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ABSTRACT

Student data on 7,964 high school graduates from Colorado's largest school district were matched with data from both the Colorado Department of Labor and Employment and the Colorado Commission on Higher Education. Data collected for the 1996, 1997, and 1998 graduates examined two of the paths selected by students immediately after graduation: enrollment in postsecondary education and workforce employment. Relationships were identified in terms of gender, ethnic background, and graduation year. Data show that 1 year after graduation, approximately 45% of the study participants were enrolled in Colorado postsecondary institutions and 46% were employed in Colorado industries. More than 90% of students enrolled in postsecondary education were also employed. Exit surveys indicated that 72% of the 1996-1998 graduates planned to enroll in postsecondary education programs, and 14% indicated they planned to find full-time employment. Statistically significant differences were found between male and female and majority and minority populations in several categories. Male graduates earned significantly more than females, and minority students earned significantly more than majority students. The study demonstrates the ability of researchers to match school district data with employment and enrollment data and demonstrates that matched data can be used to identify the paths high school students select after graduation. Six appendixes contain supplemental information and some excerpts from codes, titles, and classifications used in the study. (Contains 44 tables and 69 references.) (SLD)

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DISSERTATION

LONGITUDINAL STUDY OF 1996 TO 1998 HIGH SCHOOL GRADUATES ONE YEAR AFTER GRADUATION

Submitted by

Linda Robins Harrison

School of Education

U.S. DEPARTMENT OF EDUCATION
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In partial fulfillment of the requirements

for the Degree of Doctor of Philosophy

Colorado State University

Fort Collins, Colorado

Spring 2002

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November 7, 2001

WE HEREBY RECOMMEND THAT THE DISSERTATION PREPARED UNDER OUR SUPERVISION BY LINDA ROBINS HARRISON ENTITLED LONGITUDINAL STUDY OF 1996 TO 1998 HIGH SCHOOL GRADUATES ONE YEAR AFTER GRADUATION BE ACCEPTED AS FULFILLING IN PART REQUIREMENTS FOR THE DEGREE OF DOCTOR OF PHILOSOPHY.

Committee on Graduate Work

Advisor

Department Head/Director

ABSTRACT OF DISSERTATION

LONGITUDINAL STUDY OF 1996 TO 1998 HIGH SCHOOL GRADUATES ONE YEAR AFTER GRADUATION

Student data on 7,964 high school graduates from Colorado's largest school district were matched with data from both the Colorado Department of Labor and Employment and the Colorado Commission on Higher Education. Data collected for the 1996, 1997, and 1998 graduates examined two of the paths selected by students immediately after graduation: enrollment in post-secondary education and workforce employment. Relationships were identified in terms of gender, ethnic background, and graduation year groups. Post-secondary variables included type of institution and program, most frequently selected institution and degree program, and cumulative hours completed. Employment variables included earnings, industry type, and the size of company where students were employed. In addition, the author provides descriptive comparisons of enrollment and employment data with the information provided by students on their high school graduation exit surveys.

According to the data, one year after graduation approximately 54% of the study participants were enrolled in Colorado post-secondary institutions and 46% were employed in Colorado industries. Over 90% of the students enrolled in post-secondary education were also employed. Exit surveys indicated that 72% of the 1996-1998

graduates planned to enroll in post-secondary education programs, and 14% indicated they planned to find full-time employment.

Statistically significant differences were found between male vs. female and majority vs. minority populations in several categories. For example, based on the percentage in the sample, more female and more majority students than expected were working and attending school in the first year after high school graduation. In addition, more male students than expected were employed-only and more minority students were enrolled-only. The data also show that male graduates earned significantly more than female graduates, and minority students earned significantly more than majority students. Moreover, almost 50% of the students enrolled in post-secondary education were enrolled as undeclared or enrolled in Liberal Arts degree programs. Of the students who were employed, almost 70% were working in retail trade and services industries.

This study demonstrates the ability of researchers to match school district data with employment and enrollment data from two state agencies and demonstrates that matched data can be used to identify the paths high school students select after graduation. A final recommendation is offered that school districts from all 50 states establish cooperative agreements with employment and higher education agencies to develop procedures for completing follow-up studies on graduates.

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vision, encouragement, and commitment to create a system that would combine data from three agencies into a data file that even a novice could analyze.

This project was created through the support of the Colorado School-to-Career Partnership and the vision of Kay Meyer. Her foresight and initiative created an interagency partnership that resulted in the fruition of this project. Greg Appling provided the tools for connecting the Jefferson County Schools database with data from the Colorado Commission on Higher Education and served as a resource for the post-secondary system. Susan McClellan and Maureen Farrell coordinated the retrieval of data from the Colorado Department or Labor and Employment, and their vision guided the committee to create a system that would work for all partners. The completion of this study was truly the work of an integrated team of dedicated professionals who spent numerous hours designing, creating, and administrating a new and unique process.

Thank you also to my special mentors, Dr. Susan McAlonan and Dr. Ben Yohe, and to my many friends and colleagues who helped make this project possible. I could not have accomplished this task alone. It is truly the result of a team effort of dedicated and energized Colorado education professionals.

DEDICATION

This study is dedicated to my family. First, to my five granddaughters Kayla, Monica, Gabrielle, Jenna, and Delaney who always remind me to remember that "today" is the time to grow, learn, and love. Next to my children Kurt, Cari, Greg, Stacey, and their partners, for patience and encouragement even when the mountain seemed too high to climb. Finally to my husband Dennis for his faith, love, encouragement, and belief that I had the dedication and ability to complete this study. Thank you all for being a part of my life and for providing your love, patience, support, and understanding. And most of all, thank you for helping me to remember that the greatest thing one learns in this life is how to love and be loved in return. I am truly blessed to have all of you in my life.

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CHAPTER 1: INTRODUCTION

The purpose of Chapter 1 is to provide an overview of the research study and introduce some of the available literature on the paths students take after high school graduation. The chapter also identifies the purpose of the study, outlines the research problem and research questions, defines the terms used, describes the study's limitations and delimitations, explains the significance of the study, and presents the investigator's perspective.

Background/Overview

A primary goal of American democracy has always been to produce an educated society that can accept world leadership in economics and areas of humanitarian activity. To achieve the goals a public education system was created to teach basic literacy skills, train contributing members of society, and provide professional and personal fulfillment. In its study entitled *Do We Still Need Public Schools?*, the Center on National Education Policy (1996) pointed out that the founders of education in America believed that any publicly supported school system ought to

- prepare people to become responsible citizens,
- improve social conditions,
- promote cultural unity,
- help people become economically self sufficient,
- enhance individual happiness and enrich individual lives,
- dispel inequities in education, and
- ensure a basic level of quality among schools. (p.3)

While these concepts provide validation for public education, they are difficult to measure—thus leading to the trend of questioning the utility and accountability of the current system.

At high school commencements across the United States, educators smile and wish their students well, but rarely observe the students' transition into the world of post-secondary education or the world of work. Seldom, if ever, is the information on the paths that students take after high school graduation collected and used for evaluation of secondary education programs. While most school districts survey their graduates in order to count the number of students who are planning to immediately continue their education, there are limited data on whether or not graduates actually complete their post-secondary education goals, or at what point they transition into the workforce.

If public education is to continue meeting the goals of the founding fathers in today's very different world, finding out what happens to high school students in the years immediately following graduation would be a valuable goal. Perhaps a system of coordinated, ongoing data collection might provide answers to such basic questions as 1) does our current public education system help citizens become economically self-sufficient; 2) does it enhance individual happiness and enrich individual lives; 3) does it help students set and achieve their educational and career goals?

The majority of current research indicates that the United States education system fails in understanding the paths students take after high school graduation, especially in terms of smoothing students' direct transition from high school to employment. Klerman and Karoly (1995) used data from the 1980 National Longitudinal Survey-Youth (NLS-Y) to examine the school-to-work transition among young U.S. men who entered the

labor market. In their report they point out that many recent high school graduates hold a number of jobs for a short period of time, and that significant numbers of young adult males in this county are either unemployed or working part-time long after leaving high school. A RAND (1995) policy brief of Klerman and Karoly's work states that

- Until they turn 22, at least 20 percent of high school graduates are neither working full time nor in school in a given week. The percentage of high school dropouts stays that high until they turn 26.
- By 24, the typical high school graduate (that is, the person at the median of the job distribution) has had about five jobs; the typical high school dropout has had almost six (p. 1).

Purpose of the Study

The goal of the present study is to examine two primary paths, post-secondary education and employment, taken by students immediately after high school graduation. The data set was created by matching student data from a large suburban school district with employment data from the state department of labor and employment and post-secondary enrollment data from the state agency on higher education. A concept map (Figure 1) provides a graphic description of the study and the paths high school graduates may take immediately after graduation. Student gender, ethnic background, and year graduated (among three consecutive graduating classes) were examined to identify factors that may have contributed to differences in education and career paths. The post-secondary education factors reviewed for this study were type of school selected by students, type of post-secondary program, degree programs in which students enroll (as defined by the Classification of Instructional Programs [CIP]), cumulative hours completed. Workforce employment factors examined were type of industries and size of company where high school graduates are employed (as defined by the Standard Industry Code [SIC]). Also considered were quarterly and yearly earnings starting with third

quarter (July-Sept.), and continuing with fourth quarter (Oct.–Dec.), first quarter (Jan.-March), and second quarter (Apr.-June). The study also makes a comparison between the actual paths of high school graduates as reported by data collected one year after high school graduation and the paths high school graduates reported they would take on graduation exit reports.

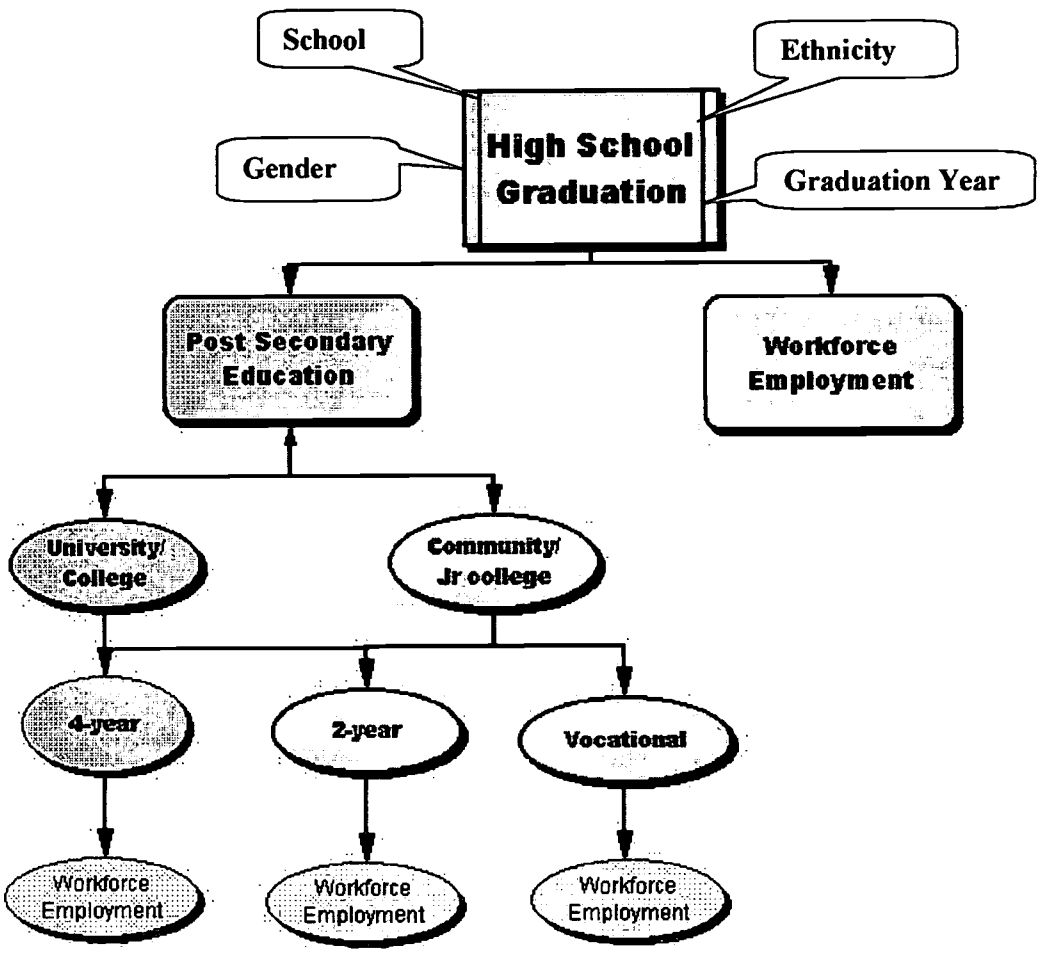


Figure 1. Concept Map Illustrating Two of the Paths Graduates Take After High School Graduation.

