ethnicity, and gender); (e) satisfaction with academic preparation and student/faculty relations; and (f) perceived impact of diversity (age, ethnicity, and gender) at Colorado State University. The second purpose was to investigate the relationships of age, ethnicity, gender, and student level with student perceptions of: (a) awareness of and satisfaction with Colorado State University Career Center services; (b) awareness of and satisfaction with Hewlett-Packard recruitment efforts and programs at Colorado State University; (c) Career Center attention to diversity (age, ethnicity, and gender); (d) Hewlett-Packard attention to diversity (age, ethnicity, and gender); (e) satisfaction with academic preparation and student/faculty relations; and (f) perceived impact of diversity (age, ethnicity, and gender) at Colorado State University.

Chapter IV focuses on the findings and the results of the study. This chapter is organized into the following sections: demographic description of the survey

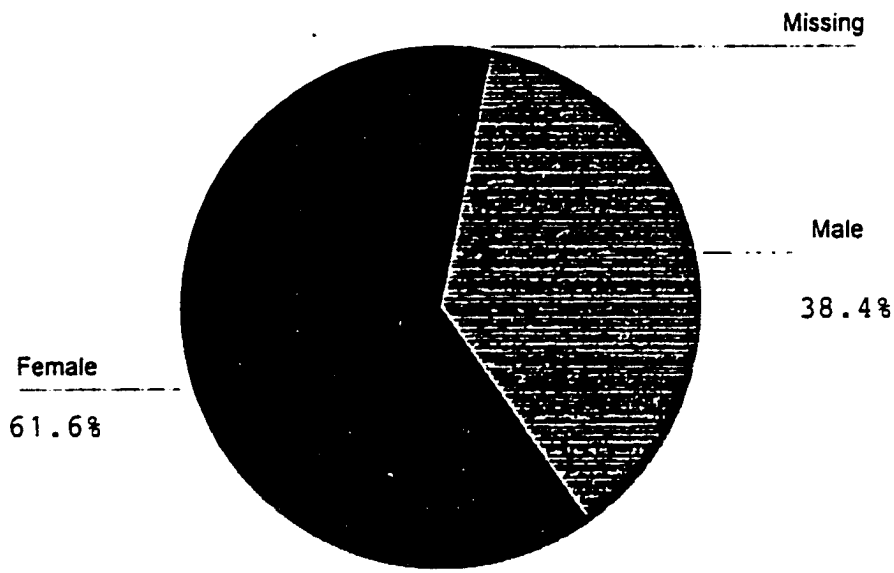
respondents; descriptive findings; the results and interpretation of the analytical procedures used to answer the research questions; and finally, the summary of the chapter.

## Demographic Description of the Survey Respondents

The sample for this study consisted of students enrolled in one 200 level or one 400 level class from one department of each of the colleges which make up Colorado State University (N = 740). The survey instruments were administered or distributed to the students in the classes as described in Chapter III. A breakdown of the total responses indicates of the 559 surveys administered during the classes, 527 (or 90 %) responded. Of the 181 surveys distributed to the students in the classes, to be completed outside of class and returned through campus mail, 20 (or 11 %) responded. Thus, overall 74 % of the students responded.

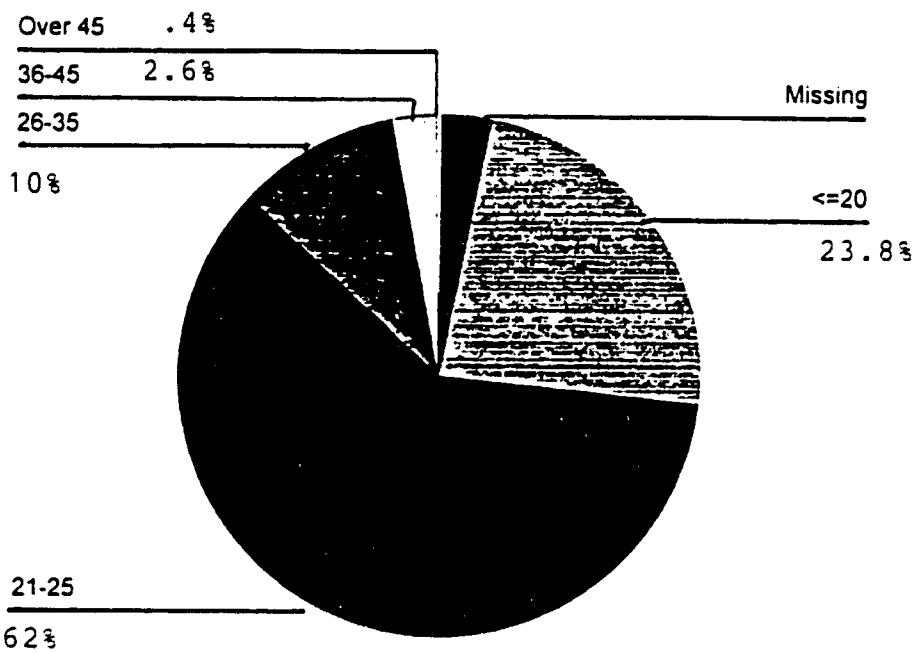
As shown in Figure 1, the demographic characteristics of the group of respondents (N = 547) consisted of 61.6 % females (n = 327) and 38.4 % males (n = 204). As can be seen in Figure 2, the ages of the respondents were 24.5 % (n = 130) were age 20 or younger; 62.1 % (n = 330) were age 21 to 25; 10.1 % (n = 55) were age 26 to 35; and 3.0 % (n = 16) were age 36 to over 45. Sixteen or 2.9 % of the respondents declined to give that age information.

As can be seen in Figure 3, the ethnic make-up of the respondents is as follows: 0.6 % (n = 3) African Americans; 3.1 % (n = 16) Asian Americans; 86.7 % (n = 451) Caucasians; 5.0 % (n = 26) Latino/Hispanic Americans; 1.2 % (n = 6) Native Americans; 3.5 % (n = 27) Other; and 27 respondents declined to give ethnicity information.



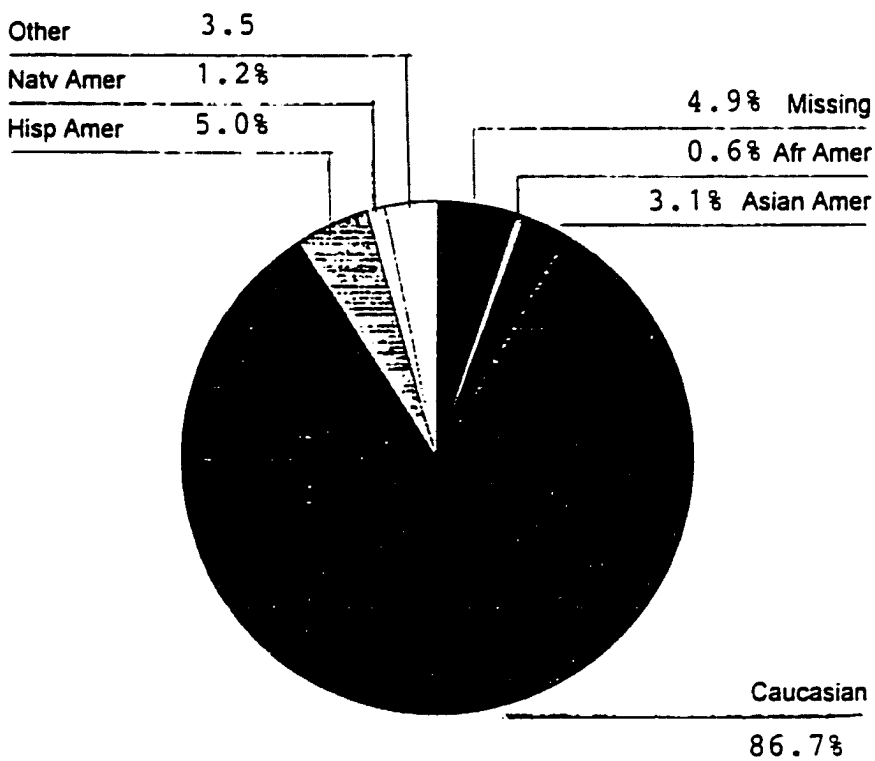

n = 547
Males = 240
Females = 327

Figure 1. Students' Gender




n = 547
20 years and younger = 130
21-25 years old = 330
26-35 years old = 55
36-45 years old = 14
45 and older = 2

Figure 2. Students' Ages




n = 547
Caucasian = 451
African American = 3
Asian American = 16
Hispanic American = 26
Native American = 6
Other = 27

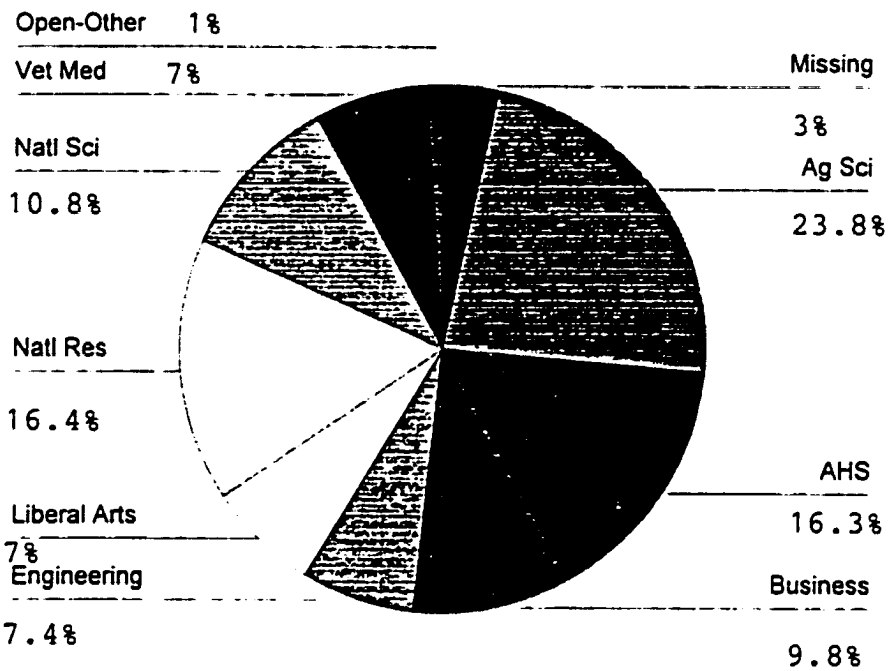
Figure 3. Students' ethnicity

As seen in Figure 4, of the respondents (N = 547), the breakdown of their colleges is as follows: 23.8 % (n = 126) Agriculture Sciences; 16.3 % (n = 86) Applied Human Sciences; 9.8 % (n = 52) Business; 7.4 % (n = 39) Engineering; 7.2 % (n = 38) Liberal Arts; 16.4 % (n = 87) Natural Resources; 10.8 % (n = 57) Natural Sciences; 7.2 % (n = 38) Veterinary Medicine and Biomedical Sciences; and 1.1 % (n = 6) Open Enrollment/Other. Eighteen of the respondents declined to give college enrollment information.

As seen in Figure 5, of the total respondents (N = 547), the breakdown of student level is as follows: 2.8 % (n = 15) Freshman; 15.8 % (n = 84) Sophomore; 23.9 % (n = 127) Junior; 53.1 % (n = 282) Senior; 1.7 % (n = 9) Graduate; and 1.7 % (n = 9) Other. Sixteen of the respondents declined to give student level information.