Note. The call outs surrounding the high school graduation block represent the independent variables, and the organizational chart represents some of the dependent variables explored in this study.

Statement of the Research Problem

The research problem is to investigate the relationship of student gender, ethnic background, and year graduated for years 1996, 1997, and 1998 with two of the paths, post-secondary education and workforce employment, high school students take one year after graduation. A secondary problem is to investigate the relationship of the two paths students take one year after high school graduation with students' projected plans as based on the high school exit survey report.

Descriptive Research Questions

A. Post-Secondary Education

A.1 What number and percentage of high school graduates from this district are enrolled in post-secondary education?

A.2 In what type of post-secondary institution are high school graduates from this district enrolled?

A.3 In what type of post-secondary programs are high school graduates from this district are enrolled?

A.4 What number and percentage of high school graduates from this district have declared a post-secondary degree program (major)?

A.5 What are the most frequently selected post-secondary degree programs (majors) for high school graduates from this district?

B. Workforce Employment

B.1 What number and percentage of high school graduates from this district are

employed?

B.2 What is the most common company size in which these graduates are employed?

B.3 What are the most common sizes of the companies in which these high school graduates are employed?

B.4 What are the average earnings for high school graduates from this district?

C. High School Graduation Exit Report

C.1 What number and percentage of high school graduates from this district are enrolled in post-secondary education compared with the number and percentage indicating they were planning to enroll on their high school exit survey?

C.2 In what type of post-secondary institution are high school graduates from this district enrolled as compared with the type of post-secondary institution in which they planned to enroll as indicated on their high school exit surveys?

C.3 What are the most frequently selected post-secondary institutions which high school graduates from this district indicated they were planning to attend compared with the post-secondary institutions in which they are most frequently enrolled?

C.4 What number and percentage of high school graduates from this district are employed and what percentage indicated on the high school exit survey report that they intended to find employment?

Comparative Research Questions

The comparative questions were designed to determine difference among the target graduates in terms of gender, ethnic background, and year of graduation.

D. Post-Secondary Education

D.1 Are there relationships between the factors gender, ethnic background, and graduation year and the next stage (enrolled and/or employed) that high school graduates from this district select after graduation?

D.2 Are there relationships between the factors gender, ethnic background, and graduation year and the type of post-secondary institution in which high school graduates from this district enroll?

D.3 Are there relationships between the factors gender, ethnic background, and graduation year and the type of program in which high school graduates from this district enroll?

D.4 Are there relationships between the factors gender, ethnic background, and graduation year and the most frequently selected post-secondary institution where high school graduates from this district enroll?

D.5 Are there relationships between the factors gender, ethnic background, and graduation year and the post-secondary degree program (major) that high school graduates from this district most frequently select?

D.6 In terms of the factors gender, ethnic background, and graduation year, are there differences in the number of post-secondary cumulative hours completed by high school graduates from this district?

E. Workforce Employment

E.1 Are there relationships between the factors gender, ethnic background, and graduation year and the industry divisions where high school graduates from this district are most frequently employed?

E.2 In terms of the factors gender, ethnic background, and graduation year, are there differences in the size of company in which high school graduates from this district are employed?

E.3 In terms of the factors gender, ethnic background, and graduation year, are there differences in the earnings of high school graduates from this district?

F. Post-Secondary Education and Employment

F.1 Are there differences for high school graduates from this district between the two levels of next stage (employed-only and enrolled-and-employed) and their earnings?

F.2 Is there a relationship between the number of post-secondary cumulative hours completed by high school graduates from this district and their earnings?

Definition of Terms and Acronyms

CCHE: Colorado Commission on Higher Education

CDOL&E: Colorado Department of Labor and Employment

Classification of Instructional Programs (CIP): The accepted federal government standard for education information surveys. It distinguishes whether the program culminates in a formal award (degree) and reflects the way colleges collect and report

data on program enrollment and completion. It also distinguishes programs by type of college program or specialization.

Cumulative Credit Hours: The total post-secondary credit hours completed by the student, computed at the end of the reported term.

Degree-Seeking Students: Students enrolled in Resident Instruction courses that are recognized by the institution as pursuing a degree or formal award; the institution must confer this award.

Ethnic Code: Categories as defined by Jefferson County Public Schools including, American Indian or Alaska Native; Asian or Pacific Islander; Black, not Hispanic; Hispanic; White, not Hispanic.

Extended Studies Program: Enrollment exclusively in courses offered through the Extended Studies Program.

Four-year Program: Enrollment is in a baccalaureate program.

High School Concurrent Enrollment: Enrollment in college courses while still enrolled in high school. These students are not enrolled in a degree program and would have to apply for admission after graduating from high school.

Non-degree Seeking: Enrolled in courses but does not intend to pursue a formal degree or award.

Program Code: The code (formally called major) that identifies the student's stated program at the time of the data report, where program code is defined as the assigned classification of instructional program associated with the approved program.

Program Type Indicator: A code that indicates a student's enrollment in a specific type of post-secondary program.

Quarter Hours: The number of hours allocated to courses in a quarter system. Total hours determine grade level: freshman (1st year) 0-44 hours, sophomore or associated degree (2nd year) 45-89 hours, junior (3rd year) 90-134 hours, Senior (4th year) 135+ to undergraduate degree.

Quarterly Earnings: Amount of earnings reported for the quarter: first quarter, 01/01/yr to 03/31/yr; second quarter, 04/01/yr to 06/30/yr; third quarter, 07/01/yr to 09/30/yr; fourth quarter, 10/01/yr to 12/31/yr.

Semester Hours: The number of hours allocated to courses in a semester system. Total hours determine grade level: freshman (1st year) 0-29 hours, sophomore or associated degree (2nd year) 30-59 hours, junior (3rd year) 60-89 hours, Senior (4th year) 90+ to undergraduate degree.

Size of Company: Categories used by the Colorado Department of Labor and Employment defined by the number of employees including, 1) 1-4, 2) 5-9, 3) 10-19, 4) 20-49, 5) 50-99, 6) 100-249, 7) 250 to 499, 8) 500-999, 9) 1000+.

Standard Industrial Code (SIC): The standard classification system for industries. Established in 1930, its purpose is to promote uniformity and comparability of data collected within the U.S. government, state agencies, trade associations, and research agencies. The manual includes eleven standard industry divisions and eighty-three major industry groups. The SIC code system has recently been replaced by the North American Industry Classification System (NAICS).

Student Identification Number: The official number that uniquely identifies a student at an institution. Wherever possible, this should be the nine-digit social security number assigned to an individual under the Federal Insurance Contribution Act.

Student Level: The level at which a student is classified during the term which is being reported based upon the total credits obtained toward completion of a degree/certificate program.

Two-year Program: Enrollment is in a non-vocational, sub-baccalaureate program.

Unclassified: A student enrolled in a degree program but who cannot be classified by academic level (e.g., a transfer student whose credits have not been evaluated).

Undergraduate: A student enrolled in a four or five year bachelor's degree program, in an associate degree program, or in a vocational or technical program below the baccalaureate.

Vocational Programs: Enrollment is in an occupational specific sub-baccalaureate program. These programs are the vocational programs approved by the State Board for Community and Occupational Education.

Study Limitations and Delimitations

The geographic and economic area selected for the study, the demographics of the student population, and the high school graduate population who had recorded social security numbers delimits the present study. The study only included information collected on high school graduates from Jefferson County Public Schools, a large suburban school district that serves almost 90,000 students and is among the largest school districts in the United States. Although the district is large and located close to a

metropolitan area, the student population is primarily White (84% White and 16% minority) and middle class (15% free and reduced lunch).

Student's social security numbers, as recorded in the district student data records, were used to create a match with the other institution's data. The initial data set with social security numbers resulted in approximately 70% of the Jefferson County high school graduate records; however, the final data set, limited to only matched records, contained approximately 60% of the graduate records. Thus, the present study is only reflective of one large school district, in one large county, in one western state, and cannot be generalized to other school districts and other high school graduates.

The current study used data from Jefferson County Public Schools student data record, the Colorado Commission on Higher Education enrollment records, and the Colorado Department of Labor employment files. It is limited to the correctness of the data collected by the three institutions and their ability to match data for this study. The study does not explain why students selected the recorded choices nor does it include any follow-up interviews or surveys. The information provides a limited picture of where students go after high school graduation and does not report other life factors and experiences that could influence the choices students make. For example, students may have had their college plans changed by insufficient financial resources or inadequate grades; they may have found that the job they had waiting after high school graduation was too difficult or that the pay was insufficient to cover their living expenses. Life is constantly changing and decisions often shift with experiences. The data collected for this study does not allow for an analysis of these types of factors.

Significance of the Study

The current political environment is demanding that education professionals modify their systems to create more responsive and accountable institutions. Nearly a generation after *A Nation at Risk*, public schools are still being reviled daily even as they begin to gain strength. A report by the National Center for Education Statistics (1995) assessing the improvements ten years after *A Nation at Risk* states that "students' educational aspirations are increasing and the percentage of graduates going immediately on to college are continuing to rise." Kaplan (2000) credits the current dissatisfaction with an improving system to a change in the groups who serve as education reformers. Kaplan states that in "the first half of the 20th century education reformers were city and state superintendents, professors, state organizations affiliated with the national education associations, foundations and various public groups." Today these groups consist of "corporate leaders, media-savvy politicians, religious and civic leaders, and a group called the new media." These new education reformers are demanding that education be organized more like a business with tough standards, agreed upon performance criteria, state-of-the-art technology and research, and low overhead. In essence, they are demanding accountability for everything involved within the education system.

The present study provides a model for using existing data from three institutions, a large public school system, the state labor and employment agency, and the state higher education agency, to create reports to help answer some of the education reformers' requests for accountability. This study documents the process and reports actual performance of high school graduates one year after high school graduation. It also provides a comparison between actual paths taken and student graduation exit reports.

The information collected in this study provided Jefferson County Public Schools follow-up information on their graduates that could be used to meet the needs of students as they prepare for their future. It also provided information on the next step graduates select as they transition to post-secondary education and employment.

Investigator's Perspective

The investigator for this study has over twenty-five years experience in education at the primary and secondary levels; however, the majority of that time was spent with special education and career and technical education programs. This background provides excellent knowledge for understanding specialized programs, but the investigator is limited in her knowledge of college preparatory programs. The investigator's perception is that most middle class suburban high schools believe that the majority of their students transition directly from high school into post-secondary education. Thus, they focus their secondary education programs on preparing students for college. The primary interest of this investigator is to discover if the current system of collecting student future plans through graduation surveys provides accurate data about the paths graduates take as they transition from high school into post-secondary education or employment. The investigator is also interested in developing a model for using existing information to provide data about students and their transition into post-secondary education and employment.

CHAPTER 2: LITERATURE REVIEW

This chapter offers a discussion of the literature on the paths that American high school students take after graduation. The problem exploration section begins with a summary of national studies, continues with state and local studies outside of Colorado, summarizes Colorado-based studies for all counties other than Jefferson, and concludes with a discussion of studies specific to Jefferson County. Figure 2 presents a concept map showing the summary movement from general national studies to specific studies in Jefferson County. The synthesis section begins with a summary of what appears to be missing, identifies the essential learning from the review, and concludes with a list of the theories that are supported by the literature.