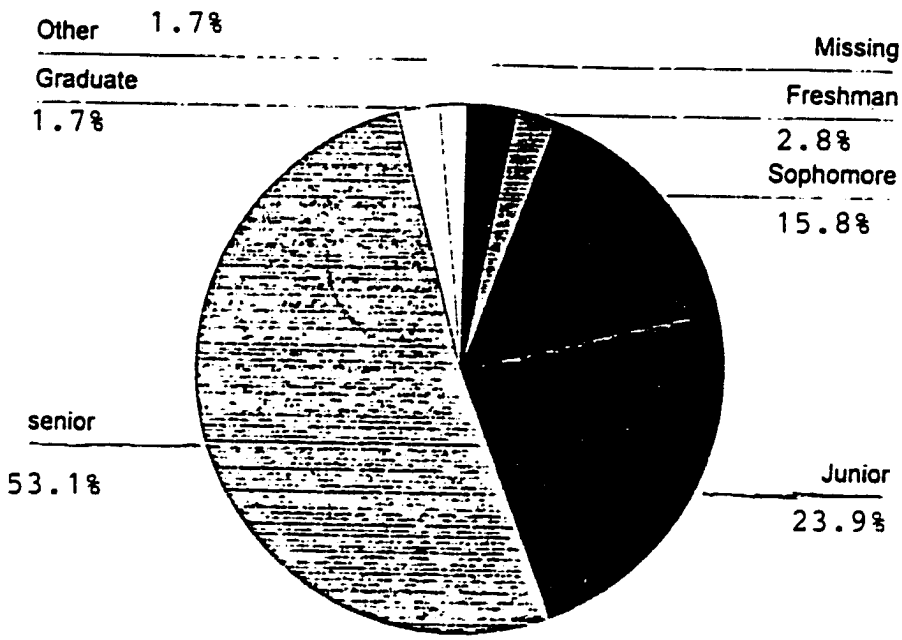
## Supplemental Demographic Findings

Supplemental findings show that of the 530 participants of the survey who responded, 57 percent (N = 304) had part-time jobs while attending Colorado State University, while 10 percent (N = 53) had full-time jobs. Furthermore, 48 percent (N = 252) of the respondents had student loans to at least partially finance their college education. International students accounted for only a scant 4 percent of the respondents to the survey with 96 percent being United States citizens.




n = 547
Agricultural Sciences = 126
Applied Human Sciences = 86
Business = 52
Engineering = 39
Liberal Arts = 38
Natural Resources = 87
Natural Sciences = 57
Veterinary Medicine and Biomedical Sciences = 38
Open – other = 6

Figure 4. Enrollment by College




n = 547
Freshman = 15
Sophomore = 84
Junior = 127
Senior = 282

Figure 5. Student level

## Descriptive Findings

Descriptive statistics were performed in order to answer the descriptive research questions of this study. The descriptive questions related to the (a) current level of awareness and satisfaction with Career Center services; (b) current perceived Career Center attention to diversity (age, ethnicity, and gender); (c) current level of awareness and satisfaction with Hewlett-Packard's recruitment efforts and programs; (d) current perceived Hewlett-Packard attention to diversity (age, ethnicity, and gender); (e) current level of satisfaction with academic preparation and student/faculty relations; and (f) current perceived impact of diversity (age, ethnicity, and gender) at Colorado State University.

Question 1. What is the current level of awareness of services offered by the Colorado State University Career Center?

As seen in Table 4, the results of these findings for items A1, A6, A8, and A12 indicate that the current level of awareness of services offered by the Colorado State University Career Center is low. This is indicated by the high percentage of undecided responses by respondents. For example, the responses to item A1, the Career Center has good visibility, 32.8 % agreed; 37.9 % disagreed; and 39.4 % were undecided. While 62.0 % of the responses were undecided if the Career Center serves only business, engineering, and computer science students (A6), 42.2 % agreed and 41.3 % were undecided if the Career Fair is mostly for these same majors (A8). While 48.9 % of the responses to A11, the Career Center is the best place to find career information, were undecided, the agree and the disagree responses were about evenly split. Responses to item A12, I know what

Table 4

Awareness of Career Center Services

| | | Percentage | | | N |
|---|---|---|---|---|---|
| | | SD & MD | UD | SA & MA | |
| A1 | Career Center has good visibility | 37.9 | 39.4 | 32.8 | 528 |
| A6 | Career Center serves only engineering, business, and computer science students | 20.7 | 62.0 | 17.3 | 521 |
| A8 | Career Fair is mostly for engineering, business, and computer science students | 16.5 | 41.3 | 42.2 | 512 |
| A9 | Career Center serves only seniors and those looking for permanent employment | 27.7 | 52.3 | 20.0 | 520 |
| A10 | Career Center screens for interviews by 3.5 GPA | 15.6 | 76.6 | 7.7 | 518 |
| A11 | Career Center is best place to find career information | 26.1 | 48.9 | 24.9 | 521 |
| A12 | I know what services the Career Center offers | 45.6 | 32.1 | 22.4 | 524 |

Note: Rating on 5-point Likert scales: 1= Strongly disagree; 2 = Mildly disagree; 3 = Undecided; 4 = Mildly Agree; 5 = Strongly Agree.
Note: SD and MD combined for this table; MA and SA combined for this table.

services the Career Center offers, showed a smaller percentage of undecided responses, but 45.6 % percent disagreed with the statement. The percentage of undecided responses to the remaining awareness items were 52.3 % and 76.6 %, respectively.

Over half of the respondents reported never having used the Career Center while only 15.5 % reported one visit. This also suggests that students are not aware of Career Center services.

Question 2. What is the current level of satisfaction with services offered by the Colorado State University Career Center?

Items A2, A3, A4, A5, and A7 were statements to ascertain the level of satisfaction with the services offered by the Career Center. As seen in Table 5, the percentage of undecided responses to these items ranged from 58.2 % to 66.9 %. The high percentage of undecided responses probably can be interpreted to indicate a low level of awareness rather than a low level of satisfaction with the Career Center services. For example, the undecided responses to item A2, the Career Center has adequate customer service, and to item A3, the Career Center atmosphere is hospitable and friendly, were 64.3 % and 62.1 %, respectively. Additionally, the undecided responses to items A4 and A5, the Career Center has up to date technology and is of adequate size,

Table 5

Satisfaction with Career Center Services

| | | Percentage | | | N |
|---|---|---|---|---|---|
| | | SD & MD | UD | SA & MA | |
| A2 | Career Center has adequate customer service | 9.1 | 64.3 | 32.7 | 210 |
| A3 | Career Center atmosphere is hospitable and friendly | 6.6 | 62.1 | 31.2 | 210 |
| A4 | Career Center has up-to-date technology | 6.3 | 66.9 | 26.8 | 210 |
| A5 | Career Center is adequate in size | 8.2 | 65.9 | 35.9 | 210 |
| A7 | Career Center liaison in my college is helpful to me | 19.1 | 58.2 | 22.7 | 210 |

Note: Rating on 5-point Likert scales: 1 = Strongly Disagree; 2 = Mildly Disagree; 3 = Undecided; 4 = Mildly Agree; 5 = Strongly Agree.
Note: SD and MD combined for this table; MA and SA combined for this table.

were 66.9 % and 65.6 %, respectively. Moreover, the responses to item A7, the Career Center liaison in my college is helpful to me, were 58.2 % undecided.

Question 3. What is the current level of awareness of Hewlett-Packard's recruitment efforts and programs at Colorado State University?

As can be seen from Table 6, the current level of awareness of Hewlett-Packard recruitment efforts and programs at Colorado State University is low. This is indicated by high percentages of undecided responses to items C2 and C3. For example, Hewlett-Packard's top screening tool is 3.5 GPA (item C2) and Hewlett-Packard will interview

Table 6

Awareness of and Satisfaction With Hewlett-Packard Recruitment Efforts and Programs at Colorado State University

| | | Percentage | | | N |
|---|---|---|---|---|---|
| | | SD & MD | UD | SA & MA | |
| C1 | My general perception of Hewlett-Packard is positive | 9.7 | 27.2 | 63.1 | 526 |
| C2 | Hewlett-Packard's top screening tool is 3.5 GPA or better | 5.0 | 83.9 | 11.1 | 521 |
| C3 | Hewlett-Packard will interview students with a GPA between 3.0 and 3.5 | 4.2 | 85.4 | 10.4 | 510 |
| C4 | I know about Hewlett-Packard because of their affiliation with CSU | 50.4 | 32.1 | 17.6 | 524 |
| D6 | Process for connection with Hewlett-Packard through the SEED internship is clear | 21.4 | 57.1 | 21.5 | 42 |
| D12 | I was kept up to date on my application status | 29.3 | 56.1 | 14.7 | 41 |

Note: Rating on 5-point Likert scales: 1= Strongly disagree; 2 = Mildly disagree; 3 = Undecided; 4 = Mildly Agree; 5 = Strongly Agree.
Note: SD and MD combined for this table; MA and SA combined for this table.

students with a 3.0 to 3.5 GPA (item C3) undecided responses were 83.9 % and 85.4 % respectively. The responses to item C4, I know about Hewlett-Packard because of their affiliation with Colorado State university, were 50.4 % disagree while 32.1 % were undecided. The response to this item also suggests a low level of awareness of Hewlett-Packard's recruitment efforts and programs at Colorado State University.

Question 4. What is the current level of satisfaction with Hewlett-Packard's recruitment efforts and programs at Colorado State University?

As can be seen in Table 6, the responses to item C1, D6, and D12 suggest that the current level of student satisfaction with Hewlett-Packard's recruitment efforts and programs at Colorado State University appears moderate. Only respondents who had interviewed with the Hewlett-Packard Company were instructed to respond to items D6 and D12, therefore, the number of respondents to this section ranges from 42 to 41 respectively. For example, 63.1 % of the respondents agreed with the statement "My general perception of Hewlett-Packard is positive". Responses to item D6 were 57.1 % undecided if the process for a connection with Hewlett-Packard through the SEED internship is clear. Likewise, 56.1 % of the responses to item D12, I was kept up to date on my application status, were undecided.

Question 5. What is the current level of satisfaction with academic preparation and student/faculty relations at Colorado State University?

As can be seen in Table 7, the current level of satisfaction with academic preparation at Colorado State University is moderately high. For example, 71.9 % of the respondents agreed that their academic preparation is preparing them for the working

Table 7

Satisfaction with Academic Preparation and Student/Faculty Relations

| | | Percentage | | | N |
|---|---|---|---|---|---|
| | | SD & MD | UD | SA & MA | |
| E1 | My academic preparation at CSU is preparing me for the working world | 20.6 | 7.6 | 71.9 | 540 |
| E2 | One or more of my professors has acted as a mentor for me | 26.6 | 14.9 | 56.5 | 537 |
| E3 | Overall, professors are helpful in my getting interviews, jobs, and projects | 22.3 | 31.0 | 36.7 | 536 |
| E4 | Overall, my professors provide encouragement to students | 16.9 | 12.1 | 71.0 | 539 |
| E5 | Overall, professors are accessible to me | 12.6 | 8.5 | 78.9 | 540 |
| E6 | Overall, my advisor has provided effective advising | 30.5 | 16.2 | 53.3 | 538 |
| E7 | My professors expect me to do well | 7.0 | 17.4 | 74.6 | 540 |
| E8 | One or more of my professors in my major have been unhelpful by exhibiting dismissive, unengaged, or alienating behavior | 39.2 | 15.7 | 44.0 | 535 |
| E9 | I am pleased with the quality of education I am receiving at Colorado State University | 12.8 | 11.9 | 75.3 | 539 |

Note: Rating on 5-point Likert scale: 1= Strongly Disagree; 2 = Mildly Disagree; 3 = Undecided; 4 = Mildly Agree; 5 = Strongly Agree.
Note: SD and MD combined; MA and SA combined for this table.

world (E1), while 20.6 % disagreed and 7.6 % were undecided. Responses to item E9 shows that 75.3 % of the respondents agreed that they were pleased with the quality of the education they are receiving, while 12.8 % disagreed and 11.9 % were undecided.

In the area of faculty relations, the findings indicate that in some areas the current level of satisfaction with faculty relations at Colorado State University is moderate, while in other areas the level of satisfaction is moderately high. For example, 56.5 % agreed that professors had acted as a mentor (E2), whereas 26.6 % disagreed and 14.9 % were undecided. Professors' helpfulness in students getting jobs, interviews, and projects (E3) received responses of 36.7 % agreed, whereas 22.3 % disagreed and 31.0 % were undecided. In the area of professors' accessibility (E5), providing encouragement (E4), and expecting the students to do well (E7), agree responses ranged from 71.0 % to 78.9 %, while disagree responses ranged from 7.0 % to 16.9 % and undecided responses ranged from 8.5 % to 17.4 %. In the area of professors providing effective advising (E6), 53.3 % of the respondents agreed, while 30.5 % disagreed and 16.2 % were undecided. In response to item E8, one or more professors in the student's major exhibiting dismissive or alienating behavior, 44.0 % agreed, 39.2 % disagreed and 15.7 % were undecided.

Question 6. What is the current level of perceived impact of age at Colorado State University?

As can be seen in Table 8, the findings suggest that the current level of perceived impact of age at Colorado State University is low. Fifty-six percent of the respondents disagreed that their age is a barrier with employers outside Colorado State University, however, 19.5% agreed and 24.4 % were undecided. Of the 536 respondents, 72.1 % disagreed that their age is a barrier with their professors, while 6.4 % agreed and 21.6 were undecided.

Table 8

Perceived Impact of Diversity (Age, Ethnicity, and Gender) at Colorado State University

| | | Percentage | | | N |
|---|---|---|---|---|---|
| | | SD & MD | UD | SA & MA | |
| F1 | My gender positively impacts my CSU experience | 21.7 | 49.5 | 28.6 | 537 |
| F2 | My gender inhibits me from asking for help from CSU staff | 73.9 | 21.0 | 4.8 | 537 |
| F3 | My gender influenced my decision to attend CSU | 75.1 | 21.4 | 3.3 | 537 |
| F4 | My professors seem comfortable talking about gender issues | 8.6 | 57.7 | 33.7 | 534 |
| F5 | My gender is a barrier with employers outside CSU | 63.4 | 24.8 | 11.8 | 536 |
| F6 | My age is a barrier with employers outside CSU | 56.0 | 24.4 | 19.5 | 536 |
| F7 | My age is a barrier with my professors | 72.1 | 21.6 | 6.4 | 536 |
| F8 | My ethnicity positively impacts my CSU experience | 27.6 | 53.6 | 18.1 | 532 |
| F9 | My professors seem comfortable talking about ethnicity issues | 35.9 | 53.2 | 10.9 | 532 |
| F10 | I would feel more comfortable if more of my professors shared my ethnic background | 44.9 | 47.0 | 8.1 | 534 |
| F11 | I am comfortable discussing ethnicity issues in my classes | 57.6 | 33.0 | 9.4 | 531 |
| F12 | My ethnicity influenced my decision to attend CSU | 66.6 | 29.8 | 3.6 | 533 |
| F13 | My ethnicity is a barrier with employers outside CSU | 63.0 | 28.9 | 8.1 | 532 |
| F14 | Colorado State University is welcoming to diverse students | 59.6 | 28.9 | 11.5 | 532 |

Note: Rating on a 5-point Likert scale: 1 = Strongly Disagree; 2 = Mildly Disagree; 3 = Undecided ; 4 = Mildly Agree; 5 = Strongly Agree.
Note: SD and MD combined; SA and MA combined for this table.

Question 7. What is the current level of perceived impact of ethnicity at Colorado State University?

As can be seen in Table 8, survey items F8 – 13 addressed ethnicity and its impact on Colorado State University students. The findings suggest that the current level of perceived impact of ethnicity at Colorado State University is moderately low. Of 532 respondents, a slight majority (53.6 % and 53.2%) were undecided if their ethnicity positively impacts their Colorado State University experience (F8) or if their professors seem comfortable talking about ethnicity issues (F9). Disagree responses to these items were 27.6 % and 35.9 %, respectively. Of the respondents, 57.6 % disagreed that they feel comfortable discussing ethnicity issues in their classes (F11). Of the 534 respondents, 44.9 % disagreed that they would feel more comfortable if more of their professors shared their ethnic background (F10) while 47.0 % were undecided. Of the respondents, 63.0 % of the respondents disagreed that their ethnicity is a barrier with employers outside Colorado State University (F13).

When attempting to draw conclusions related to perceived impact of ethnicity at Colorado State University, one must keep in mind the demographics of this study. Of the 520 respondents who gave ethnicity information, 86.7 % were Caucasian/ European Americans, while only 13.4 % were Americans from ethnic minority groups. (International students were not included in the ethnicity data, but were counted elsewhere.) However, of 532 respondents to item F14, 59.6 % disagreed that Colorado State University is welcoming to diverse students, while 28.9 were undecided.

Question 8. What is the level of perceived impact of gender at Colorado State University?

Demographically females accounted for 61.6 % of the respondents. As can be seen in Table 8, the findings indicate that the current level of perceived impact of gender at Colorado State University is low. For example, the undecided response rate for item F1, my gender positively impacts my CSU experience, was 49.5 % while 28.9 % agreed. Of 537 respondents, 73.9 % disagreed that their gender inhibits them from asking for help from staff. As well, 75.1 % disagreed that their gender influenced their decision to attend Colorado State University (F3). In response to item F5, 63.4 % disagreed that their gender is a barrier with employers outside Colorado State University

## Supplemental Questions

Question 8A. What is the current level of perceived attention to diversity (age, ethnicity, and gender): Career Center?

Only respondents who had used the Career Center at least one time were instructed to respond to the items in that addressed perceived impact of diversity (age, ethnicity, and gender) issues with the Career Center (See Table 9). For this reason, the number of respondents to this section is 216 to 220. As can be seen in Table 9, while the agree responses to the four items in this section range from 19.9 to 41.1 %, the vast majority of responses (from 52.5 % to 75.6 %) were undecided. The high undecided response rate makes it difficult to draw definitive conclusions about student perceived impact of diversity with the Career Center. Nonetheless, the high undecided response rate may be interpreted to indicate a lack of awareness of this aspect of interactions with the Career Center.

Table 9

Section B – Career Center Attention to Diversity (participants who had visited Career Center at least one time)

| | | Percentage | | | N |
|---|---|---|---|---|---|
| | | SD & MD | UD | SA & MA | |
| B14 | Career Center staff seems aware of age issues | 10.2 | 63.0 | 26.8 | 216 |
| B15 | Career Center staff seems aware of gender issues | 7.2 | 72.9 | 19.9 | 221 |
| B16 | Career Center staff seems aware of ethnicity issues | 5.5 | 75.6 | 19.0 | 221 |
| B17 | I would feel more comfortable using Career Center if more of staff shared my ethnic background | 6.4 | 52.5 | 41.1 | 219 |

Note: Rating on 5-point Likert scales: 1= Strongly disagree; 2 = Mildly disagree; 3 = Undecided; 4 = Mildly Agree; 5 = Strongly Agree.
Note: SD and MD combined for this table; MA and SA combined for this table.

Question 8B. What is the current level of perceived attention to diversity (age, ethnicity, and gender): Hewlett-Packard.

Table 10 identifies the percentages and number of participants who responded to items related to diversity issues with Hewlett-Packard. All of the participants were asked to respond to item C5, while only those respondents who had interviewed with Hewlett-Packard were instructed to respond to the remaining items. The results indicate that student perceived impact of diversity with Hewlett-Packard's recruitment efforts and programs at Colorado State University is low. As may be seen in Table 10, the

Table 10

Perceived Hewlett-Packard Attention to Diversity (participants who had interviewed with Hewlett-Packard)

| | | Percentage | | | N |
|---|---|---|---|---|---|
| | | SD & MD | UD | SA & MA | |
| C5 | The Hewlett-Packard Company is committed to valuing diversity | 4.9 | 81.2 | 13.7 | 522 |
| D7 | Hewlett-Packard recruiters seem comfortable discussing ethnicity issues | 10.0 | 80.0 | 10.0 | 40 |
| D8 | Hewlett-Packard recruiters seem comfortable discussing gender issues | 12.5 | 72.5 | 15.0 | 40 |
| D9 | Goal of Hewlett-Packard recruitment is to recruit the most qualified, not to recruit for diversity sake | 25.5 | 67.5 | 17.5 | 40 |
| D10 | My gender positively influenced my interviewing process with Hewlett-Packard | 25.0 | 57.5 | 17.5 | 40 |
| D11 | My ethnicity positively influenced my interviewing process with Hewlett-Packard | 27.5 | 60.0 | 12.5 | 40 |
| D13 | The Hewlett-Packard Recruitment Team has adequate ethnic representation | 17.1 | 75.6 | 7.3 | 41 |
| D14 | The Hewlett-Packard Recruitment Team has adequate gender representation | 19.5 | 58.5 | 22.0 | 41 |
| D15 | Hewlett-Packard/CSU Recruitment Team is committed to valuing diversity during the recruitment process | 12.2 | 73.2 | 14.7 | 41 |

Note: Rating on 5-point Likert scale: 1 = Strongly Disagree; 2 = Mildly Disagree; 3 = Undecided; 4 = Mildly Agree; 5 = Strongly Agree.
Note: SD and MD combined; SA and MA combined for this table.

Undecided responses to the items related to ethnicity issues (items D7, D9, D11, D13, and D15) comprised from 60.0 % to 80.0 % of the total responses. Similarly, the undecided responses to the items related to gender issues (items D8, D10, and D14) comprised from 57.5 % to 72.5 % of the total responses.

In summary, 547 students, freshmen through graduate level, participated in the study. Each of the eight colleges at Colorado State University was represented. The participant ages ranged from 20 years and younger to over 45 years, and seniors were the largest student level group. The largest ethnic group represented was Caucasian.

The descriptive findings indicate a low overall level of awareness of the services offered by the Career Center. Furthermore, it appears that low awareness accounts for the responses to items related to satisfaction with the Career Center services rather than low satisfaction. Overall awareness of and satisfaction with Hewlett-Packard's recruitment efforts and programs at Colorado State University are low and moderate, respectively, whereas the general perception of Hewlett-Packard is positive. Overall the current level of satisfaction with academic preparation is moderately high with satisfaction with student/faculty relations moderate to moderately high. The perceived impact of diversity with both the Career Center and with Hewlett-Packard is low. Additionally, the perceived impact of diversity at Colorado State University is low for age and gender and moderately low for ethnicity.

## Results of Crosstabulations

Pearson chi-squares based on crosstabulations of age, ethnicity, and gender and with each item of the survey were performed in order to determine if the response differences between the groups (independent variables) were statistically significant. Further crosstabulations were then conducted on the data that showed a statistically significant chi-square ($p=<.01$). For these further analyses, the strongly disagree and the mildly disagree responses were combined as well as the strongly agree and mildly agree

responses. The 26 to 35 and the 36 to 45 and older age groups were also combined. In order to make the data more meaningful, ethnicity data had already been combined to create categories of Caucasian and students of color due to the low percentage of specific ethnic minority groups. Because of the large percentages of "Unsure or Undecided" responses to Section A – Awareness of Career Center Services, responses to item A13 (number of times the respondent used the Career Center) coded 1 through 4 were collapsed (combined). Crosstabulations and Pearson chi-squares of age, ethnicity, and gender were then conducted on each item on Section A and Section B as described in the earlier in this paragraph.

There was strong demographic variability in the age, ethnicity, and gender of the groups. The 21 to 25 year age group represented slightly over 62.1 % (n = 330) of the respondents. The second largest age group was the 20 years and younger group which represents 24.5 % (n = 130). The combined 26 and over age group represented 13.1 % (n = 71) of the respondents. The Caucasian/Euro-American group comprised 86.7 % (n = 451) of the respondents while the combined African American, Asian Pacific American, Latino/Hispanic American, and Native American groups comprised 9.9 % (n = 51). Females comprised 61.6 % (n = 327) of the respondents while males comprised just 38.4 % (n = 204).

Crosstabulations with Age

As can be seen in Table 11, crosstabulations of age with the statement that the Career Center staff is aware of gender issues showed a significant chi-square (p = .002). The data show that none of the 20 years old and younger, but 29.2 % of the 26 and over age group disagreed with the statement the Career Center staff is aware of gender issues.

Thus, more of the older students tended to disagree and fewer younger students tended to disagree that the Career Center staff is aware of gender issues.

Crosstabulations of age with the statement that Hewlett-Packard recruits for the most qualified not for diversity's sake showed a significant chi-square ($p = .01$). The data show that none of the 20 years old and younger age group disagreed, but 57.1 % of the 26 plus age group disagreed with the statement that Hewlett-Packard recruits the for most qualified not for diversity's sake. None of the 20 years and younger age groups agreed, but 28.6 % of the 26 plus age group agreed with the statement. Thus more of the

Table 11

Significant Chi-Squares for Individual Items With Age

| Item | Response | Age | | | | | | Total | $X^2$ |
|---|---|---|---|---|---|---|---|---|---|
| | | ≤20 | | 21 – 25 | | 26+ | | | |
| | | n | % | n | % | n | % | % | |
| Career staff attention to gender | Disagree | | 0.0 | 13 | 8.6 | 7 | 29.2 | 9.4 | 16.41* |
| | Agree | 9 | 24.3 | 42 | 7.6 | 7 | 29.2 | 27.2 | |
| HP recruits most qualified not for diversity sake | Disagree | 0 | 0.0 | 2 | 7.7 | 4 | 57.1 | 15.0 | 16.17* |
| | Agree | 0 | 0.0 | 5 | 19.2 | 2 | 28.6 | 17.5 | |
| My gender influenced decision to attend CSU | Disagree | 108 | 84.4 | 238 | 72.3 | 51 | 71.8 | 75.2 | 17.22* |
| | Agree | 6 | 4.7 | 11 | 3.0 | 1 | 1.4 | 3.4 | |
| My age is barrier with employers outside CSU | Disagree | 59 | 45.7 | 203 | 61.7 | 34 | 47.9 | 56.0 | 16.70* |
| | Agree | 37 | 28.7 | 56 | 17.0 | 12 | 16.9 | 19.8 | |

*≤ p .01

older age group than the younger tended to both agree and to disagree with the statement that Hewlett-Packard recruits for the most qualified not for diversity's sake.