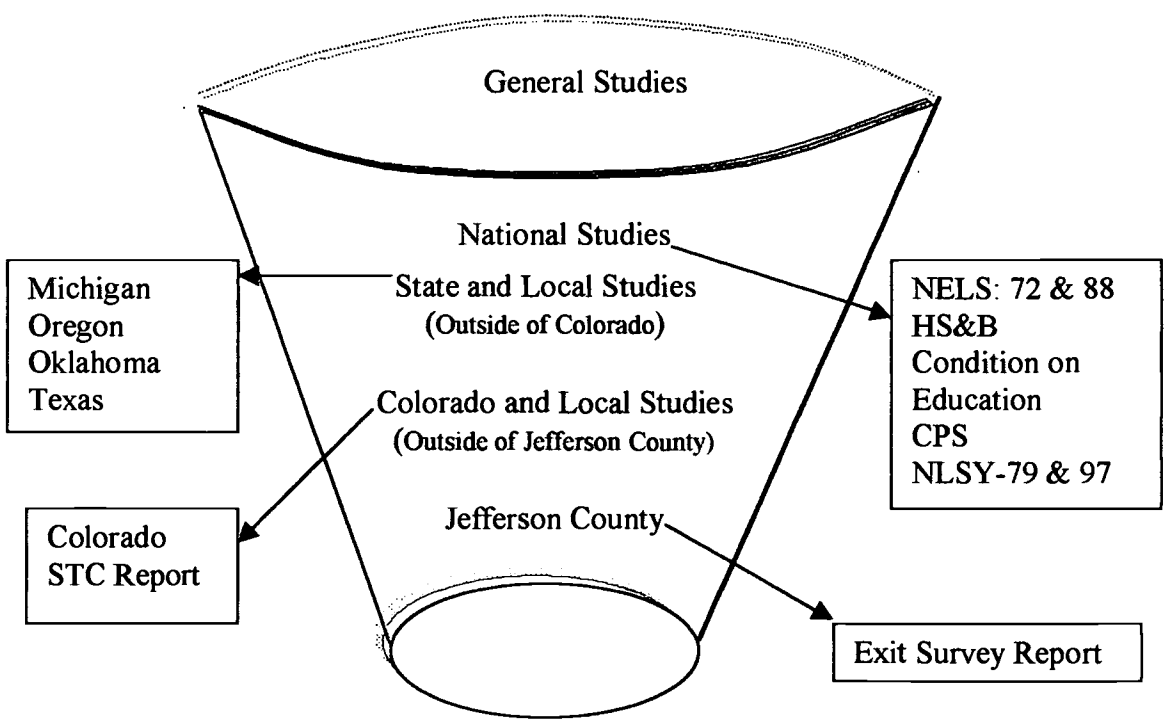


Figure 2. Concept Map Showing the Literature Review Approach and Sequence.

A review of the literature indicates two primary directions for American high school students after graduation: post-secondary education and work. The purpose of this review is to examine these paths, identify trends, and provide a comprehensive review of current follow-up studies on high school graduates. Information reviewed includes, but is not limited to a) the transition to post-secondary education (institution name and type, program type, degree program, and cumulative credit hours), and b) the transition to employment (industry division, company size, and earnings). The studies discussed in this chapter were limited to general education students. Follow-up studies on special and/or specific student populations (e.g., vocational schools) were not considered.

Problem Definition

Only broad-based national studies and studies from four individual states (Michigan, Oregon, Oklahoma, and Texas) were found on the specific topic of the paths taken by high school students immediately after graduation. An effort was made to focus the study on the paths that total populations of high school graduates take immediately after graduation rather than the paths that specific or special populations take.

National Studies

A review of the national literature revealed several studies that help create a picture of students who go directly to college after completing high school. In a study of the 1966-1981 college freshman, Astin (1982) reported that students were less well prepared academically which contributed to a declining post-secondary enrollment, especially for White males. The Cooperative Institutional Research Program's longitudinal study to assess the effects of college on students provides insight into the

national college freshman for the years associated with the current study. The 31st annual report (Sax, Astin, Korn, and Mahoney, 1996) states that

> 1) students are volunteering in record numbers; 2) financial concerns increasingly influence college choice; 3) grade inflation continues; 4) self-confidence and aspirations are on the rise; 5) interest in teaching is growing while interest in business and law hit new lows; 6) political interest remains low; and 7) political and social attitudes are shifting from middle-of-the-road to both conservative and liberal categories in equal numbers (abstract).

Additional trends identified in the 32nd and 33rd annual reports include 1) increase in the rate of smoking; 2) students come from small families with working mothers; 3) growing amounts of stress especially in young women; and 4) growing numbers of older freshmen students (1998, 1999). Tinto (1972) reported that rate of high school graduates who go directly to college is influenced by their geographic proximity to post-secondary institutions. In addition, geographic accessibility of a college increases the proportion of high school graduates who continue their education.

Other studies found in the literature provide an overview of how post-secondary education connects to workforce development. A report by Rodriguez and Ruppert (1996) provides a framework for state-level policy and planning in relationship to the role post-secondary education plays in workforce development. They state that over 60% of high school graduates enroll in post-secondary education following high school graduation and that surveys show the primary reason is to get a better job. The report outlines several priorities that are related to the current study "1) create a vision for post-secondary education in workforce development; 2) broaden the school-to-work framework; 3) build a collaborative system of education and training; 4) help learners make informed choices; and 5) connect learning and work" (p.3). Grubb (1996) paints a

grim picture of education and its connections to workforce training and states that education and job-related programs have developed separately creating a system that does not meet the needs of the current workforce. The study recommends that education and workforce training be recombined through "vertical articulation and ladders of opportunities" (p.4). In a similar study, Grubb and Kraskouskas (1992) identify eight models of integration that currently exist at community colleges. According to Grubb and Kraskouskas, all of the integration models will "increase the general and academic competencies of students, preparing students for occupations in a world of changing requirements" (Executive Summary, p. iv).

The United States Department of Education (DOE) and the United States Department of Labor and Employment (DOL&E) both collect data and serve as resources for many of the studies published on the topic of post-high school transition. The DOE's National Center for Educational Statistics (NCES) was the sponsor of a long-term research effort on the educational experiences of youth during the 1970s, 1980s, and 1990s. Data have been presented in three major reports, *The National Education Longitudinal Study of the High School Class of 1972 (NELS-72), High School and Beyond (HS&B),* and *The National Education Longitudinal Study of 1988* (NELS-88). Table 1 provides a summary of the data from the NCES reports that are relevant to this research.

The NCES gathers and publishes information on the nation's educational status and progress. According to Section 402(b) of the National Education Statistics Act of 1994 (20 U.S.C. 9001), "The purpose of the Center is to collect and report statistics and

Table 1. Overview of the National Education Longitudinal Studies (NELS)

Data set	Coverage	Period	Type of information	Other
National Education Longitudinal Study of 1972 (NELS-72)	1972 high school seniors	Base study in 1972. Follow-up in 1973, 1974, 1976, 1979, and 1986	Education, work plans, community characteristics, family structure, attitudes and opinions, school characteristics, grade point average, credits earned, and financial assistance for post-secondary education.	Longitudinal study of high school students who graduated in 1972. Information was collected through student surveys.
High School and Beyond (HS&B)	1980 high school sophomores and seniors with follow-up studies in 1982, 1984, and 1986	1980 1982 1984 1986	Broad range of topics, collected through student surveys. Starts with 58,270 students for the base year in 1980. First follow-up in 1982, second follow-up in 1984, and third follow-up in 1986.	Longitudinal study using information collected from school records, administrators, teachers, and parents via student surveys.
National Education Longitudinal Study of 1988 (NELS: 88)	Began with cohort of students in the eighth grade in 1988	1988 Follow-up in 1990, 1992, 1994, and 2000	How school policies, teacher practices, and family involvement affect student educational outcomes.	Information collected from high school teachers, administrators, school transcripts, and parents. Survey of 26,000 students.

Note. Information obtained from The Condition of Education 1999 by the National Center for Education Statistics.

information showing the condition and progress of education in the United States and other nations in order to promote and accelerate the improvement of American education" (NCES, 1998, p.1). The Center's yearly Condition of Education study provides Congress

with an annual report on a maximum of 60 indicators that are categorized into the following 6 areas: 1) Access, Participation, and Progress; 2) Achievement, Attainment, and Curriculum; 3) Economic and Other Outcomes of Education; 4) Organization and Management of Educational Institutions; 5) Climate and Diversity of Educational Institutions; and 6) Financial and Human Resources of Educational Institutions (p.1). The indicators change each year as determined by committee; however, the areas stay constant. Table 2 provides a list of the indicators for 1996, 1997, and 1998 that most closely relate to the topics and time period for this study. A presentation of the results and summary follows in the synthesis section of this paper.

Table 2. Related Indicator Sections in The Condition of Education Annual Report for the Years of This Study

Year	Related Indicators
1996	Immediate transition from high school to college Racial and ethnic differences in participation in higher education Transition from high school to work Employment of young adults Annual earnings of young adults College and university enrollment, by type and control of institution Racial and ethnic distribution of college students
1997	Immediate transition from high school to college Post-secondary enrollment rates among the high school classes of 1972, 1980, and 1992 Racial and ethnic differences in participation in higher education Transition from high school to work Employment of young adults Annual earnings of young adults, by educational attainment Working while in college
1998	Immediate transition from high school to college Racial and ethnic differences in participation in higher education Enrollment patterns of first-time beginning post-secondary students Transition from high school to work Employment of young adults

Note. Information obtained from The Condition of Education by the National Center for Education Statistics, 1996, 1997, and 1998. Only indicators that align to the purpose of the current study are listed.

Three Department of Labor studies that include information on the paths taken by high school graduates are *The Current Population Survey* (CPS); the *National Longitudinal Survey of Youth, 1979* (NLSY-79); and the *National Longitudinal Survey of Youth, 1997* (NLSY-97). The CPS includes data on individuals aged 15 and older, while the NLSY-79 and NLSY-97 tracked students ages 14-22 and 12-17, respectively. National employment data are organized by age and school status (in-school or out-of-school) rather than in terms of high school graduation.

The DOL&E's Bureau of Labor Statistics conducts a monthly nationwide survey of approximately 50,000 households. The data are collected by personal and telephone interviews with basic labor force data gathered monthly and data on special topics gathered in periodic supplements. The Current Population Survey (CPS) includes questions designed to measure school enrollment and high school graduation rates for all of the country's students between the ages of 16 and 24 (U.S. Bureau of Labor Statistics, 1996). Table 3 describes the type of information provided by the survey.

Table 3. Overview of Related Content from The Current Population Survey

Data set	Coverage	Period	Type of information	Other
Current Population Survey (CPS)	Individuals aged 15 and older	Monthly	Primarily cross-sectional. Also provides short-term longitudinal information on individuals from eight interviews conducted over a 16-month period. Focus is on current labor force behavior. Contains demographic information.	Accepts proxy respondents

Note. Information obtained from College Enrollment and Work Activity of 1999 High School Graduates by the U.S. Bureau of Labor Statistics, 2000.

The National Longitudinal Survey–Youth Program, has been funded since the mid-1960s. It was originally begun by the Office of Manpower Policy, Evaluation, and Research of the United State Department of Labor to evaluate the Comprehensive Employment and Training Act. It later transitioned into a general-purpose data set for the study of labor market behavior and was transferred to the Bureau of Labor Statistics in October 1986 (Pergamit, 1991). Table 4 summarizes two data sets that are relevant to the topics addressed in the present study.

Table 4. Overview of Related Content in National Longitudinal Surveys of Youth

Data set	Coverage	Period	Type of information	Other
National Longitudinal Survey of Youth, 1979 (NLSY-79)	Cohort of individuals ages 14 to 22 in 1979	Base year 1979. Annual follow-up surveys until 1994; biennial from 1996 to present.	Longitudinal survey. Extensive information on work experience, education, and a variety of social and demographic factors.	Interviews with youth respondents .
National Longitudinal Survey of Youth, 1997 (NLSY-97)	Cohort of individuals ages 12 to 17 in 1997	Base year 1997. Annual follow-up surveys.	Longitudinal survey. Round 1, collected in 1997, contains extensive information on youth employment experience, education, family background, and a variety of other social and demographic factors.	Interviews with youth respondents

Note. Information obtained from College Enrollment and Work Activity of 1998 High School Graduates by the U.S. Bureau of Labor Statistics, 1999.