Age crosstabulations with the statement that the respondent's gender influenced the decision to attend Colorado State University showed a significant chi-square ($p = .01$). The data show that 84.4 % of the 20 years and younger age group disagreed while 72.3 percent of 21 to 25 age group and 71.8 % of the 26 and older age group disagreed with the statement that their gender influenced the decision to attend Colorado State University. Additionally, the 20 years and younger age group were more likely to agree with the statement than were the other two age groups. Thus, the youngest age group were more likely to both agree and to disagree with the statement than the other age groups.

Crosstabulations of age with the statement that the respondent's age is a barrier with employers outside Colorado State University also showed a significant chi-square ($p = .01$). The data show that 61.7 % of the 21 to 25 age group disagreed, while 45.7 % of the 20 and younger and 47.9 % of the 26 and older age group disagreed with the statement that their age is a barrier with employers outside Colorado State University. Conversely, 28.7 % of the 20 and younger age group agreed while 17.0 % of the 21 to 25 and 16.9 % of the 26 plus age group agreed with the statement. Thus, the 21 to 25 age group were more likely to disagree with the statement while the 20 and younger age group were more likely to agree with the statement that age is a barrier with employers outside Colorado State University.

In summary, four of the 55 items were found to have significant chi-squares when crosstabulations were performed with age. There was variability between the different age group responses. For example, the 20 years and younger participants were more likely to agree and to disagree that their gender influenced their decision to attend

Colorado State University and that their age is a barrier with outside employers while the 21 to 25 age group were more likely to disagree with that their age is a barrier. The 26 and older age group were more likely to disagree with statements regarding the Career Center staff awareness of gender issues and Hewlett-Packard recruits for the most qualified not for diversity's sake.

Crosstabulations with Ethnicity

As can be seen in Table 12, crosstabulations of ethnicity with the statement that the respondent would feel more comfortable using the Career Center if more of the staff shared the same ethnic background showed a significant chi-square ($p = .001$). The data show that 3.4 % of the Caucasian but 21.2 % of the students of color respondents disagreed with the statement that they would feel more comfortable using the Career Center if more of the staff shared their ethnic background. Thus more students of color respondents were more likely to disagree with this statement than were Caucasian respondents.

Ethnicity crosstabulations with the statement that Hewlett-Packard recruiters seem comfortable discussing gender issues also showed a significant chi-square ($p = .01$). The data show that 6.5 % of Caucasian but 33.3 % of students of color respondents disagreed with the statement that Hewlett-Packard recruiters seem comfortable discussing gender issues. Also, 6.5 % of Caucasian, but 44.4 % of students of color respondents agreed with the statement. Table 12 shows that students of color respondents were more likely to agree and to disagree with the statement that Hewlett-Packard recruiters seem comfortable discussing gender issues. Conversely, a high percent of Caucasian respondents were more likely to be undecided about the statement.

Table 12

Significant Chi-Squares for Individual Items With Ethnicity

| Item | Response | Ethnicity | | | | Total | $X^2$ |
|---|---|---|---|---|---|---|---|
| | | Caucasian | | Students of Color | | | |
| | | n | % | n | % | % | |
| I would feel more comfortable if Career Center staff shared my ethnicity | Disagree | 6 | 3.4 | 7 | 21.2 | 6.2 | 17.61* |
| | Agree | 69 | 39.0 | 15 | 45.5 | 40.0 | |
| HP recruiters seem comfortable discussing gender issues | Disagree | 2 | 6.5 | 3 | 33.3 | 12.5 | 14.79* |
| | Agree | 2 | 6.5 | 4 | 44.4 | 15.0 | |
| HP recruits most qualified not for diversity sake | Disagree | 5 | 16.1 | 1 | 11.1 | 15.0 | 11.74* |
| | Agree | 2 | 6.5 | 5 | 55.6 | 17.5 | |
| My gender inhibits my asking for help from CSU staff | Disagree | 338 | 75.4 | 47 | 68.1 | 74.5 | 12.12* |
| | Agree | 17 | 3.8 | 7 | 10.1 | 4.6 | |
| My age is barrier with my professors | Disagree | 326 | 72.6 | 49 | 71.0 | 72.4 | 9.97* |
| | Agree | 23 | 5.1 | 10 | 14.5 | 6.4 | |
| My ethnicity positively impacts my CSU experience | Disagree | 121 | 27.1 | 22 | 31.9 | 25.0 | 11.72* |
| | Agree | 76 | 17.0 | 22 | 31.9 | 19.0 | |
| I would feel more comfortable if more professors shared my ethnicity | Disagree | 204 | 45.6 | 30 | 43.5 | 45.3 | 39.21* |
| | Agree | 22 | 4.9 | 18 | 26.1 | 7.8 | |
| My ethnicity influenced decision to attend CSU | Disagree | 300 | 67.3 | 43 | 62.3 | 66.6 | 15.56* |
| | Agree | 10 | 2.2 | 8 | 11.6 | 3.5 | |
| My ethnicity is barrier with employers outside CSU | Disagree | 289 | 64.8 | 37 | 54.4 | 63.4 | 9.62* |
| | Agree | 30 | 6.7 | 12 | 17.6 | 8.2 | |

*≤ p .01

As can be seen in Table 12, ethnicity crosstabulations with the statement that Hewlett-Packard recruits for the most qualified not for diversity's sake also showed a significant chi-square ($p = .01$). The data show that 6.5 % of Caucasian but 55.6 % of students of color respondents agreed with the statement that Hewlett-Packard recruits for the most qualified not for diversity's sake. Of the undecided responses, 77.4 % of the Caucasian respondents were undecided. Thus, the students of color respondents were more likely to agree with the statement than were Caucasian respondents. Furthermore, the Caucasian respondents were more likely to be undecided about the statement.

Crosstabulations of ethnicity with the statement that the respondent's gender inhibits asking for help from Colorado State University staff showed a significant chi-square ($p = .01$). The data show that 3.8 % of the Caucasian but 10.1 % of the students of color respondents agreed with the statement that their gender inhibits their asking for help from Colorado State University staff. Additionally, 75.4 % of Caucasian, but 68.1 % of students of color respondents disagreed with the statement. Thus, the students of color respondents were more likely to agree while the Caucasian respondents were more likely to disagree with the statement.

As can be seen in Table 12, crosstabulations of ethnicity with the statement that the respondent's age is a barrier with professors showed a significant chi-square ($p = .01$). The data show that 4.9 % of Caucasian, but 14.5 % of students of color respondents agreed with the statement that their age is a barrier with professors. Thus, the students of color respondents were more likely to agree with the statement than were Caucasian respondents.

Ethnicity crosstabulations with the statement that the respondent's ethnicity has a positive impact on their Colorado State University experience also showed a significant chi-square ($p = .01$). The data show that 17.0 % of Caucasian, but 31.9 % of students of color respondents agreed with the statement that their ethnicity has a positive impact on their Colorado State University experience. Additionally, 55.8 % of Caucasian respondents were undecided about this statement. Thus, the students of color respondents were more likely to agree, while the Caucasian respondents were more likely to be undecided with the statement that their ethnicity positively impacts their Colorado State University experience.

As can be seen in Table 12, ethnicity crosstabulations with the statement that the respondent would feel more comfortable if more professors shared their ethnic background showed a significant chi-square ($p = .001$). The data show that 4.9 % of Caucasian, but 26.1 % of students of color respondents agree with the statement that they would feel more comfortable if more of their professors shared their ethnic background. Thus, the students of color respondents were more likely to agree with the statement than were the Caucasian respondents.

Table 12 shows that crosstabulations of ethnicity with the statement that the respondent's ethnicity influenced the decision to attend Colorado State University showed a significant chi-square ($p = .01$). The data show that 2.2 % of Caucasian, but 11.6 % of students of color respondents agreed with the statement that their ethnicity influenced their decision to attend Colorado State University. Thus, the students of color respondents were more likely to agree with the statement than were the Caucasian respondents.

Ethnicity crosstabulations with the statement that the respondent's ethnicity is a barrier with employers outside Colorado State University also showed a significant chi-square ($p = .01$). The data show that 64.5 % of Caucasian, but 54.4 % of students of color respondents disagreed with the statement that their ethnicity is a barrier with employers outside Colorado State University. Additionally 6.7 % of Caucasian, but 17.6 % of students of color respondents agreed with the statement. Thus, the students of color respondents were more likely to agree with the statement that their ethnicity is a barrier with employers outside Colorado State University than were Caucasian respondents.

In summary, nine of the 55 items were found to have significant chi-squares when crosstabulations were performed with ethnicity. Caucasian and students of color participants responded differently to the items. For example, Caucasian participants were more likely to report undecided responses than were students of color participants. Students of color participants were more likely to agree with the items than were Caucasian participants.

Crosstabulations with Gender

As can be seen in Table 13, crosstabulations of gender with the statement that the Career Center has good visibility showed a significant chi-square ($p = .013$). The data show that 30.8 % of the male respondents, but 42.3 % of the female respondents disagree with the statement that the Career Center has good visibility. Thus, female respondents were more likely to disagree with the statement than were male respondents.

Crosstabulations of gender with the statement that the Career Center has up to date technology also showed a significant chi-square ($p = .01$). The data show that 3.8 %

Table 13

Significant Chi-Squares for Individual Items With Gender

| Item | Response | Gender | | | | Total | $X^2$ |
|---|---|---|---|---|---|---|---|
| | | Male | | Female | | | |
| | | n | % | n | % | % | |
| Career Center had good visibility | Disagree | 62 | 30.8 | 135 | 42.3 | 37.9 | 8.70* |
| | Agree | 56 | 27.9 | 61 | 19.1 | 22.5 | |
| Career Center has up-to-date technology | Disagree | 21 | 10.6 | 12 | 3.8 | 6.4 | 15.12* |
| | Agree | 62 | 31.2 | 74 | 23.5 | 26.5 | |
| My general perception of HP is positive | Disagree | 31 | 15.5 | 20 | 6.3 | 9.8 | 12.48* |
| | Agree | 122 | 61.0 | 205 | 64.3 | 63.0 | |
| HP's top screening tool is 3.5 GPA | Disagree | 16 | 8.1 | 10 | 3.2 | 5.1 | 23.18* |
| | Agree | 36 | 18.2 | 22 | 7.0 | 11.3 | |
| I know of HP because of CSU affiliation | Disagree | 99 | 49.7 | 163 | 51.3 | 50.7 | 9.35* |
| | Agree | 47 | 23.6 | 44 | 13.8 | 17.6 | |
| HP is committed to valuing diversity | Disagree | 17 | 8.6 | 8 | 2.5 | 4.9 | 12.90* |
| | Agree | 33 | 16.7 | 38 | 12.0 | 13.8 | |
| My gender inhibits my asking for help from CSU staff | Disagree | 129 | 63.5 | 263 | 80.9 | 74.2 | 21.01* |
| | Agree | 14 | 6.9 | 11 | 3.4 | 4.7 | |
| My gender influenced decision | Disagree | 133 | 65.5 | 264 | 81.2 | 75.2 | 17.86* |
| | Agree | 9 | 4.4 | 9 | 2.8 | 3.4 | |
| My gender is barrier with employers outside CSU | Disagree | 116 | 57.1 | 221 | 68.0 | 63.8 | 9.63* |
| | Agree | 23 | 11.3 | 40 | 12.3 | 11.9 | |
| My age is a barrier with my professors | Disagree | 132 | 64.7 | 250 | 76.9 | 72.2 | 11.48* |
| | Agree | 13 | 6.4 | 21 | 6.5 | 6.4 | |
| My ethnicity influenced decision to attend CSU | Disagree | 120 | 59.1 | 230 | 71.2 | 66.5 | 9.23* |
| | Agree | 11 | 5.4 | 8 | 2.5 | 3.6 | |
| My ethnicity is a barrier with employers outside CSU | Disagree | 104 | 51.5 | 229 | 70.9 | 63.4 | 28.40* |
| | Agree | 30 | 14.9 | 13 | 4.0 | 8.2 | |
| CSU is welcoming to diverse student | Disagree | 101 | 50.0 | 213 | 65.9 | 59.8 | 13.19* |
| | Agree | 28 | 13.9 | 32 | 9.9 | 11.4 | |

*$\leq$ p .01

of female respondents, but 10.6 % of male respondents disagreed with the statement that the Career Center has up to date technology. Thus, male respondents were more likely to disagree with the statement than were female respondents.

As can be seen in Table 13, crosstabulations of gender with the statement that the respondent's general perception of Hewlett-Packard is positive showed a significant chi-square ($p = .01$). The data show that 6.3 % of female respondents, but 15.5 % of male respondents disagreed with the statement that their general perception of Hewlett-Packard is positive. Thus, male respondents were more likely to disagree with the statement than were female respondents.

Crosstabulations of gender with the statement that Hewlett-Packard screens for interviews by 3.5 GPA showed a significant chi-square ($p = .001$). The data show that 3.2 % of female respondents, but 8.1 % of male respondents disagreed with the statement that Hewlett-Packard screens for interviews by 3.5 GPA. Conversely, 7.0 % of female respondents, but 18.2 % of male respondents agreed with the statement. Thus, male respondents were likely to both agree and to disagree with the statement that Hewlett-Packard screens for interviews by a 3.5 GPA than were female respondents.

As also seen in Table 13, crosstabulations of gender with the statement that the respondent knows about Hewlett-Packard through the company's affiliation with Colorado State University showed a significant chi-square ($p = .01$). The data show that 13.8 % of female respondents, but 23.6 % of male respondents agreed with the statement that they know about Hewlett-Packard through their affiliation with Colorado State University. Thus, male respondents were more likely to agree with the statement. than were female respondents.

Crosstabulations of gender with the statement that Hewlett-Packard is committed to valuing diversity showed a significant chi-square ($p = .01$). The data show that 2.5 % of female respondents, but 8.6 % of male respondents disagreed with the statement that Hewlett-Packard is committed to valuing diversity. Undecided responses to the statement were 74.7 % male and 85.5 % female. Thus, male respondents were more likely to disagree, while female respondents were more likely to be undecided about the statement that Hewlett-Packard is committed to valuing diversity.

As can be seen in Table 13, crosstabulations of gender with the statement that the respondent's gender inhibits asking for help from Colorado State University staff showed a significant chi-square ($p = .001$). The data show that 63.5 % of male, but 80.9 % of female respondents disagreed with the statement that their gender inhibits their asking for help from Colorado State University staff. Conversely, 76.9 % of male, but 3.4 % of female respondents agreed with the statement. Thus, female respondents were more likely to disagree with the statement, however, male respondents were more likely to agree with the statement that their gender inhibits their asking for help from Colorado State University staff.

Crosstabulations of gender with the statement that the respondent's gender influenced the decision to attend Colorado State University showed a significant chi-square ($p = .001$). The data show that 65.5 % of male, but 81.2 % of female respondents disagreed that their gender influenced their decision to attend Colorado State University. Thus, female respondents were more likely to disagree with the statement than were male respondents.

As seen in Table 13, crosstabulations of gender with the statement that the respondent's gender is a barrier with employers outside Colorado State University showed a significant chi-square ($p = .01$). The data show that 57.1 % of male, but 68.0 % of female respondents disagreed with the statement that their gender is a barrier with employers outside Colorado State University. Thus, female respondents were more likely to disagree with the statement than were male respondents.

Crosstabulations of gender with the statement that the respondent's age is a barrier with Colorado State University professors also showed a significant chi-square ($p = .01$). The data show that 64.7 % of male, but 76.9 % of female respondents disagreed that their age is a barrier with Colorado State University professors. Thus, female respondents were more likely to disagree with the statement than were male respondents.

As seen in Table 13, crosstabulations of gender with the statement that the respondent's ethnicity influenced the decision to attend Colorado State University also showed a significant chi-square ($p = .01$). The data show that 59.1 % of male, but 71.2 % of female respondents disagreed with the statement that their ethnicity influenced their decision to attend Colorado State University. Thus, female respondents were more likely to disagree with the statement than were male respondents.

Crosstabulations of gender with the statement that the respondent's ethnicity is a barrier with employers outside Colorado State University showed a significant chi-square ($p = .001$). The data show that 51.5 % of male, but 70.9 % of female respondents disagreed with the statement that their ethnicity is a barrier with employers outside Colorado State University. Conversely, 4.0 % of female respondents, but 14.9 % of male

respondents agreed with the statement. Thus, female respondents were more likely to disagree with the statement, while male respondents were more likely to agree with the statement that their ethnicity is a barrier with employers outside Colorado State University.

Table 13 also shows that crosstabulations of gender with the statement that Colorado State University is welcoming to diversity showed a significant chi-square ($p$ = .001). The data show that 50.0 % of male, but 65.9 % of female respondents disagreed with the statement that Colorado State University is welcoming to diversity. Thus, female respondents were more likely to disagree with the statement than were male respondents.

In summary, 12 of the 55 items were found to have significant chi-squares when crosstabulations were performed with gender. Male and female participants responded differently to the items. For example, males were more likely to agree that their gender and ethnicity influenced their decision to attend Colorado State University and that they know about Hewlett-Packard through the company's affiliation with Colorado State University. Male respondents were also more likely to agree that their gender inhibits their asking for help from Colorado State University staff, that their gender is a barrier with outside employers, and that their age is a barrier with professors.

## Analysis of Relationship Research Questions

Question 9. What are the relationships of age, ethnicity, gender, and student level with student current level of awareness of services offered by the Colorado State University Career Center?

The null hypothesis is that there will be no statistically significant relationships of age, ethnicity, gender, and student level with student current level awareness of services offered by the Colorado State University Career Center at the .01 significance level.

| Independent Variable | Dependent Variable |
|---|---|
| Age<br>Ethnicity<br>Gender<br>Student Level | Awareness of Career Center services |

The results of Cronbach's internal consistency reliability on the awareness of the Career Center services scale showed a very low alpha. Therefore, since this was shown not to be a satisfactory scale, it had to be dropped. Consequently, the researcher was not able to answer the research question "What are the relationships of age, ethnicity, gender, and student level with student current level of awareness of the services offered by the Colorado State University Career Center?"

Question 10. What are the relationships of age, ethnicity, gender, and student level with student current level of awareness of Hewlett-Packard's recruitment efforts and programs at Colorado State University?

The null hypothesis is that there will be no relationships of age, ethnicity, gender, and student level with student current level of awareness of Hewlett-Packard's recruitment efforts and programs at Colorado State University at the .01 significance level.

| Independent Variables | Dependent Variable |
|---|---|
| Age<br>Ethnicity<br>Gender<br>Student Level | Awareness of Hewlett-Packard's Recruitment Efforts and Programs at Colorado State University |

The results of Cronbach's internal consistency reliability on the awareness of Hewlett-Packard's recruitment efforts and programs scale show a low alpha. Therefore, since this was shown not to be a satisfactory scale, it had to be dropped. Consequently, there is no answer to the research question "What are the relationships of age, ethnicity, gender, and student level with student current level of awareness of Hewlett-Packard's recruitment efforts and programs at Colorado State University?"

Question 11. What are the relationships of age, ethnicity, gender, and student level with student current level of satisfaction with services offered by the Colorado State University Career Center?

The null hypothesis is that there will be no statistically significant relationships of age, ethnicity, gender, and student level with student current level of satisfaction with services offered by the Colorado State University Career Center at the .01 significance level.

| Independent Variables | Dependent Variable |
|---|---|
| Age<br>Ethnicity<br>Gender<br>Student Level | Satisfaction with Colorado State University Career Center Services |

One-way ANOVA's (analysis of variance) were performed to determine the relationships of each of the independent variables with the dependent variable satisfaction with Colorado State University Career Center services. As can be seen in Table 14, data analysis shows no statistical significance of age, ethnicity, gender, and student level with satisfaction with the Career Center services. Therefore, the results of these findings indicate that age, ethnicity, gender, and student level are not statistically significantly

related to student current level of satisfaction with the Colorado State University Career Center services. Therefore, the null hypothesis is not rejected.

Table 14

Analysis of Variance of Satisfaction With Colorado State University Career Center Services by Age, Ethnicity, Gender, and Student Level

| Source | df | SS | MS | F | p |
|---|---|---|---|---|---|
| Age | 2 | .9862 | .4931 | 1.0274 | .3598 |
| | 203 | | | | |
| Ethnicity | 1 | .1415 | .1415 | .2933 | .5887 |
| | 201 | | | | |
| Gender | 1 | .0530 | .0530 | .1099 | .7405 |
| | 204 | | | | |
| Student Level | 3 | 3.0562 | 1.0187 | 2.1579 | .0942 |
| | 202 | | | | |

*$p \leq .01$

Question 12. What are the relationships of age, ethnicity, gender, and student level with student current level of satisfaction with Hewlett-Packard's recruitment efforts and programs at Colorado State University?

The null hypothesis is that there will be no statistically significant relationships of age, ethnicity, gender, and student level with the student current level of satisfaction with Hewlett-Packard's recruitment efforts and programs at Colorado State University at the .01 significance level.

| Independent Variables | Dependent Variable |
|---|---|
| Age<br>Ethnicity<br>Gender<br>Student Level | Satisfaction with Hewlett-Packard's Recruitment Efforts and Programs at Colorado State University |

One-way ANOVA's (analysis of variance) were performed to determine the relationships of each of the independent variables with the dependent variable satisfaction with Hewlett-Packard's recruitment efforts and programs at Colorado State University.

As can be seen in Table 15, data analysis shows no statistically significant relationship of age, ethnicity, gender, and student level with satisfaction with Hewlett-Packard's recruitment efforts and programs at Colorado State University. Therefore, the results of these findings indicate that age, ethnicity, gender, and student level are not statistically significantly related to satisfaction with Hewlett-Packard's recruitment efforts and programs at Colorado State University, and the null hypothesis is not rejected.

Table 15

Analysis of Variance of Satisfaction with Hewlett-Packard's Recruitment Efforts and Programs at Colorado State University by Age, Ethnicity, Gender, and Student Level

| Source | df | SS | MS | F | p |
|---|---|---|---|---|---|
| Age | 2 | .0201 | .0101 | .0136 | .9765 |
| | 37 | | | | |
| Ethnicity | 1 | .0000 | .0000 | .0000 | 1.0000 |
| | 38 | | | | |
| Gender | 1 | .5570 | .5570 | .7904 | .3796 |
| | 38 | | | | |
| Student Level | 2 | .6354 | .3177 | .4403 | .6472 |
| | 37 | | | | |

*$p \leq .01$

Question 13. What are the relationships of age, ethnicity, gender, and student level with student current level of satisfaction with academic preparation and student/faculty relations at Colorado State University?

The null hypothesis is that there will be no relationships of age, ethnicity, gender and student level with student current level of satisfaction with academic preparation and student/faculty relations at Colorado State University at the .01 significance level.

| Independent Variables | Dependent Variable |
|---|---|
| Age<br>Ethnicity<br>Gender<br>Student Level | Satisfaction with Academic Preparation and Student/Faculty Relations at Colorado State University |

One-way ANOVA's (analysis of variance) were performed to determine the relationship between each of the independent variables and the dependent variable. As can be seen in Table 16, data analysis shows no statistical significance of ethnicity,

Table 16

Analysis of Variance of Satisfaction with Academic Preparation and Student/Faculty Relations at Colorado State University by Age, Ethnicity, Gender, and Student Level

| Source | df | SS | MS | F | p |
|---|---|---|---|---|---|
| Age | 2 | 4.9634 | 2.4817 | 4.5141 | .0114* |
| | 528 | | | | |
| Ethnicity | 1 | .4922 | .4922 | .8862 | .3469 |
| | 518 | | | | |
| Gender | 1 | .8944 | .8944 | 1.6075 | .2054 |
| | 529 | | | | |
| Student Level | 3 | 3.8398 | 1.2799 | 2.3148 | .0750 |
| | 527 | | | | |

* $p<.01$

gender, and student level with satisfaction with academic preparation and student/faculty relations at Colorado State University. However, data analysis did show statistical significance of age with satisfaction with academic preparation and student/faculty relations, which suggests a relationship. The post hoc multiple comparisons, Tukey HSD test was performed to determine which means were different from the other ones. The Tukey test showed that the differences in means was between the 26 plus age group and the 21 to 25 age group. As can be seen in Table 17, among the 26 and older age group, the mean was 3.74 (SD = .80). Among the 21 to 25 age group, the mean was 3.48 (SD = .75). Therefore, this portion of the null hypothesis was rejected, and we can tell from the means that the 26 and older age group had a higher level of satisfaction than the 21 to 25 age group.