One goal of this study was to investigate trends of total populations of high school graduates and their immediate transition to post-secondary education and the workforce. The broad based national studies from DOE and DOL&E indicate that post-secondary education enrollment trends have remained consistent since 1992 with a steady

percentage of high school graduates entering post-secondary programs. According to the Bureau of Labor Statistics (1996, 1999), the percentages of high school graduates enrolling in some form of post-secondary education were 62% for 1995 and 66% for 1999 with similar percentages for the intervening years. NCES (1994, 1999) reported that the percentage of high school sophomores aspiring to a college diploma or beyond increased from 73% in 1980 to 90% in 1990. In 1999, NCES reported that post-secondary enrollment increased from 1985 to 1992, but has remained stable since. However, they also reported a steady increase in college enrollment from 1972 with 49.2% enrolled to 1997 with 67% of the recent high school graduates enrolled in post-secondary education the October after completing high school (1999).

A closer examination of the literature reveals that gender has become less of a factor in terms of post-secondary enrollment. Owings (1995) points out that in 1972, females lagged behind males for enrollment in college preparatory programs, plans for college, and tested achievement in mathematics. By 1992, these differences had disappeared, and in some cases women seniors appeared to hold higher aspirations than men, particularly with regard to post-secondary and graduate educational aspirations.

The literature on ethic enrollment is more confusing with Owings reporting that "the number of Blacks and Hispanics in college preparatory programs has increased significantly since 1972" (p.58). However, NCES (1997) states that between 1972 and 1995 White high school graduates were more likely to be enrolled in college than were their Black and Hispanic counterparts. For these years, the average enrollment rate for White students was nine percentage points higher than that of both Black and Hispanic

students. NCES (1998) also reports that White high school graduates were more likely than their Black and Hispanic counterparts to be enrolled in college.

Only one national study was found that specifically addressed the goal of identifying the type of institution where students are enrolled. According to data from the Current Population Survey for 1995-1997, approximately two-thirds of the students were consistently enrolled in four-year institutions and one-third was enrolled in two-year institutions. Two Condition of Education reports (NCES, 1997 and 1998) considered ethnic differences in institution-type enrollment. The 1997 study reported that between 1993 and 1995, enrollment rates in two-year institutions were similar for White and Black high school graduates, while Hispanic students were more likely than White or Black students to be enrolled in two-year institutions. However, both Black and Hispanic high school graduates were less likely to be enrolled in four-year institutions than were their White counterparts. The 1998 report stated that enrollment rates in two-year institutions were similar for White, Black, and Hispanic high school completers; however, both Black and Hispanic high school completers were less likely to be enrolled in four-year institutions.

A goal of the present research is to identify the most frequent post-secondary degree program (major) selected by high school graduates during their first year of post-secondary education and to identify the number of cumulative credit hours students earned in one year; however, a search of literature did not reveal any national studies that address these questions. One article was found in the *Rocky Mountain News* (Will, March 3, 1997) that provided an excerpt from Anne Matthew's book, *In Bright College Years: Inside the American Campus Today*. This article reported that 25% of post-

secondary undergraduates were liberal arts majors, 25% were business majors, and the rest were on vocational tracks. According to Will, Matthews also reported that the four courses with the highest enrollments were American studies, basic composition, remedial math, and statistics.

Other post-secondary variables considered for this study included the type of programs in which students were enrolled, the specific post-secondary institutions where they enrolled, and the number of cumulative hours completed. No national studies were found in the literature that addressed these topics.

The U.S. Bureau of Labor Statistics' CPS contains information on employment trends among in-school (high school and college students) and out-of-school (high school dropouts and high school or college graduates) youth between the ages of 16 and 24. These reports, based on data collected in October of each year for all youth (16-24) indicate little (if any) change in in-school employment trends. A summary of the 1995 and 1999 data for employed and education are presented in Table 5. The CPS reports

Table 5. Percentages of Students in the Labor Force

	1995	1999
Percentage of high school students in the labor force.	41.0	41.2
Percentage of full-time college students in the labor force.	52.0	53.0
Percentage of part-time college students in the labor force.	86.0	87.0

Note. Information obtained from College Enrollment and Work Activity of 1995 High School Graduates and College Enrollment and Work Activity of 1999 High School Graduates by the U.S. Bureau of Labor Statistics, 1996 and 2000.

indicate that the employment rate for out-of-school youth has remained constant--80% of all youths (16-24) not enrolled in school in 1995 and again in 1999. The CPS also reports the unemployment rate was slightly higher for females than males in 1995 and 1999 as well as for African-Americans and Hispanics compared to Whites (U.S. Bureau of Labor Statistics, 1996, 2000).

In a study conducted for the National Center for Vocational Research (NCVR), Klerman and Karoly (1995) used the data from NLSY-79 to draw an interesting composite picture of young U.S. male workers' workforce transition. The study focused on four categories, 1) working full-time and not in school, 2) in-school and not working full-time, 3) working part-time and not in school, 4) not working and not in school. The study did not consider students who were enrolled in school at the same time they were working either full or part time. The focus for Klerman and Karoly's study was to investigate how long young men were neither employed nor in school. The data indicated that in 1979, 58.4% of male high school graduates between the ages of 16 and 30 were working full-time, 19.8% were working part-time and not attending school, 17.3% were neither in school nor working, and 4.5% were in school and not working full-time. By the time this group of students reached 30 years of age, almost 90% were working full-time (p.25).

Data for NLSY-97 were collected from a representative sample of 9,022, 12-to-16-year-old males and females. The survey was designed to elicit information on employment experience, schooling, family background, and social behavior. According to the report, 28% of the sample worked throughout the school year, not just during the summer months of 1996 (U.S. Bureau of Labor Statistics, 1999). NCES (1997) reported

that the number of full-time college students who work had risen from 34% in 1970 to 47% in 1988 and has remained stable since then. They also reported that between 1970 and 1995, White and Hispanic full-time college students (16-24) were more likely to be employed than their Black peers. And in addition, that almost half (47%) of full-time college students aged 16-24 were employed in October 1995 while 83% of part-time college students in the same age group were employed.

Further analysis finds that there are considerable differences between male and female employment and in their earnings. NCES (1998) reported that although the gap in employment rates of male and female recent high school completers not enrolled in college narrowed between 1960 and 1996, males generally were more likely to be employed than females. Pergamit (1991) reported that for high school graduates in the first year after leaving school, "63.2% of the males and 57.5% of the females experienced no unemployment." In their analysis of the High School and Beyond (HS&B) data, Clery et al. (1998) found that males with no more than a high school diploma or General Education Development (GED) certificate earned $25,601, whereas women with the same education earned $19,333. Female workers with Bachelor's degrees earned $22,602 the year after graduation compared to $26,778 earned by men.

Limited national information was found on the specific topics of high school graduates' ability to find employment, their earning power, or the size of companies where they were employed. Some studies specifically indicated that males and females with high school diplomas are slightly more likely to have a job compared to dropouts, but with wages that were almost identical for workers aged 19 to 20--whether or not they had finished high school. Nevertheless, Crawford et al. (1995) claim that schools make a

difference in the labor market performance of graduates who look for jobs immediately following high school:

> Attending a school where up-to-date local job listings were available and information on finding a job was provided, higher family income, higher school test scores, and participating in academic education were all linked with higher post-school earnings, whereas per-pupil expenditure, class size, teacher salaries, and teacher experience were not (Crawford, 1995, abstract, p.1).

The current study considered the size of company where recent high school graduates were employed; however, a review of the national literature did not reveal any information on the size of the companies where high school graduates were employed.

State and Local Studies Outside of Colorado

The literature contains at least five studies on high school graduates sponsored by four individual state or local government agencies outside of Colorado (i.e., Michigan, Oregon, Oklahoma, and Texas); however, the information contained in these reports is narrow, limited in scope, and may not be generalized to other studies.

Michigan

Data for this study were collected by a telephone survey of 188 former 1996 public high school students nine months after graduation. Students were asked about post-secondary education, employment status, and perception/evaluation of their high school education (Claus and Quimper, 1997). The study includes information on the percentage of students attending college, the type of school (two-year/four-year), the percentage of students employed, the course of study students selected, and weekly earnings. Tables 6 and 7 provide a numeric presentation of the results of the study.

Oregon

A review of the literature found two studies from Oregon, one completed by the state system of higher education and another by the state department of education. Data for the Oregon State System of Higher Education study (1996) were collected through a telephone survey of 800 former 1995 graduates, 400 randomly selected and 400 ethnic minority graduates. To get an estimate of all graduates, the ethnic minority over-sample was weighted proportionately to the percentage of the population and merged with the general random sample. One goal of the study was to identify the percentage of high school graduates who attended a post-secondary institution during fall 1995. Other questions included specific college choices, the reasons for those choices, reasons for not going to college, and students' high school grade point average.

The study conducted by the Oregon State Department of Education (Chatman and Smith, 1998) used existing data from four-year universities, community colleges, and independent colleges. The resulting report includes 37 tables showing the Oregon college choices of the 1997 Oregon high school graduates by county and high school. Results indicate that out of 30,330 high school graduates, 12,762 (42%) were enrolled in Oregon colleges. The study also looked for trends between high school graduates for the years 1986-1997 and found that "there is a decreasing percentage of total graduates attending the Oregon University system and a greater percentage attending community colleges" (abstract). Table 6 presents the results of the Oregon studies that are related to the current study.

Oklahoma

This study was completed through the efforts of the Oklahoma State Department of Education and the Oklahoma State Regents for Higher Education who worked together to match two separate data files for purposes of the study. The department of education provided aggregate data that did not contain information about individual students, and the higher education system provided distinct units of data for each individual student. The authors caution that "the data source could not be merged in a true sense because tracking individuals from high school into college was not possible" (*High School to College*, 1997, p 5). Counts were collected from three graduation years, 1993-94, 1994-95, and 1995-96, and averaged to provide an Oklahoma college-going rate. The study considered two different rates, 1) Linear College-Going Rate: high school graduates who go directly to an Oklahoma college the following year, and 2) Combined College-Going Rate: high school graduates attending directly out of high school plus those who have delayed entry for one year or more. The results of this study are shown in Table 6.

Texas

Since 1991, the Austin Independent School District has surveyed its former graduates and used the information to determine its effectiveness in preparing students to be successful in their future endeavors (Marable, 1995). To collect the data, a survey was mailed to a random sample of students twelve to eighteen months after graduation. Students with GPAs of <2.5 were over-sampled to increase the likelihood of their responding. The return rate averaged from 21%-33% over the years of the study. Students were asked questions in three main areas: 1) What are you doing now, 2) What

high school courses were the most useful, and 3) How prepared are you for your present activities? A summation of the results is provided in Tables 6 and 7.

Table 6. Data on Post-Secondary Enrollment from State and Local Government Studies Outside of Colorado

Agency	Graduate year	Post-secondary enrollment (%)	Four-year college (%)	Two-year college (%)	Vocational & Other (%)
Saginaw, Michigan Public Schools, Dept. of Evaluation Services	1996	70.3	39.2	25.0	6.1
Oregon State Dept. of Education, Office of Degree Authorization	1997	42.1	--	--	--
Oregon State System of Higher Education, Office of Institutional Research	1993 and 1995	60.0	36.0	24.0	--
Oklahoma State Regents for Higher Education	1993-1996	54.8 linear 92.9 combined	--	--	--
Austin, Texas Independent School District	1990-1993	50-75 (40-60) full-time (10-15) part-time	53-66	30-38	--

Note. Dash indicates not reported. Linear equals directly after high school and combined is directly after high school plus a year or more delay.

These non-Colorado studies provide limited and often conflicting information concerning high school graduates' transition to post-secondary education programs. The data from the five studies show a range of 42% to 70% of high school graduates enrolled in post-secondary programs. For example, the study from the Oregon State System of Higher Education (1996) reported that 60% of Oregon high school graduates were enrolled in post-secondary programs--24% at the community college level and 36% at the

four-year public college level. However, a study of 1997 high school graduates completed by the Oregon State Department of Education (1998) indicated a much lower figure--42% enrolled in Oregon post-secondary education. It is important to note that the 60% enrollment figure was obtained from data collected through a telephone survey seven months after graduation, while the 42% enrollment figure was obtained from compiling Oregon university and community college data records.

Only two of the other variables for the current study where considered in these state studies. First, the Michigan study by Claus and Quimper (1997) reported on the major areas that students chose to study. According to their report, the most popular majors were general course/undecided (24.6%), education and social studies (18.9%), business (17.2%), and medicine and health services (13.1%). Second, two studies provided information on employment trends for high school graduates one year after graduation; however, there were significant differences between these two studies. The Michigan study referenced specific employers, and the Texas study addressed job titles. Only the Michigan study considered earnings. The Michigan report stated that 81.5% of their students were employed while only 51% in the Austin, Texas report were employed (Table 7).