Table 17

Satisfaction With Academic Preparation and Student Faculty Relations Mean Scores By Age Group

| Age Group | Mean | SD | N |
|---|---|---|---|
| 20 and younger | 3.64 | .69 | 130 |
| 21 to 25 | 3.48 | .75 | 330 |
| 26 and older | 3.74 | .80 | 71 |
| Total | 3.56 | .75 | 531 |

Therefore, the results of these findings indicate that ethnicity, gender, and student level are not statistically significantly related to satisfaction with academic preparation and student/faculty relations at Colorado State University, and that portion of the null hypothesis is not rejected. However, the results of these findings do show a statistically significant relationship between age and satisfaction with academic preparation and student/faculty relations at Colorado State University.

Question 14. What are the relationships of age, ethnicity, gender, and student level with student perceived impact of diversity (age, ethnicity, and gender) at Colorado State University?

The null hypothesis is that there will be no statistically significant relationships of age, ethnicity, gender, and student level with student perceived impact of diversity (age, ethnicity, and gender) at Colorado State University at the .01 significance level.

| Independent Variables | Dependent Variable |
|---|---|
| Age<br>Ethnicity<br>Gender<br>Student Level | Perceived Impact of Diversity (Age, Ethnicity, and Gender) Issues at Colorado State University |

One-way ANOVA's (analysis of variance) were performed to determine the relationship between each of the independent variables and the dependent variable perceived impact of diversity (age, ethnicity, and gender) at Colorado State University. As can be seen in Table 18, data analysis shows no statistical significance of age, ethnicity, and student level with perceived impact of diversity (age, ethnicity, and gender) at Colorado State University. Therefore, the results of the findings indicate that age, ethnicity, and student level are not statistically significantly related to student perceived impact of diversity (age, ethnicity, and gender) at Colorado State University, and that portion of the null hypothesis is not rejected.

Table 18

Analysis of Variance of Perceived Impact of Diversity (Age, Ethnicity, and Gender) at Colorado State University by Age, Ethnicity, Gender, and Student Level

| Source | df | SS | MS | F | p |
|---|---|---|---|---|---|
| Age | 2 | .7761 | .3880 | 1.4989 | .2243 |
| | 527 | | | | |
| Ethnicity | 1 | 1.1939 | 1.1939 | 4.7139 | .0304 |
| | 517 | | | | |
| Gender | 1 | 5.4282 | 5.4282 | 21.7488 | .001* |
| | 528 | | | | |
| Student Level | 3 | 2.2429 | .7476 | 2.9137 | .0339 |
| | 526 | | | | |

*p<.01

However, data analysis does show statistical significance of gender with student perceived impact of diversity (age, ethnicity, and gender) at Colorado State University, which implies a relationship. As can be seen in Table 19, among the male respondents, the mean was 2.42 (SD = .54). Among the female respondents, the mean was 2.21 (SD = .47). Therefore, the null hypothesis for this portion of the research question is rejected,

and we can tell from the means that males perceived a stronger impact of diversity at Colorado State University than females.

Table 19

Perceived Impact of Diversity at Colorado State University, Mean Scores By Gender

| Gender | Mean | SD | N |
|---|---|---|---|
| Male | 2.42 | .54 | 204 |
| Female | 2.21 | .47 | 326 |
| Total | 2.30 | .51 | 530 |

## Summary

The findings presented in this chapter included demographic and descriptive information about the respondents in this study. The first eight research questions were answered in terms of descriptive statistics; frequency distributions and percentages. Then crosstabulations and chi-squares were used to determine relationships among the individual variables. Based on the survey outcome, the findings indicate that the participants responded differently to many of the survey items by age, by ethnicity, and by gender. The remaining research questions (9-14) were answered in terms of comparative analyses of the survey outcomes.

Because of low internal consistency reliability alphas, the scales for awareness of Career Center services and for awareness of Hewlett-Packard's recruitment efforts and programs were found to unsatisfactory and were dropped. Therefore, it was not possible to answer research questions 9 and 10 concerning the relationships with those two scales.

The null hypothesis for all portions of question 11 could not be rejected since analysis demonstrated no significant relationships of age, ethnicity, gender, or student

level with student perceived satisfaction with Career Center services. The null hypothesis also could not be rejected for any portions of question 12 since analysis demonstrated no significant relationships of age, ethnicity, gender, or student level with student perceived satisfaction with Hewlett-Packard's recruitment efforts and programs at Colorado State University.

The null hypothesis for three portions of question 13 could not be rejected since analysis demonstrated no significant relationships of ethnicity, gender, and student level with student perceived satisfaction with academic preparation and student/faculty relations. However, the null hypothesis was rejected for the portion related to age since analysis demonstrated a significant relationship of age and student perceived satisfaction with academic preparation and student/faculty relations. We can tell by the means that the 26 and older age group had a higher level of satisfaction with academic preparation and student/faculty relations than the other age groups.

Finally, the null hypothesis for three portions of question 14 could not be rejected since analysis demonstrated no significant relationship of age, ethnicity, and student level with student perceived impact of diversity at Colorado State University. The null hypothesis was rejected for the portion related to gender since analysis demonstrated a significant relationship of gender with student perceived impact of diversity at Colorado State University. We can tell from the means that males perceived a stronger impact of diversity than females. Chapter V provides further discussion of these findings as well as discussion of the implications and recommendations for further research.

# CHAPTER V

# FINDINGS, CONCLUSIONS AND RECOMMENDATIONS

## Introduction

This chapter includes a summary of the study, a discussion of the findings, and a discussion of the conclusions. The chapter will conclude with recommendations for further research and practice.

The recruitment and retention of minority students in higher education is of prime concern for colleges and universities. Colleges and universities are seeking ways to ensure a welcoming and supportive environment for all students. Support services such as career development and recruitment activities and maintaining strong student/faculty relationships contribute to that goal.

A review of the related literature has shown the positive influence of strong student support services on the persistence and academic progress of minority students. The related literature also has shown the positive influence of a diverse and supportive faculty on the persistence and academic progress of minority students (Nettles & Johnson, 1987; Taylor & Olswang, 1997). Furthermore, literature has shown the positive influence of a higher education environment that is welcoming of diversity, where students feel valued and a part of the community which in turn influences overall student satisfaction with their college experience (Neisler, 1992). Additionally, literature supports the idea that student success in career development and recruitment activities is impacted by age, ethnicity, and gender (Love, 1993; Allen, 1995; Schlossberg et al.

1995). There appears to be a need for further research to focus specifically on the relationships of age, ethnicity, and gender on student awareness and satisfaction with career development services and job recruitment activities as well as satisfaction with academic preparation and student/faculty relations at the university.

## Summary of the Study

The purpose of this study was to investigate the current level of student awareness of and satisfaction with Career Center services, awareness of and satisfaction with Hewlett-Packard's recruitment efforts and programs at Colorado State University, satisfaction with academic preparation and student/faculty relations, and perceived impact of diversity (age, ethnicity, and gender) at Colorado State University. Additionally, the purpose of this study was to investigate the relationships of age, ethnicity, gender, and student level with student awareness of and satisfaction with Career Center services, awareness of and satisfaction with Hewlett-Packard's recruitment efforts and programs at Colorado State University, satisfaction with academic preparation and student/faculty relations, and perceived impact of diversity (age, ethnicity, and gender) at Colorado State University. The focus of this investigation was to examine fourteen basic research questions:

1. To determine the current level of student awareness of services offered by the Career Center.
2. To determine the current level of student satisfaction with services offered by the Career Center.

3. To determine the current level of student awareness of Hewlett-Packard's recruitment efforts and programs at Colorado State University.
4. To determine the current level of student satisfaction with Hewlett-Packard's recruitment efforts and programs at Colorado State University.
5. To determine the current level of student satisfaction with academic preparation and student/faculty relations at Colorado State University.
6. To determine the level of student perceived impact of age at Colorado State University.
7. To determine the level of student perceived impact of ethnicity at Colorado State University.
8. To determine the level of student perceived impact of gender at Colorado State University.
9. To determine the relationships of age, ethnicity, gender, and student level with the current level of student awareness of services offered by the Colorado State University Career Center.
10. To determine the relationships of age, ethnicity, gender, and student level with the current level of student awareness of Hewlett-Packard's recruitment efforts and programs at Colorado State University.
11. To determine the relationships of age, ethnicity, gender, and student level with the current level of student satisfaction with services offered by the Colorado State University Career Center.

12. To determine the relationships of age, ethnicity, gender, and student level with the current level of student satisfaction with Hewlett-Packard's recruitment efforts and programs at Colorado State University.
13. To determine the relationships of age, ethnicity, gender, and student level with the current level of student satisfaction with academic preparation and student/faculty relations at Colorado State University.
14. To determine the relationships of age, ethnicity, gender, and student level with the current level of student perceived impact of diversity (age, ethnicity, and gender) at Colorado State University.

The basic design of the study was comparative and descriptive. The sampling design was probability sampling using stratified random sampling of clusters of Colorado State University students. Of the 559 surveys administered in classes, 527 were returned in usable form. Of the 181 surveys distributed to students, to be completed outside of the class and returned, 20 were returned through campus mail. Of the 740 surveys administered or distributed, 74 % were returned in usable form ($n$ = 547).

## Discussion of the Findings

The demographic makeup of the sample participants ethnic groups approximates that of the Colorado State University Fall 1998 enrollment (Appendix E). Caucasian/Euro Americans comprised 86.7 % of the respondents while ethnic minorities comprised 9.9 % of the total. The largest age group by far was the 21 to 25 years old group, with the second largest being the 20 years old and younger group and the smallest group the 26 years and older. The gender makeup of the respondents was 61.6 % female

(10 % higher than the Fall, 1998 enrollment) and 38.4 % male (10 % lower than the Fall, 1998 enrollment). The majority of the respondents were seniors with approximately one-fourth being juniors, and approximately one-fourth sophomores and freshmen combined.

An area of difficulty for this study may lie in the construction of the questionnaire. Although the questionnaire was reviewed by a panel of experts in the field and the researcher conducted a pilot study with engineering students, the construction of the Likert scale allowing an "Undecided" response option clearly impacted the outcomes of the survey. In retrospect, it may have been better to have a "forced choice" Likert scale where the respondents had to make a choice other than undecided.

Although all sections of the questionnaire had higher than expected undecided response rates, those for "awareness and satisfaction with Career Center services" and "awareness and satisfaction with Hewlett-Packard recruitment efforts and programs" were especially high. Notwithstanding the high undecided response rate, the research did provide valuable information as it related to the research questions.

The high percentage of undecided responses to awareness items clearly indicates a low current level of student awareness of services provided by the Career Center. As well, the responses indicate the Career Center has low visibility. There were many comments such as "Where is it?!"; "I've never even heard of it (the Career Center) before"; "What is the Career Center?" written on the questionnaires by the respondents. The high percentage of undecided responses to the satisfaction items probably indicates a lack of awareness rather than a lack of satisfaction with the Career Center services. Furthermore, the high percentage of undecided responses to diversity issues with the Career Center probably indicates a lack of awareness of the impact of diversity issues

with the Career Center. Of the 547 respondents, only 221 reported having used the Career Center one or more times. Given the fact that more than half of the respondents were seniors and were in the 21 to 25 age group, one would expect that these students would have accessed the Career Center to avail themselves of the services offered to do career exploration and to develop job search skills such as the preparation of resumes, letters, and interviewing skills.

The literature has shown the impact of cultural values on the career development of minority groups and their use of career development services (Ogbu, 1990; Kaneshige, 1979; Swirkoski, 1997). Furthermore, it has been shown that insufficient career information, career awareness, career planning, and perceived lack of options results in the underrepresentation of ethnic minority groups in areas such as mathematics, science, engineering, and computer science (Smith, 1990; Durodoye, Bodley, & Hildreth, 1997).

Certainly the high undecided response rate to the awareness items indicates a lack of awareness of Hewlett-Packard's recruitment efforts and programs at Colorado State University. There were several hand written comments on the questionnaires to the effect that the respondents were not aware of Hewlett-Packard's presence on campus. For example, "I don't know much about HP and careers"; "I didn't know they (HP) had an affiliation"; "I was unaware of HP's presence on campus" and "I'm a biochemist undergrad and have never been informed about HP's recruitment efforts." However, overall student perception of Hewlett-Packard is positive. The high undecided response rate to the satisfaction with Hewlett-Packard's recruitment efforts and programs items can be interpreted as an indication of moderate satisfaction. Of the 547 respondents, only 40 reported having interviewed with Hewlett-Packard. These participants were asked to

respond to diversity issues with Hewlett-Packard. Through the random selection of departments and courses for the sample, some of the "typical" areas of interest for recruitment by Hewlett-Packard were included. Although the presumption is that Hewlett-Packard only hires from the areas of business, engineering, and computer science, they do also hire students the area of natural resources recreation and tourism. This section of the questionnaire may be one where a "forced choice" response would have yielded better outcomes.