All of the state studies found in the literature selected different methods and collection times; two used telephone surveys, two compiled existing data records, and one sent out a mail survey. The differences in data collection and limitations for each study could account for the range in percentages; however, the inconsistencies make it difficult to draw any significant conclusions or make comparisons.

Informal discussions with educators indicate that other state studies might exist; however, they are unpublished and not available in the literature. It appears that many states are interested in collecting data on their high school graduates, but a standardized system that can be used by different states has not been developed.

Table 7. Employment Trends as Described in Two State Studies Outside of Colorado

Agency	Graduate year	Percent employed	Wages	Company (percent employed)
Saginaw, Michigan Public Schools, Dept. of Evaluation Services	1996	81.5	Mean $211.57 pre week Range $22.50 to $760 per week	Kessel Foods (4.1) McDonalds (4.1) US Army (2.7) Meijer's Inc. (2.1) Self-employed (2.1) General Motors (2.1) Hudson's (2.1) Rally's Restaurant (2.1)
Austin, Texas Independent School District	1990-1993	59.0	--	Sales Office work Food service Computers

Note. Dash indicates not reported.

Colorado Studies Outside of Jefferson County

According to the United States Census 2000, Colorado has one of the most highly educated populations in the United States. However, a recent article in the *Rocky Mountain News*, reporting on a study from the National Center for Public Policy and Higher Education, indicated that only 38% of Colorado's 43,000 high school students attend college right after graduation (Curtin, 2001, p. 3B).

A review of the current literature found limited Colorado information on the transition of high school students into post-secondary education and the workforce. Only one study was found that considered these issues. In 1999, the Regional Centers of the

Colorado School-to-Career (CSTC) Partnership surveyed 132 high schools throughout the State. The survey was designed to elicit information that might help in "improving student achievement and providing experiences to young adults so they can make important college, career, and life decisions" (1999, p. 1). The survey examined differences between students who reported no career experiences and those who reported one or more career experiences. When asked about their future plans, 43% of the students who reported no career experiences were planning to continue their education at the post-secondary level, while 66% of the students who reported six or more career experiences were planning to continue their education after high school. Of the students who reported no career experiences, 28% said they were planning to choose a post-secondary program based on their career goals, while 49% of those who reported six or more career experiences were planning to select a career based on their career goals. Other statistics included in the CSTC report indicated that 99.7% were planning to finish high school and graduate, 35% were planning to apply to a two-year college, 80.6% were planning to apply to a four-year college, 35.7% were planning to apply for an apprenticeship, and 12.1% were planning to enlist in the military.

Studies in Jefferson County

A review of the Jefferson County literature provided several resources that support the current research project; however, only one study was found that considered the paths students take after high school graduation. Since the mission for Jefferson County Schools is "To provide a quality education that prepares all children for a successful future" (Jefferson County Schools, 2001, p. 1). It would seem understanding the paths students take after high school graduation would aide the evaluation process.

Also, two of the school district's Ends Policies "1) all children are prepared for a successful future, and 5) students will possess personal characteristics and life skills to successfully meet life's challenges" (p. 2) support collecting follow-up data on graduates. Jefferson County Schools Strategic Plan and Ends Policies are consistent with the goals of the current research project.

A search of the literature found two studies on Jefferson County students that connect indirectly to the current study. A recent report by the Search Institute (July, 2000) indicates that only 22% of Jefferson County students "perceive that adults in the community value youth" and only 27% feel that "young people are given useful roles in the community" (p. 2). In a recent survey administered to Jefferson County students, only slightly over 4 in 10 students agree/strongly agree that their high school offers an adequate number of vocational classes and work experience opportunities (Jefferson County Schools, 2000). Both of these studies indicate that Jefferson County Schools may need to look more closely at their current program offerings to determine if they are meeting the needs of students.

The purpose of the Jefferson County School Career Development Department as identified in its vision, mission, and goals is also consistent with the goals of this research project:

- Vision: All students in Jefferson County will be prepared for careers and life long learning.
- Mission: To connect classrooms, careers, businesses, and communities to create systemic change that positively impacts the future workforce.
- Goals:
  - To provide strong education, business and community partnerships to ensure access by all students to workplace experiences.
  - To give students academic and occupational skills using well defined standards (Jefferson County Career Advisory Council, p. 1).

Only one Jefferson County study was found that correlates with the current research study. Every year Jefferson County Public Schools surveys its graduating seniors. As part of the graduation process, students are instructed to pick up and complete a futures plan card (Figure 3). The counselor at each high school collects the information and compiles it into a report that is submitted to the district office.

Class of: _____

Name: _____
Last Name First Name Middle Name

Address: _____

In order to have accurate data regarding your plans for after graduation, we need to have you complete the following questions. Thank you for your help.

1. If you are not going to college in September, please complete one of these 3 boxes.

_____Work Full Time	_____ Military	_____Other
_____	_____	_____
Employer	Branch	Specify

2. If you are going to school in September, please complete one of these 3 boxes. We will send your final transcript to the school indicated.

____ Four-year college	____Two-year college	___Trade/Vocational School
_____	_____	_____
Name of college	Name of college	Name of school
_____	_____	_____
City/State	City/State	City/State

3. On the back of this card, list any scholarships or awards you have received.

Figure 3. Sample of Jefferson County Schools High School Exit Survey Form.

A summary of the data from the 18 high schools is complied into one yearly report (Appendix A), and the information is used throughout the district. Table 8 provides a summary of the data for the years related to the current study.

Table 8. Report on Graduating Classes

Graduation year	Percent planning to attend college	Percent planning to be employment full time	Percent planning other
1996	72	17	11
1997	74	12	16
1998	71	13	13
Average	72	14	13

A summary of the information provided in the graduating class reports (Appendix B) indicates that 70+% of the students who graduate from Jefferson County high schools are planning to attend college, and less than 20% are planning on full time employment. Further analysis of the reports indicates that of the students planning to enroll in post-secondary education programs, 78% were planning to attend a four-year college, while 22% were planning to attend a two-year college.

Synthesis

The synthesis section provides a summary of the literature review, indicates what appears to be missing, identifies the essential learning's from the review, and concludes with the major theories supported by the literature.

National Studies

One goal of this research study was to investigate high school graduates' transition into post-secondary education and workforce employment. A review of the

literature related to this goal revealed numerous studies completed by the U.S. Department of Education and the U.S. Department of Labor and Employment.

The Department of Education through the National Center for Educational Statistics (NCES) sponsors ongoing research studies to consider the effectiveness of education. Three major reports, *National Education Longitudinal Study of the High School Class of 1972* (NELS-72), *High School and Beyond* (HS&B), *and National Education Longitudinal Study of 1988* (NELS-88), provide a glimpse into the education process. These studies collected data through surveys on a broad range of topics and followed the participants over a period of time. A review of the literature revealed four studies (Clery, Lee, Knapp, & Laura ,1998; Crawford, David, & Others, 1995; Ingels, & Taylor, 1995; and Owings, 1995) that used data from one or more of these national studies.

NCES also gathers data and publishes a compendium report to Congress, which describes the status and recent programs of education in the United States. Each year 60 indicators are selected by a committee to match the current demand and political climate. The information for the reports is developed from studies carried out by NCES, as well as from surveys conducted elsewhere, both within and outside of the federal government (1998). Indicators that align closely with this report include immediate transition from high school to college, racial and ethnic differences in participation in higher education, transition from high school to work, employment of young adults, annual earnings of young adults, and college and university enrollment.

The United States Department of Labor and Employment through the Bureau of Labor Statistics conducts a nationwide survey each October and reports the data in the

Current Population Survey (CPS). The survey looks at school enrollment and high school graduation rates for students aged 16-24. For high school graduates the CPS reports on gender, ethnic background, enrolled in college (type of institution--two-year/four-year, and full-time/part-time) and not enrolled in college. It also reports on the percentage of recent graduates who are participating in the workforce and considers if they are simultaneously enrolled full-time or part-time in post-secondary education.

Two other studies completed by the U.S. Bureau of Labor Statistics provide rich databases and ongoing reports on the process of education and work for American youth. The *National Longitudinal Survey of Youth, 1979* began with a group of young men and women who were 14-21 years of age on January 1, 1979. The *National Longitudinal Survey of Youth, 1997* began with a cohort of individuals aged 12 to 17 in 1997. Follow-up interviews have been conducted yearly or biennially on both cohorts since the beginning of the base years. A review of the literature revealed two studies by Klerman and Karoly (1994 and 1995) based on the data from these surveys.

Other national studies found in this literature review provided a broad overview of students immediately after high school graduation and identified the need to connect post-secondary education and workforce development. These national studies provide a rich resource for understanding the American youth's transition to education and work; however, none of the studies aligns closely with the current research problem.

Matching national studies with the current study variables revealed numerous gaps in the literature. No information was found on the type of program students select, the number of cumulative hours they complete in their first year of study, or the industry division and size of company where they are employed. Limited information was found

on differences for gender and ethnic enrollment in post-secondary education, post-secondary degree programs, and the type of institution (two-year/four-year) that students select. In addition, limited information was found on the amount of money students earn during their first year after high school graduation. Studies were found that considered some of these variables for specific and unique populations; however, the current study is only focused on total populations of students one year after high school graduation.

The national studies found in this literature search focused primarily on the percentage of students enrolled in post-secondary education and the percentage of students employed in the workforce. The studies identified cohort groups, followed them over time, and identified changes to provide an understanding of youth transition from secondary education into the adult world.

A summary of the national studies found in this literature search indicate that

- the number of students aspiring to attend college increased from 73% in 1980 to 90% in 1990, while the number of students who reported that they actually attended college increased from 62% in 1995 to 66% in 1999;
- in 1972, female student enrollment in post-secondary education lagged behind male student enrollment; however, by 1992 these differences had disappeared;
- Black and Hispanic student enrollment has increased since 1972; however, White students are still more likely to enroll in post-secondary education;
- of the students who enroll in post-secondary education approximately two-thirds select four-year and one-third select two-year institutions;

- enrollment in two-year schools is similar for White, Black, and Hispanic students; however, White students are more likely to select four-year institutions;
- approximately 80% of the high school graduates not enrolled in post-secondary education are employed in the workforce;
- 41%-47% of the college students (aged 16-24) enrolled full-time, and 83%-86% of those enrolled part-time are also employed;
- male high school graduates are more likely to be employed than female graduates;
- White and Hispanic full-time college students are more likely to be employed than Black students; and
- in general, males are likely to earn more than females with the same education background.

State and Local Studies Outside of Colorado

A search of the literature revealed at least five studies from four different states outside of Colorado that relate to the current study. All of the state studies collected data and reported on the percentage of high school graduates who transition to post-secondary education. Only two of the state studies also considered the percentages of graduates who transitioned to the workforce. The five studies collected data through a variety of methods including telephone and mail surveys and data compilation. The results of the data presented in the reports provide an inconsistent picture of the paths high school students take after graduation. The percentage of high school students enrolled in post-secondary programs ranges from a low of 42% to a high of 70%. No information was

found in the state literature on the differences for gender or ethnic groups. Only two of the state studies reported employment data; however, the range of 59% to 81% made it difficult to draw any conclusions. None of the state and local studies outside of Colorado considered the type of program students select, the cumulative hours they complete in their first year, and industry or size of company that employed high school graduates.

Colorado Studies Outside of Jefferson County

A review of the literature found only one Colorado study and one newspaper article that considered the transition of high school students into post-secondary education and the workforce. Informal discussions with Colorado education professionals indicated that numerous studies exist; however, they are completed for the benefit of a specific school district, are unpublished, and difficult to obtain. Informal discussions with educators indicated that most Colorado school districts survey students as to their future plans; however, none of the districts completes follow-up studies to determine if students actually follow through on their intentions.

In a recent newspaper article, Curtin (2001) reported that only 38% of Colorado's high school students attend college right after high school graduation. This study is inconsistent with the 70% to 75% reported by Jefferson County Schools (1997, 1998, and 1999). However, it is more closely aligned with the lowest figure of 43% reported by students with no career experience on the Colorado School to Career Survey (1999).

The Colorado studies found in this review only considered two of the variables from the current study, enrollment and type of institution. The Colorado literature did not address the variables for program type, specific institution, degree program, cumulative hours completed, employment, industry division, company size, or earnings.

Studies in Jefferson County

A review of the purpose of Jefferson County Schools as outlined in the district strategic plan and the vision, mission, and goals for the district's Career Development Department support the goal of the present study to investigate the paths high school students take after graduation. The only studies found in the literature review that currently considers the paths graduates take are the reports from the graduate exit surveys, which only considers students' plans. There are currently no studies on the paths Jefferson County students actually take immediately after high school graduation.

Summary

A review of the literature supports that it is important to understand the paths high school students take immediately following graduation. Numerous studies were found in the literature that addresses some, but not all of the variables in the current study. The national longitudinal studies have made a concentrated effort to gather and report education and employment data in an effort to create a picture of American education; however, these studies are broad-based and provide limited information specific to state evaluation needs. A search of the literature found only a few studies that provide specific detailed state information on high school graduates, and the results of these studies are conflicting and confusing. It appears that local school districts have made an effort to collect data on student plans, but little has been done to follow students as they transition into post-secondary education and the world of work.

CHAPTER 3: METHOD

Chapter 3 describes the plan for conducting the study and outlines the steps the researcher took to collect the data and complete the study. The chapter begins with a list of the planning steps, identifies the research design, describes the participants and site, outlines the data collection, instruments, and procedures process, and acknowledges the statistical tools used for the data analysis. The chapter presents detailed descriptions and makes an effort to provide a system whereby others can replicate the study.

Compiling existing data from three unique state institutions required that the researcher create a plan that recognized each institution's structure and political requirements. The plan for this research study included the following steps:

1. Arrange a meeting with school district personnel to determine interest in sharing data for a follow-up study on high school graduates.
2. Determine the information needed, then write and revise questions to be answered.
3. Review national, state, and district policies to determine what regulations and requirements must be followed when using student data.
4. Collect existing school district documents to determine if complementary studies or similar information already exists.
5. Meet with school district research staff to identify steps for completing an internal research study using student data records.
6. Develop a research proposal and present it to the district research committee for approval.

7. Meet with the research staff from participating state agencies to learn their data collection requirements and processes.
8. Prepare an agreement explaining the role of each state agency that defines timelines, procedures, and the data components.
9. Collect and organize data.

Research Design

A quantitative research approach was selected for this study to compare and cross-tabulate data from three disparate government agencies. The study relies exclusively on previously reported data. All analyzed data were considered objective, classified, or quantified. Statistics and information were organized to increase the potential for generalization across other populations of high school graduates.

This research study has a between groups factorial design with three independent variables and nine dependent variables (Table 9). The first independent variable has two levels, male/female; the second independent variable has two levels, majority/minority; and the third independent variable has three levels, 1996, 1997, and 1998; thus the factorial design is 2X2X3 (Gliner and Morgan, 2000).

Participants and Site

The research population consisted of three groups of high school graduates (1996, 1997, and 1998) from Jefferson County Schools, Colorado. The sample, identified from each graduating class, included only those students who reported their social security numbers as a part of their general registration records. Post-graduation

Table 9. Description of Independent and Dependent Variables in the Study

Independent Variables	Levels
1. gender	male, female
2. ethnic background	majority: White minority: American Indian or Alaskan Native; Asian or Pacific Islander; Black; Hispanic
3. graduation year	1996, 1997, 1998
Dependent Variables	**Levels**
1. next stage	enrolled-only, employed-only, enrolled-and-employed
2. post secondary institution type	4-year and 2-year schools (post-secondary school designation)
3. program type	non-degree seeking, vocational, two-year, four-year, other (specific type of post-secondary program)
4. post-secondary institution most frequently selected	29 codes defined by CCHE identifies institutions by name
5. post-secondary degree program most frequently selected	32 majors as per Classification of Instructional Program codes
6. cumulative credit hours	0-120+
7. industry divisions most frequently selected employed	eleven divisions as per Standard Industry Code
8. company size	1-14,009
9. earnings	year: \$9-\$32,603 quarter 3: \$1-\$24,180 quarter 4: \$3-\$20,315 quarter 1: \$4-\$15,076 quarter 2: \$0-\$15,387

data consisted of information on jobs held and enrollment at in-state, public post-secondary institutions one year after graduation. Data were not collected for students who left the state, enrolled in private schools, or joined the military, since such information is not maintained by any of the state agencies that participated in this research study.

Jefferson County lies just west of the City and County of Denver, Colorado. What was an agricultural buffer between a large urban center and the Rocky Mountains just thirty years ago is now a fully developed suburban community. Consisting of 790 square miles, Jefferson County has a rapidly growing population of over 500,000 residents. It is home to large corporations such as Lockheed Martin Aerospace, Sundstrand Corporation, Coors, Qwest Communications, and a number of other large telecommunications firms. The boundaries for the school district are the same as those for Jefferson County.

With almost 90,000 students (an average increase of 3,000 new students per year during the past decade), the Jefferson County school district is the largest in Colorado and among the largest in the United States. Its facilities include 92 elementary schools, 20 middle schools, 18 high schools, 1 technical school, and 12 option or choice schools. A five-member school board, a single superintendent, and a large support staff govern the district. The district's 18 high schools (grades 9-12) have a total enrollment of approximately 25,000 students with yearly high school graduation figures averaging approximately 4,000 students per year. A breakdown of high school graduates by ethnic group show less than 1% American Indian/Alaskan native, 3% Asian or Pacific Islander, 1% Black, 7% Hispanic, and 88% White. These percentages are similar to the total

county population of 1% Native American, 2% Asian or Pacific Islander, 1% Black, 10% Hispanic, 2% Multiracial, and 85% Anglo (Duran, 2001).

Data Collection, Instruments, and Procedures

Existing data on high school graduates from this school district were collected and matched with data from the state's labor/employment and post-secondary agencies in order to compare variables among high school graduates one year after graduation. Independent variables considered were gender, ethnic background, and graduation year. Post-secondary dependent variables were enrolled, post-secondary institution name and type, program type, degree program, and cumulative credit hours. Workforce dependent variables were employed, industry division, company size, and earnings.

Data sets for Jefferson County high school graduates were created from student record files. The following information was recorded for each student: district identification number, school number, graduation year, student identification number, social security number, gender, and ethnic code. Completed data sets were sent to the Colorado Department of Labor and Employment (CDOL&E) and to the Colorado Commission on Higher Education (CCHE), where they were used to create matched data sets based on their files. CDOL&E data included social security numbers for matching purposes, quarter earnings, standard industrial code (SIC), and company size. CCHE data included institution code, report term, report year, social security number for match, cumulative credit hours, program code, program type, fiscal year, and student level. Matched data were returned to Jefferson County Public Schools, where the research department removed personal identification information and re-coded students

numerically. Data were collected for years 1996 through 1998, resulting in three years of data collected for 1996 graduates, two years for 1997 graduates, and one year for 1998 graduates (Table 10).

These data collection processes provided a rich data set that could be used for numerous purposes. However, the purpose of the current study was to examine where high school students are one year after graduation; therefore, only the data for the first year following graduation were used (Table 10). Data collected for two and three years after high school graduation were not considered in this study. Future studies might consider these data to investigate change over time and/or post-secondary trends.

Table 10. Time Period for Collection of Data

Study year	1996	1997	1998
Year One	*1 year after graduation		
Year Two	2 years after graduation	*1 year after graduation	
Year Three	3 years after graduation	2 years after graduation	*1 year after graduation

Note. * Indicates data used for this study.

Graduation records used for this study were based on school registration records with social security numbers voluntary submitted as part of the registration process. Of the approximately 4,000 yearly graduation records held by the Jefferson County School District, approximately 70% contained social security numbers; however, only 60% could be matched with employment and/or enrollment records (Table 11). With the assistance of the Jefferson County Schools' Research Department, the author organized the data according to graduation year and matches with CDOL&E and CCHE data before entering the information into the SPSS program for statistical analysis. The primary study goal

was to establish a clear picture of what three groups of graduates from Jefferson County schools were doing one year after graduation.

Table 11. Number of Graduates, Number of Matched Graduate Records, and Percent of Graduates in Study

Year graduated	Number of graduates records	Number of graduate records with matched data	Percentage of total graduate records in study
1996	4309	2441	57
1997	4449	2747	61
1998	4763	2758	58
Total	13521	7946	59

Data Analyses

The focus of this study is a comparison among three groups of high school students one year after graduation on several variables. Some of the variables provided descriptive data, which were used to help create a more complete picture of where students are one year after high school graduation. Other variables were used to run statistical comparisons to determine differences between groups. The Statistical Package for the Social Sciences (SPSS) was used to analyze the data.

SPSS frequency distributions and descriptive statistics were used to answer the descriptive questions of what number and percentage of high school graduates from this district are enrolled in post-secondary education and/or employed in Colorado industries. Chi-square tests for independence were run to answer comparative questions and to investigate differences between groups for nominal dependent variables, including next stage, type of post-secondary institution and program, post-secondary institution, post-secondary degree program, and industry division. If significant differences were found,

chi-square tests for one sample were used to investigate whether the groups (e.g., gender) differed at each level of each variable. In each case, for the gender and ethnic background groups, the expected frequencies were based on the total percentages for each group found in the chi-square test for independence (e.g., 52% female and 48% male). For example, a one sample chi-square tested to see if there were more (or fewer) males than expected who were employed-only. For the graduation year group, equal distributions of 33.3% for each year were used. If statistical significance was found in the one sample chi-square, another one sample chi-square was run with paired graduation years.

A One-way ANOVA or t-tests were run to investigate the differences between groups for cumulative hours, size of company where students were employed, and earnings. If ANOVA assumptions were markedly violated, results were tabulated with Kruskal-Wallis and Mann-Whitney tests. The associational question for considering if there was a relationship between cumulative hours earned and earnings were tabulated with a Pearson (r) test. The comparative questions and the SPSS statistical analysis procedure used to look for difference within groups are presented in Table 12.

Summary

This chapter outlined the method and procedures employed to examine the paths high school graduates from this district have taken one year after graduation. A survey research design was implemented by extracting matched data from three existing data sets. The general purpose of this study was to explore relationships between variables to

look for individual differences and compare groups. The next chapter presents the analyses of the data using descriptive and inferential statistical procedures.

Table 12. Comparative Research Questions and Statistic Used for Analysis

Post-Secondary Education	Statistic/SPSS Command
D.1 Are there relationships between the factors gender, ethnic background, and graduation year and the next stage (enrolled and/or employed) that high school graduates from this district select after graduation?	chi-square
D.2 Are there relationships between the factors gender, ethnic background, and graduation year and the type of post-secondary institution in which high school graduates from this district enroll?	chi-square
D.3 Are there relationships between the factors gender, ethnic background, and graduation year and the type of program in which high school graduates from this district enroll?	chi-square
D.4 Are there relationships between the factors gender, ethnic background, and graduation year and the most frequently selected post-secondary institution where high school graduates from this district enroll?	chi-square
D.5 Are there relationships between the factors gender, ethnic background, and graduation year and the post secondary degree program (major) that high school graduates from this district most frequently select?	chi-square
D.6 In terms of the factors gender, ethnic background, and graduation year, are there differences in the number of post-secondary cumulative hours completed by high school graduates from this district?	t-test ANOVA

Table 12. Comparative Research Questions and Statistic Used for Analysis (continued).

Workforce Employment	Statistic/SPSS Command
E.1 Are there relationships between the factors gender, ethnic background, and graduation year and the industry divisions where high school graduates from this district are most frequently employed?	chi-square
E.3 In terms of the factors gender, ethnic background, and graduation year, are there differences in the earnings of high school graduates from this district?	t-test ANOVA
Combined Post-Secondary Education and Employment	**Statistic/SPSS Command**
F.1 Are there differences for high school graduates from this district between the two levels of next stage (employed only and enrolled-and-employed) and their earnings?	t-test
F.2 Is there a relationship between the number of post-secondary cumulative hours completed by high school graduates from this district and their earnings?	Pearson (r)

CHAPTER 4: RESULTS

The goal of this study was to examine the two primary paths taken by Jefferson County high school graduates by matching existing student data from a large suburban school district with employment data from the Colorado's labor department and enrollment data from its higher education agency. In this chapter, data results will be presented in three sections: 1) a detailed description of the participants, 2) descriptive questions with frequency distributions and descriptive statistics, 3) comparative questions with statistical data analysis.