In the area of current level of satisfaction with academic preparation, even with more undecided responses than expected, approximately three-fourths of the respondents agreed that their academic preparation is preparing them for the working world and that they were pleased with the quality of the education they are receiving. This indicates the current level of satisfaction with academic preparation at Colorado State University is moderately high. Given the high percentage of respondents who were seniors and who were in the 21 to 25 age group, this is not surprising. One would think that students at this maturity level and after having experienced three or four years of college, would have more definite ideas about their satisfaction with their academic preparation, or those who have been dissatisfied have left the institution. Again, "forced choice" on the questionnaire may have been more appropriate.

In the area of satisfaction with student/faculty relations, the undecided response rate also was higher than expected. This is another area where a "forced response" may have been more appropriate. Nonetheless, the results show a moderately high current level of student satisfaction with faculty encouragement, mentoring, accessibility, and advising.

These findings support the evidence that strong student/faculty relations have been correlated to retention and academic progress of college students (Nettles & Johnson, 1987; Griffin, 1992; Love, 1993). This connection between students and faculty in turn has been shown to influence students' overall satisfaction with their college experience (Endo & Harpel, 1982; Griffin, 1992; Love, 1993).

In the area of the current level of perceived impact of diversity, the high undecided response rate may be interpreted to indicate an overall low perceived impact of diversity issues. Overall the perceived impact of age issues is low. Notwithstanding, one respondent wrote on her questionnaire, "Need more about age. Age is a real problem at CSU! I have two kids." This respondent reported that she is an employed part-time student in the 36-45 age range with student loans. (In this study, only 16 participants reported being in the 36 years and older age group, and no questions were asked about marital status or number of children.) In the area of ethnicity, one must keep in mind that only 9.9 % of the respondents were of students of color. Nonetheless, over one-half of the total respondents reported that they do not feel comfortable discussing ethnicity issues in their classes. Slightly over 9 % reported that they would feel more comfortable if more of their professors shared their ethnic backgrounds. Yet, 59.6 % of the respondents reported that they felt the University is not welcoming to diverse students. Therefore current level of perceived impact of ethnicity is moderate. The current level of perceived impact of gender appears to be low.

In this study the impact of age was low, probably because only 16 participants reported being 36 years or older. The comment of the student in the above paragraph supports the evidence that life span transitions create special career development needs

for women 35 years and older. As well the participant's comments support Allen's (1995) findings that nontraditional aged women found a lack of support and few career center services/resources to assist them with their multiple roles of mothers, wives, students, and workers. The findings also support the evidence that a diverse and supportive faculty is part of providing a welcoming environment for diverse students (Neisler, 1992; Taylor & Olswang, 1997).

Crosstabulations of age, ethnicity, gender, and student level with each item on the survey instrument revealed many significant chi-squares; twenty-five out of 220 chi-squares were shown to be significant. No significant chi-squares were shown for student level. The data showed that the participants did respond differently to those items based on age, ethnicity, and gender.

The first set of relationships to be examined was of age, ethnicity, gender, and student level with awareness of Career Center services. Internal consistency reliability analysis demonstrated that this was not a satisfactory scale and the scale was dropped. Therefore, I was not able to answer the research question of relationships of age, ethnicity, and student level with awareness of Career Center services.

The second set of relationships to be examined was of age, ethnicity, gender, and student level with student awareness of Hewlett-Packard's recruitment efforts and programs at the University. The internal consistency reliability analysis demonstrated that this was not a satisfactory scale and the scale was dropped. Therefore, I was not able to answer the research question of the relationships of age, ethnicity, gender and student level with awareness of Hewlett-Packard's recruitment efforts and programs at Colorado State University.

The third and fourth sets of relationships to be examined were of age, ethnicity, gender, or student level with student satisfaction with Career Center services and with Hewlett-Packard's recruitment efforts and programs at Colorado State University. Although the literature supports the idea that student success in career development and recruitment activities is impacted by age, ethnicity, and gender (Love, 1993; Allen, 1995, Schlossberg et al. 1995), this research found no significant relationships of those variables with student satisfaction with either Career Center services or with Hewlett-Packard's recruitment efforts and programs at Colorado State University.

The fifth set of relationships to be examined was of age, ethnicity, gender, and student level with student satisfaction with academic preparation and student/faculty relations. Nettles and Johnson (1987), in addition to Taylor and Olswang (1997) and Neisler (1992), have shown the positive influence of a diverse and supportive faculty and a welcoming environment on academic progress and satisfaction with the college experience. This research found no significant relationships of ethnicity, gender, and student level with student satisfaction with academic preparation and student/faculty relations. However, data analysis did demonstrate a significant relationship between age and student satisfaction with academic preparation and student/faculty relations. Specifically, the 26 and older age group reported a higher level of satisfaction than the 21 to 25 age group.

The final set of relationships to be examined was of age, ethnicity, gender, and student level with student perceived impact of diversity (age, ethnicity, and gender) issues. Schlossberg et al (1995), as well as Allen (1995), have shown the impacts of age issues on older women students. The data analysis demonstrated no significant

relationship of age, ethnicity, and student level with student perceived impact of diversity (age, ethnicity, and gender) issues. However, data analysis did demonstrate a significant relationship of gender with student perceived impact of diversity (age, ethnicity, and gender) issues at Colorado State University. It is interesting to note that males rather than females perceived a stronger impact of diversity issues.

## Summary

The findings, hopefully, will provide useful information and numerous implications for the Colorado State University Career Center and the Hewlett-Packard Company. These findings identified the demographic characteristics of the sample population as well as demonstrated two relationships between the variables. It should be cautioned that these findings should not be generalized to other institutions as the limitations stated in Chapter I.

## Recommendations

### Recommendations for the Career Center

Given the low level of perceived visibility and student awareness of the Career Center services, especially at the junior and senior level, it would seem appropriate to initiate measures to change those perceptions. Some initiatives might include adding the words "Career Center" to the sign outside Ammons Hall, since currently there is no way to identify the Career Center as being in Ammons Hall. In addition, the Career Center needs to focus more awareness building activities toward juniors and seniors. These activities may include visiting upper level courses in the different colleges, contacting

faculty who teach upper level courses to identify and advertise the Career Center services. Although a small number of respondents were freshmen and sophomores, these participants also appear to be unaware of the Career Center. Again, Career Center staff could identify courses which large numbers of freshmen and sophomore students take to market Career Center services. The Career Center could use similar methods to market Career Center services to transfer students. Another method to improve Career Center awareness would be to enhance the role of the Career Center liaison in each department on campus and have the liaisons promote/market their dual role (academic department and Career Center). Additionally, the Career Center could initiate and advertise activities targeted toward nontraditional age women. Lastly, the Career Center could build and retain a Career Center staff that is diverse. There are no recommendations regarding services since results from the satisfaction items appear to stem from unawareness rather than low satisfaction.

Recommendations for Hewlett-Packard

Student overall perception of Hewlett-Packard is positive. However, student awareness of Hewlett-Packard's recruitment efforts and programs at Colorado State University is low. Depending on Hewlett-Packard's concern for campus wide awareness of their presence, it may be appropriate to initiate some measures to broaden the company's visibility at Colorado State University. These could include more interactions and stronger connections with the different student advocacy offices, women's programs and studies, and branching out to colleges other than Business and Engineering and the Department of Computer Sciences. These interactions or connections could mean campus visits and guest presentations in classes or at student organizational meetings.

Recommendations for Faculty and Colorado State University

The overall satisfaction with academic preparation and student/faculty relations at Colorado State University is moderately high. An area of concern is the perception that Colorado State University is not welcoming to diverse students. This perception could be changed if Colorado State University not only works to recruit, but also does a better job of retaining students of color and women while they attend the University. This means the University would need to revisit the current faculty reward structure and place more emphasis and recognition on student advising activities.

Recommendations for Further Research

Based on the findings of this study, the following suggestions are made for further research in the area of the relationships of age, ethnicity, gender, and student level with awareness and satisfaction with career development services and job recruitment activities, as well as satisfaction with academic preparation and student/faculty relations at the University. First, use a survey with a forced choice Likert scale. This would eliminate a tendency of the respondents to not give much thought to their responses.

Second, further study should be done that investigates students who do not use the Career Center to determine how they proceed with career exploration and career development and if it is important to them. Third, further studies should be done at Colorado State University encompassing those departments where students of color and women are underrepresented. Fourth, since this study had a low representation of older students, further studies should be done that focus on nontraditional age students, specifically women. An offshoot of this study on a narrower scale that would focus on students of color and women, especially those who are 36 and older, may lead to findings

that are more accurate and possibly demonstrate areas of significance that this study missed due to the low percentage of students of color and older respondents. Measures could then be taken that may be associated with the persistence and academic progress of students of color and women students in those areas where they are underrepresented.

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# APPENDIX A

# QUESTIONNAIRE

**COLORADO STATE UNIVERSITY AND HEWLETT-PACKARD**
**STUDENT NEEDS ANALYSIS QUANTITATIVE STUDY**

**A. A range of perceptions exist regarding the services of the CSU Career Center. Please indicate the extent to which you agree or disagree with each of the following statements by using the scale below (circle the number of your response): DISCLAIMER: You must be 18 years old or older and a CSU student to complete this questionnaire.**

1 - Strongly Disagree
2 - Mildly Disagree
3 - Undecided or Unsure
4 - Mildly Agree
5 - Strongly Agree

| | | SD | MD | UD | MA | SA |
|---|---|---|---|---|---|---|
| 1. | The Career Center has good visibility | 1 | 2 | 3 | 4 | 5 |
| 2. | The Career Center has adequate customer service | 1 | 2 | 3 | 4 | 5 |
| 3. | The Career Center atmosphere is hospitable and friendly | 1 | 2 | 3 | 4 | 5 |
| 4. | The Career Center has up-to-date technology | 1 | 2 | 3 | 4 | 5 |
| 5. | The Career Center is adequate in size | 1 | 2 | 3 | 4 | 5 |
| 6. | The Career Center serves only engineering, business, and computer science students | 1 | 2 | 3 | 4 | 5 |
| 7. | The Career Center liaison in my college is helpful to me | 1 | 2 | 3 | 4 | 5 |
| 8. | The Career Fair is mostly for engineering, business, and computer science students | 1 | 2 | 3 | 4 | 5 |
| 9. | The Career Center serves only seniors and those looking for permanent employment | 1 | 2 | 3 | 4 | 5 |
| 10. | The Career Center screens for interviews by 3.5 GPA and graduation date | 1 | 2 | 3 | 4 | 5 |
| 11. | The Career Center is the best place for me to find information about careers | 1 | 2 | 3 | 4 | 5 |
| 12. | I know what services the Career Center offers | 1 | 2 | 3 | 4 | 5 |

13. I have used the Career Center the following number of times. (Circle the appropriate number of times.)

0 = 0 times; 1 = 1 time; 2 = 2 times; 3 = 3 times; 4 = 4 times or more

**B. If you have used the Career Center answer items 14 through 17, if not skip to Section C.**

| | | | | | | |
|---|---|---|---|---|---|---|
| 14. | The Career Center staff seems aware of the issues of concern for older students | 1 | 2 | 3 | 4 | 5 |

| | SD | MD | UD | MA | SA |
|---|---|---|---|---|---|
| 15. The Career Center staff seems aware of issues related to gender | 1 | 2 | 3 | 4 | 5 |
| 16. The Career Center staff seems aware of issues related to ethnicity | 1 | 2 | 3 | 4 | 5 |
| 17. I would feel more comfortable using the Career Center if more of the staff shared my ethnic background | 1 | 2 | 3 | 4 | 5 |

**C. A range of perceptions exist regarding the Hewlett-Packard Company's recruitment efforts and programs on the CSU campus. Please indicate the extent to which you agree or disagree with each of the following statements using the scale below (circle the number):**

1 - Strongly Disagree
2 - Mildly Disagree
3 - Undecided or Unsure
4 - Mildly Agree
5 - Strongly Agree

| | SD | MD | UD | MA | SA |
|---|---|---|---|---|---|
| 1. My general perception of Hewlett-Packard is positive | 1 | 2 | 3 | 4 | 5 |
| 2. Hewlett-Packard's top screening tool is a 3.5 GPA or better | 1 | 2 | 3 | 4 | 5 |
| 3. Hewlett-Packard will also interview students with a GPA between 3.0 and 3.5 | 1 | 2 | 3 | 4 | 5 |
| 4. I know about Hewlett-Packard because of their affiliation with CSU | 1 | 2 | 3 | 4 | 5 |
| 5. The Hewlett-Packard Company is committed to valuing diversity | 1 | 2 | 3 | 4 | 5 |

**D. If you have interviewed with Hewlett-Packard answer items 6 through 15, if not skip to section E.**

| | | | | | |
|---|---|---|---|---|---|
| 6. The process to make a connection with Hewlett-Packard through the SEED internship is clear | 1 | 2 | 3 | 4 | 5 |
| 7. Hewlett-Packard recruiters seem comfortable discussing issues related to ethnicity | 1 | 2 | 3 | 4 | 5 |
| 8. Hewlett-Packard recruiters seem comfortable discussing issues related to gender | 1 | 2 | 3 | 4 | 5 |
| 9. The goal of Hewlett-Packard recruitment is to recruit the most qualified, not to recruit for diversity sake | 1 | 2 | 3 | 4 | 5 |
| 10. My gender positively influenced my interviewing process with Hewlett-Packard | 1 | 2 | 3 | 4 | 5 |
| 11. My ethnicity positively influenced my interviewing process with Hewlett-Packard | 1 | 2 | 3 | 4 | 5 |

| | SD | MD | UD | MA | SA |
|---|---|---|---|---|---|
| 12. I was kept up to date on my application status after my interview with Hewlett-Packard | 1 | 2 | 3 | 4 | 5 |
| 13. The Hewlett-Packard Recruitment Team has adequate ethnic representation | 1 | 2 | 3 | 4 | 5 |
| 14. The Hewlett-Packard Recruitment Team has adequate gender representation | 1 | 2 | 3 | 4 | 5 |
| 15. The Hewlett-Packard/CSU Recruitment Team is committed to valuing diversity during the recruitment process | 1 | 2 | 3 | 4 | 5 |

**E. A range of perceptions exists regarding CSU faculty and their role in academic and career preparation. Please indicate the extent to which you agree or disagree with each of the following statements by using the scale above (circle the number):**

| | | | | | |
|---|---|---|---|---|---|
| 1. I feel that my academic preparation at CSU is preparing me for the working world | 1 | 2 | 3 | 4 | 5 |
| 2. One or more of my professors have acted as a mentor for me | 1 | 2 | 3 | 4 | 5 |
| 3. Overall, professors are helpful with my getting interviews, jobs, and projects | 1 | 2 | 3 | 4 | 5 |
| 4. Overall my professors provide encouragement to students | 1 | 2 | 3 | 4 | 5 |
| 5. Overall, professors are accessible to me | 1 | 2 | 3 | 4 | 5 |
| 6. Overall, my advisor has provided effective advising | 1 | 2 | 3 | 4 | 5 |
| 7. My professors expect me to do well | 1 | 2 | 3 | 4 | 5 |
| 8. One or more of my professors in my major have been unhelpful by exhibiting dismissive, unengaged, or alienating behavior | 1 | 2 | 3 | 4 | 5 |
| 9. I am pleased with the quality of education I am receiving at Colorado State University | 1 | 2 | 3 | 4 | 5 |

**F. A range of perceptions exists regarding the impact of ethnicity or gender or age on career development. Please indicate the extent to which you agree or disagree with each of the following statements using the scale above (circle the number):**

| | | | | | |
|---|---|---|---|---|---|
| 1. My gender positively impacts my CSU experience | 1 | 2 | 3 | 4 | 5 |
| 2. My gender inhibits me from asking for help from CSU staff | 1 | 2 | 3 | 4 | 5 |
| 3. My gender influenced my decision to attend CSU | 1 | 2 | 3 | 4 | 5 |

| | | SD | MD | UD | MA | SA |
|---|---|---|---|---|---|---|
| 4. | My professors seem comfortable talking about issues related to my gender | 1 | 2 | 3 | 4 | 5 |
| 5. | My gender is a barrier or disadvantage for me with employers outside CSU | 1 | 2 | 3 | 4 | 5 |
| 6. | My age is a barrier or disadvantage for me with employers outside CSU | 1 | 2 | 3 | 4 | 5 |
| 7. | My age is a barrier or disadvantage for me with my professors | 1 | 2 | 3 | 4 | 5 |
| 8. | My ethnicity positively impacts my CSU experience | 1 | 2 | 3 | 4 | 5 |
| 9. | My professors seem comfortable talking about issues related to ethnicity | 1 | 2 | 3 | 4 | 5 |
| 10. | I would feel more comfortable if more of my professors shared my ethnic background | 1 | 2 | 3 | 4 | 5 |
| 11. | I am comfortable discussing issues related to ethnicity in my classes | 1 | 2 | 3 | 4 | 5 |
| 12. | My ethnicity influenced my decision to attend CSU | 1 | 2 | 3 | 4 | 5 |
| 13. | My ethnicity is a barrier or disadvantage for me with employers outside CSU | 1 | 2 | 3 | 4 | 5 |
| 14. | Colorado State University is welcoming to diverse students | 1 | 2 | 3 | 4 | 5 |

**G. Finally we would like to ask you a little about yourself. Please Circle the appropriate number:**

**Age**

1 20 or Younger
2 21-25 Years
3 26-35 Years
4 36-45 Years
5 Over 45 Years

**Employed**

1 No
2 Part Time
3 Full Time

**Student Loans**

1 No
2 Yes

**Gender**

1 Male
2 Female

**Student Level**

1 Freshman
2 Sophomore
3 Junior
4 Senior
5 Graduate
6 Other

**U.S. States Citizen**

1 No
2 Yes **(If yes answer below)**

**Race/Ethnicity**

1 African American
2 Asian American
3 Caucasian/Euro-American
4 Hispanic/Latino American
5 Native American
6 Other

**College**

1 College of Agricultural Sciences
2 College of Applied Human Sciences
3 College of Business
4 College of Engineering
5 College of Liberal Arts
6 College of Natural Resources
7 College of Natural Sciences
8 College of Veterinary Medicine and Biomedical Sciences
9 Open enrollment/Other

# APPENDIX B

# STUDENT CONSENT LETTER

February 22, 1999

Dear Student:

This questionnaire is part of a research project sponsored by the Hewlett-Packard Company and the School of Education at Colorado State University. This project will examine how the career development and the recruitment/employment process impacts both ethnic minority and majority students at CSU. In addition, the project will examine students' satisfaction with their academic preparation and faculty relations at CSU.

As a CSU student, your opinion about the career development and recruitment/employment process issues as well as academic preparation and faculty relations is important to the completion of this research about these issues. We are asking for your voluntary participation in this study. If you do not wish to participate, simply return the questionnaire unanswered. Whether or not you participate has absolutely no bearing on your grade in your class.

The information you provide will be useful in two ways. First, it will provide the University with valuable information needed in order to offer the most useful and beneficial services and programs to students. Second, it will help the Hewlett-Packard Company to determine if their recruitment efforts and programs meet their diversity recruitment goals at CSU.

Should you decide to participate in this study, please follow the directions on the following pages. The questionnaire takes only a few minutes to complete. It is important that you consider and respond to each item on the questionnaire. Since this is a questionnaire and not a test, there are no right or wrong answers. Your thoughtful and honest response to each item is appreciated. If your instructor has indicated that he or she will pick up the completed survey please return it to them, otherwise please fold the survey in half and return it to the researchers through campus mail. The return address is on the back side of the last sheet.

The information you provide may be of a sensitive nature and we wish to protect your anonymity. Therefore, the response forms are not coded and we ask that you not put your name on the forms. Your willingness to participate in this study will be indicated by your completion of the research materials.

Should you wish to discuss any concerns related to the research topics, we encourage you to contact any of the research team, the advocacy offices, or CSU Counseling Services. The numbers are:

| | | | |
|---|---|---|---|
| Sharon K. Anderson, Ph.D. | - 491-6861 | Asian Pacific American Student Service | - 491- 6154 |
| Anne Fernan, ABD | - 225-1333 | Native American Student Services | - 491-1332 |
| CSU Counseling Services | - 491-6053 | Resources for Disabled Students | - 491-6385 |
| Black Student Services | - 491-5781 | Women's Programs and Studies | - 491-6384 |
| El Centro Student Services | - 491-5722 | | |

Thank you again, for participating in this study.

Sharon K. Anderson, Ph.D. Anne Fernan, Doctoral Candidate

# APPENDIX C

## PANEL OF EXPERTS FOR

## FACE AND CONTENT VALIDITY OF INSTRUMENT SCALE

# PANEL OF EXPERTS

| | |
|---|---|
| Sharon K. Anderson, Ph.D. | Assistant Professor<br>School of Education<br>Colorado State University |
| George A. Morgan, Ph.D. | Professor<br>School of Education<br>Colorado State University |
| Ann Malen | Director<br>The Career Center<br>Colorado State University |
| Teresa R. Kostenbauer | Job Development Specialist<br>The Career Center<br>Colorado State University |
| Victoria Naffier | Hewlett-Packard Company<br>3404 E. Harmony Road<br>Fort Collins, CO 80528 |

# APPENDIX D

## LETTER TO DEPARTMENT HEADS

2100 W. Drake Rd. #257
Fort Collins, CO 80526
February 12, 1999

Dear Dr. Derek L. Lile:

Please let me briefly introduce myself. I am a doctoral candidate in the School of Education specializing in Counseling and Career Development. My dissertation topic is the Colorado State University and Hewlett-Packard Student Needs Analysis Quantitative Study. I will be conducting research to answer the basic question of relationships between demographics (age, gender, ethnicity, and student level) and awareness and satisfaction with the CSU Career Center services, the Hewlett-Packard Company's recruitment efforts and programs at CSU, and satisfaction with academic preparation and faculty relations at CSU.

A questionnaire has been developed to survey students perceptions related to the above issues. In order to get a response representative of the CSU student population, the sampling design includes the administration of the questionnaire to students in one 200 level course and one 400 level course from each of the colleges at CSU. It is projected that, upon approval, distribution of the questionnaires will begin the week of February 22, 1999.

The Electrical Engineering Department was randomly selected from the College of Engineering. The courses randomly selected to receive the questionnaire are EE202 and EE402.

I am aware of the complications of using class time to administer surveys. Therefore, I am requesting your permission to distribute the questionnaire to the students in those two classes. The students will then be asked to complete the questionnaire outside of class and to return it at the specified address.

A copy of the questionnaire is attached for your review. I will await your approval of the distribution of the questionnaires before I contact the professors of the respective classes to get their permission to come into their classrooms.

My advisor, Dr. Sharon Anderson in the School of Education, has said that she will accept E-mail messages of approval. Her E-mail address is sanders@lamar.colostate.edu. Otherwise you may make a note at the bottom of this letter indicating your approval and return it to me.

Thank you for your help. If you have any questions, please contact me at 225-1333, or contact Dr. Sharon Anderson at 491-6861.

Sincerely,

Annie Wright Fernan, Doctoral Candidate

# APPENDIX E

# COLORADO STATE UNIVERSITY UNDERGRADUATE

# STUDENT ETHNICITY AND GENDER DATA

Appendix E

Colorado State University Undergraduate Student Ethnicity and Gender Data, Fall Enrollments

| | 1988 | | 1990 | | 1995 | | 1998 | |
|---|---|---|---|---|---|---|---|---|
| | N | % | N | % | N | % | N | % |
| Undergraduate Enrollment | | | | | | | | |
| Black/African American | 270 | 1.6 | 310 | 1.8 | 262 | 1.4 | 277 | 1.5 |
| Native American | 100 | 0.6 | 125 | 0.7 | 211 | 1.2 | 218 | 1.2 |
| Asian American | 317 | 1.9 | 373 | 2.2 | 523 | 2.9 | 523 | 2.8 |
| Latino/Hispanic American | 574 | 3.4 | 738 | 4.2 | 970 | 5.3 | 1038 | 5.6 |
| Total Minority | 1261 | 7.5 | 1572 | 9.1 | 1966 | 10.8 | 2056 | 11.1 |
| International | 179 | 1.1 | 161 | 0.9 | 185 | 1.0 | 230 | 1.2 |
| Other | 586 | 3.5 | 416 | 2.4 | 366 | 2.0 | 478 | 2.6 |
| White/Euro-American | 14763 | 87.9 | 15221 | 87.6 | 15619 | 86.1 | 15843 | 85.1 |
| Gender | | | | | | | | |
| Men | 8665 | | 8953 | | 9104 | | 9000 | |
| Women | 8124 | | 8412 | | 9032 | | 9607 | |
| Total | 16789 | 100.0 | 17370 | 100.0 | 18136 | 100.0 | 18607 | 100.0 |

Compiled from Colorado State University Office of Budgets and Institutional Analysis Enrollment Data.