Description of Participants

Data were collected on 1996, 1997, and 1998 high school graduates from Jefferson County schools who were enrolled, employed, or both in the state of Colorado one year after graduation. The data were gathered and tabulated on gender, ethnic background, and graduation year of the study population. Table 13 shows the number of school district graduation records that were matched with data from the Colorado Department of Labor and Employment and the Colorado Commission on Higher Education. Only high school graduate records with matching data were accepted for use in this study.

Table 14 presents a breakdown of the participants by gender. The study composition percentages are similar to the 2001 graduation rate for Jefferson County Schools of 49.5% male and 50.5% female. Based on initial reports from the 2000 federal

census, the percentages are also similar to the gender composition of the overall Jefferson County statistics (49.8% male and 50.2% female), as well as the overall Denver metropolitan statistics of 50.1% males and 49.9% female (Duran, 2001).

Table 13. Graduation Year Number and Percentages of the Study Population

Year Graduated	Total Records with Matching Data	Percentage for each Graduation Year
1996	2441	30.7
1997	2747	34.6
1998	2758	34.7
Total	7946	100.0

Table 14. Gender Composition of the Study Population

Gender	n	Percentage
Male	3811	48.0
Female	4135	52.0
Total	7946	100.0

The statistics on the ethnic background of study participants are similar to the previously given description of the large majority population in suburban Jefferson County. According to the 2000 U. S. Census, the county's racial distribution consists of 1% Native American, 2% Asian or Pacific Islander, 1% Black, 10% Hispanic, 2% Multiracial, and 85% Anglo (Duran, 2001). The ethnic background percentages in this study are also similar to the percentages for Jefferson County Schools 2001 graduates: 0.5% American Indian, 3.1% Asian, 1.0% Black, 7.4% Hispanic, and 88% White. This ethnic terminology is taken from the federal census 2000, while the terminology used in the rest of this dissertation is taken from the Jefferson County Schools student data files.

The study population is also similar to the graduation rates for Jefferson County Schools of 12% minority graduates (7.4% Hispanic, 1.0% Black, 3.1% Asian, and 0.5% American Indian) and 88% White graduates (Colorado Department of Education, 2001). Table 15 presents the ethnic population of the current study.

Table 15. Ethnic Composition of the Study Population

Ethnic Background	n	Percentage of Total
American Indian or Alaskan Native	37	.5
Asian or Pacific Islander	289	3.6
Black	73	.9
Hispanic	541	6.8
White	7006	88.2
Total	7946	100.0

In line with the goals of this paper, as well as for the sake of simplicity, all ethnic minority categories were collapsed into a single group consisting of 11.8% of the study participants. The White majority group represents 88.2% of the study population. These percentages are similar to Jefferson County Schools' ethnic population of 85% White majority and 15% minority and are aligned with the graduation population.

Descriptive Question Results

Post-Secondary Education

Descriptive questions A.1, A.2, and A.3 focused on the numbers and percentages of Jefferson County high school graduates enrolled in post-secondary education during the study period, in what type of post-secondary institutions, and in what type of

programs. As shown in Table 16, 54.2% of the graduates in this study were enrolled in some type of post-secondary education and 45.8% were not enrolled.

Table 16. Number and Percentages of Jefferson County High School Graduates Enrolled

Category	n	Percentage of total graduates
Type of Enrollment		
Enrolled in Post-secondary Education	4306	54.2
Not Enrolled in Post-secondary Education	3640	45.8
Total	7946	100.0

Table 17 shows that 15% of the total study population enrolled in two-year institutions and 39.2% enrolled in four-year institutions. It is interesting to note that for the students who were enrolled, the respective percentages were 27.6% in two-year institutions and 72.4% in four-year institutions.

Table 17. Number and Percentages of Jefferson County High School Graduates Enrolled by Type of Institution

Category	n	Percentage of total graduates	Percentage of enrolled graduates
Type of Institution			
2-year Institution	1191	15.0	27.6
4-year Institution	3115	39.2	72.4
Total	4306	54.2	100.0

Type of post-secondary program includes non-degree seeking, vocational, two-year, four-year, extended studies, and high school concurrent. Table 18 shows that the preferred type of program for Jefferson County high school graduates was four-year with 38% of all graduates in the study. Only 9% of the students were enrolled in two-year programs and the "other" program are selected by less than 5% of the students. When

considering the group enrolled in post-secondary education, 70.1% were enrolled in four-year programs and 16.7% were enrolled in two-year programs. It is important to note that the type of institution refers to a CCHE designation specific to the level for post-secondary schools, while type of program indicates how many credits and/or years are needed before degrees can be earned.

Table 18. Number and Percentages of Jefferson County High School Graduates Enrolled by Type of Program

Category	n	Percentage of total graduates	Percentage of enrolled graduates
Type of Program			
Non-degree Seeking	331	4.2	7.7
Vocational	199	2.5	4.6
2-year	717	9.0	16.7
4-year	3017	38.0	70.1
Extended Studies/H. S. Concurrent	41	0.5	0.9
Total	4306	54.2	100.0

Note. Type of program refers to a specific post-secondary program designation and how many years are needed to earn a degree. Balance of the study population (45.8%) was not enrolled in post-secondary education.

Questions A.4 and A.5 pertain to the numbers and percentages of high school graduates from the district who declared a post-secondary degree program (major) during the study period and the degree programs (majors) most frequently selected. The Colorado Commission on Higher Education provided the degree program classifications for this study as identified by the Classification of Instructional Programs (Appendix C). SPSS descriptive statistics and a frequency distribution indicate that almost 1/3 of the enrolled group had not yet declared a major. Table 19 shows that the largest number and

percentages of students were enrolled in seven of 39 possible degree programs. The degree program, liberal arts and sciences, which includes general studies and humanities, was the most frequently selected with 9.2% of the total graduates (17% of the enrolled group). For purposes of this study, only degree programs with more than 3% participation of all graduates (undeclared, liberal arts and sciences, and business management and administration) were considered for further analysis.

Table 19. Degree Programs (Majors) Most Frequently Selected by Jefferson County High School Graduates

Degree Program (Major)	n	Percentage of total graduates	Percentage of enrolled graduates
Undeclared	1277	16.1	29.6
Liberal Arts & Sciences	735	9.2	17.1
Business Management & Administration	338	4.3	7.8
Biological Sciences/Life Sciences	217	2.7	5.3
Social Sciences & History	214	2.7	4.9
Engineering	173	2.2	4.0
Visual & Performing Arts	149	1.9	3.4
Psychology	132	1.7	3.1
Other Majors	836	10.4	19.4
Missing	235	3.0	5.4
Total	4306	54.2	100.0

Workforce Employment

The descriptive research questions B.1, B.2, B.3, and B.4 focused on the numbers and percentages of employed Jefferson County high school graduates, the most common

industry divisions and employer company size, and earnings. SPSS was used to establish a set of descriptive statistics and frequency distributions based on the collected data.

As indicated in Table 20, 95.5% of the study population was employed sometime during the year immediately following graduation; 45.8% employed-only (not enrolled in post-secondary education) and 49.7% employed-and-enrolled. Only 4.5% of the graduates were not employed during the first year following their high school graduation. Graduates who were neither employed nor enrolled in Colorado were not identified in the data match and were not included in this study.

Table 20. Number and Percentages of Jefferson County High School Graduates for Next Stage Variable One Year After Graduation

Category	n	Percentage
Employed		
Employed-only	3640	45.8
Employed-and-enrolled	3947	49.7
Total Employed	7587	95.5
Enrolled but not employed	359	4.5
Total participants	7946	100.0

As shown in Table 21, the two most common industries for graduate employment were retail trades (42.6%) and services (27.2%). Retail trades include eight major sub-categories (Appendix D). According to the data, the majority of Jefferson County graduates working in this area held jobs in eating and drinking places (15.9%) followed by miscellaneous retail (6.1%) and general merchandise stores (5.5%). The services division includes 16 major groups (Appendix D). Of those graduates working in this

sector, the largest percentages were employed by firms registered as amusement and recreation (8.8%) and business services (6.5%).

Table 21. Number and Percentages of Jefferson County High School Graduates and Most Common Industry Divisions

Most Common Industry Divisions	n	Percentage
Retail Trade	3382	42.6
Services	2161	27.2
All Other Divisions	1841	23.1
Missing	562	7.1
Total	7946	100.0

Company size data indicated that Jefferson County high school graduates were employed in a variety of companies. Graduates were employed in companies with 1-14,009 employees with no single category employing a significantly larger number of graduates.

Table 22 contains data on the 1996, 1997, and 1998 graduates' quarterly and yearly earnings in their first year after high school graduation beginning with the quarter following their graduation (July – September) and ending the following June. The data indicate slight variations between quarters without any identifiable patterns. However, it also shows that students average earnings were only about $1500 per quarter or $300 per month.

High School Exit Report

One stated purpose of the present study was to provide a descriptive comparison of collected enrollment and employment data with information provided by the same

Table 22. Average Quarterly and Yearly Earnings of Jefferson County High School Graduates for 1996, 1997, and 1998 in the Year Immediately Following Graduation

Employment Periods	M	SD	n
Quarter 3	$1927.06	$1382.02	6681
Quarter 4	$2119.82	$1733.97	4907
Quarter 1	$1998.23	$1617.90	5143
Quarter 2	$2067.02	$1606.09	4679

Note. Amounts reflect the average sum of earnings for each employment period.

groups of students on their exit surveys. Part C focused on data collected via a high school exit survey report established by Jefferson County Schools. Each spring prospective graduates are asked to provide information regarding their post-secondary plans. The purpose of the survey is to collect information on what graduates are planning as their next stage after graduation. The survey form (Figure 3, Chapter 3) asks students if they are planning to enroll in college, work full time, or join the military. In addition, it asks if they are planning to attend a four-year or a two-year college, or a trade/vocational school. Respondents are asked to provide specific names of schools, employers, or military branch whenever possible. Survey data are compiled by each high school before being sent to the district office where a formal report is prepared. Besides reporting on the stated goals and plans of its graduates, Jefferson County high schools use the information to determine if their programs are meeting student needs. Only descriptive comparisons are possible for this study because of the summative format of the survey data.

Results for three descriptive questions will be presented and discussed in this section. Question C.1 compares the numbers and percentages of graduates who actually

enroll in post-secondary education with those who stated intent to do so on their exit surveys. Question C.2 looks at the type of post-secondary institutions in which Jefferson County graduates actually enrolled compared with their stated plans on their high school exit surveys. Question C.3 was designed to specifically identify the actual post-secondary institutions eventually selected by graduates as compared with those identified by graduates on their exit surveys.

Table 23 shows that, according to the high school exit survey, 72% of the total high school graduates were planning to enroll in post-secondary education. It is also interesting to note that of the students planning to enroll in college, 82% indicated that they planned to attend Colorado colleges or universities and 18% planned to attend an out-of-state college or university (Appendix B). The current study indicates that 54.2% of the students who stayed in Colorado were enrolled in college one year after high school graduation. Of those planning to enroll, 78% stated an intention to enroll in a four-year school and 22% were planning to enroll in a two-year school. Of those who did enroll, 72.4% attended four-year schools and 27.6% attended two-year schools. Graphic presentations of the compared data are given in Figures 4 and 5. It should be noted that the organization of the survey form could lead students to believe they needed to select either post-secondary education or workforce employment. The exit survey did not ask students if there planned to work during college; therefore, no data were collected on the number of students who planned to work while enrolled in post-secondary education. The format of the questionnaire may have led students to see these activities as exclusive of one another.

Table 23. A Comparison of Post-secondary Education Plans Stated on Jefferson County High School Exit Surveys and Data from this Longitudinal Study

	High School Exit Report		Longitudinal Study	
	n	%	n	%
Enrollment in Post-secondary Education	9395	72.0	4306	54.2
In Colorado	7704	82.0		
Out of State	1691	18.0		
Type of Post-secondary Institution				
Four-year	7328	78.0	3115	72.4
Two-year	2067	22.0	1191	27.6
Total	9395	100.0	4306	100.0

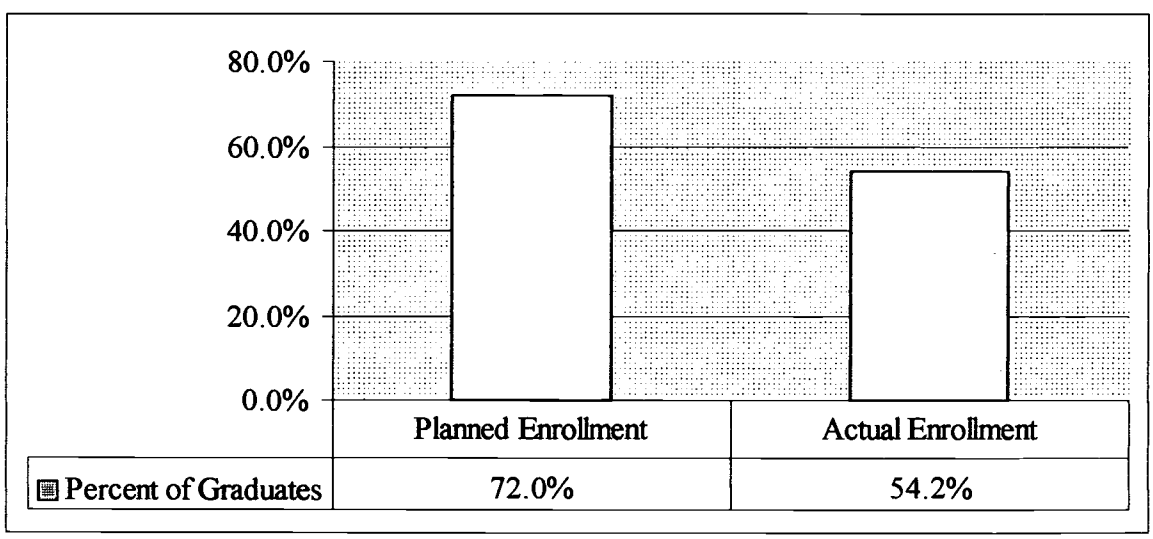


Figure 4. Percentage of Graduates Planning to Enroll Compared with Percentage of Graduates Actually Enrolled.

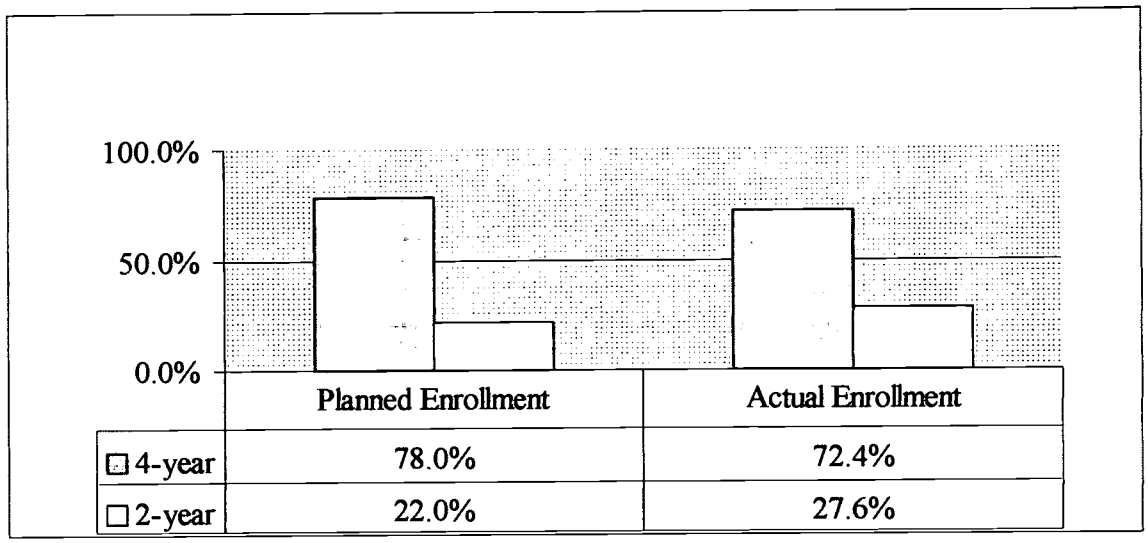
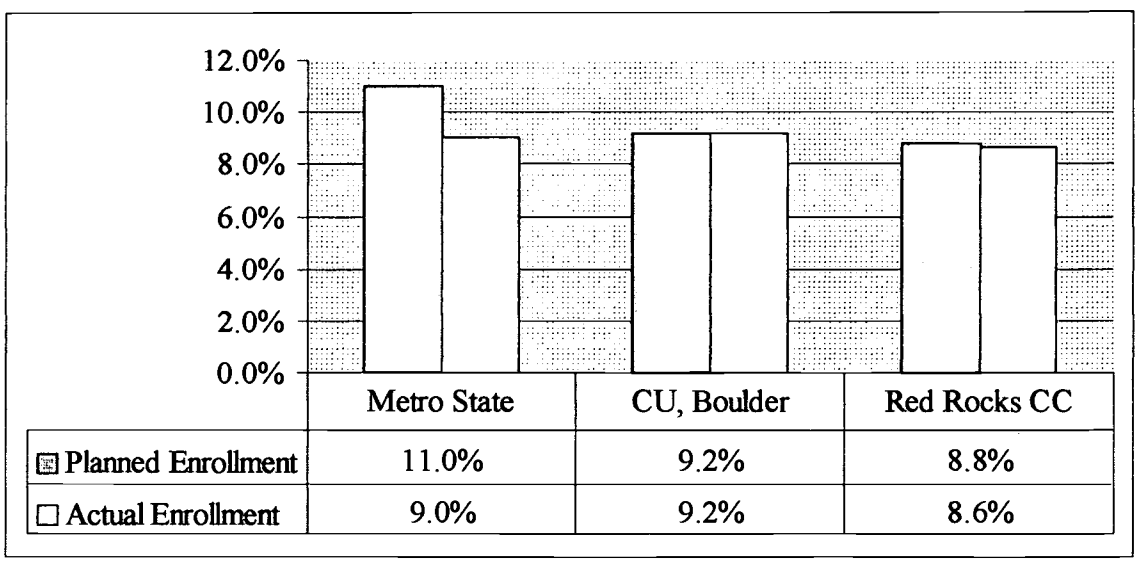


Figure 5. Type of Post-secondary Institution Planning to Attend Compared with Type of Post-secondary Institution Actually Enrolled.

Question C.3 was designed to identify the actual post-secondary institutions eventually selected by graduates as compared with those identified on their exit surveys. Table 24 presents the five most frequently selected post-secondary institutions for both planning to attend and actual enrollment. Percentages are based on total populations of students rather than on the percentages planning to attend or actually enrolled. The "other" category for the high school exit survey column includes all other post-secondary institutions selected by students on their exit surveys. The "other" category for the longitudinal study reflects the twenty-three Colorado post-secondary institutions available in the data for this study, but not selected as the most popular. Figure 6 provides a graphic presentation of the data comparing the three most frequently selected Colorado post-secondary institutions for planned enrollment with the three most frequently selected Colorado post-secondary institutions for students' actual enrollment.

Table 24. A Comparison of Post-secondary Institution Plans Stated on Jefferson County High School Exit Surveys and Data From This Longitudinal Study

	High School Exit Survey		Longitudinal Study	
Most Frequently Selected Institution	n	%	n	%
Metro State	1448	11.0	714	9.0
CU, Boulder	1211	9.2	731	9.2
Red Rocks CC	1147	8.8	682	8.6
Colorado State University	931	7.1	576	7.2
University of Northern Colorado	857	6.5	419	5.3
Other Post-Secondary Schools	3801	29.4	1186	14.9
Total	9395	72.0	4308	54.2
Other/Not Enrolled	3654	28.0	3638	45.8
Total	13049	100.0	7946	100.0



Note. Percentages are based on total student populations.

Figure 6. Most Frequently Mentioned Post-Secondary Institutions Compared With Institutions Most Frequently Enrolled.

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Question C.4 identifies the numbers and percentages of Jefferson County graduates in the study who are employed compared with the percentages indicating intent to find employment on their exit surveys. Only an average of 14% of the graduates for the three years of the study mentioned employment as their primary post-graduation focus; however, 95.5% of the graduates were employed in some capacity within one year of leaving high school (Table 25). While the data for the current study did not distinguish between full-time and part-time employment, it does show that 45.8% of the graduates were employed-only (not enrolled in post-secondary education) and that 49.7% of the graduates were simultaneously employed-and-enrolled. Graphic depictions of the data, presented in Figure 7, show a comparison of planned employment with actual employment.

Table 25. A Comparison of Intent to Find Employment as Reported on Jefferson County High School Exit Surveys and Actual Employment Within One Year of Graduation

	High School Exit Survey		Longitudinal Study	
	n	%	n	%
Workforce employment				
Employed-only	1827	14.0	3640	45.8
Employed-and-enrolled	--	--	3947	49.7
Total	1827	14.0	7587	95.5

Note. Dash indicates data not available. Percentages based on total student populations.

The descriptive comparison of the high school exit survey report with the enrollment and employment data collected for this study shows that the paths students actually take one year after graduation are different than their plans. Considerably fewer

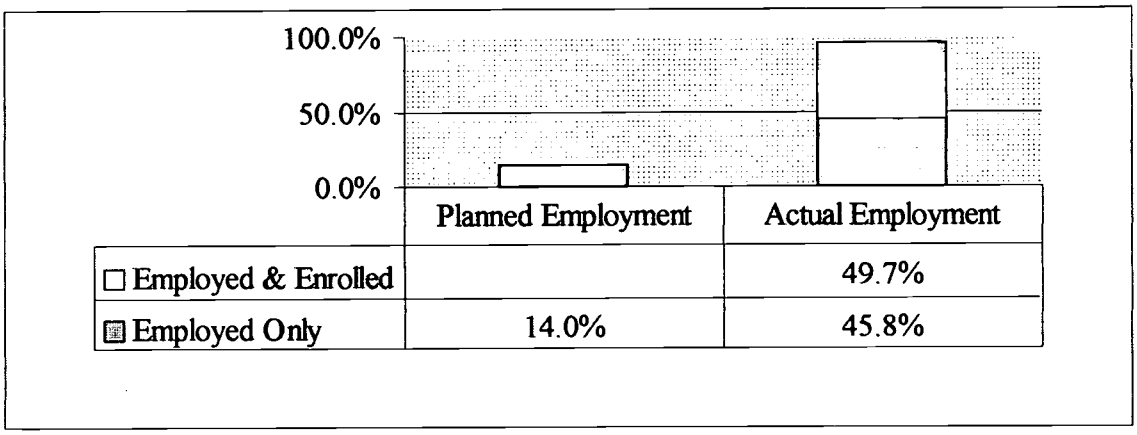


Figure 7. Intent to Find Employment Compared With Actual Employment

students actually enroll in post-secondary education and considerably more students enter the workforce. However, it is difficult to make a direct comparison between the high school exit survey and the current study because of the differences in format and data collection. The high school exit survey includes all Jefferson County graduates. The current study only considers those students who elected to remain in Colorado and are either enrolled in Colorado post-secondary institutions and/or employed in Colorado industries. In addition to those planning to enroll in Colorado post-secondary institutions or find full-time employment, the high school exit survey includes 18% attend college outside of Colorado, 3% join the military, 2% enroll in private vocational schools, and 5% undecided or other.

Comparative Question Results

Post-Secondary Education

The comparative questions of Part D were used to determine if relationships exist in the percentages of Jefferson County high school graduates for the six post-secondary

dependent variables as listed in Table 26. Each variable was measured in terms of gender, ethnic background, and graduation year groups.

Table 26. Description of Study's Independent Variables and Dependent Post-secondary Education Variables

Independent Variables	Levels
1. Gender	male, female
2. Ethnic background	majority: White minority: American Indian or Alaskan Native; Asian or Pacific Islander; Black; Hispanic
3. Graduation Year	1996, 1997, 1998
Post-secondary Variables	**Levels**
1. Next Stage	enrolled-only, employed-only, enrolled-and-employed
2. Post-secondary Institution Type	two-year, four-year
3. Program Type	non-degree seeking, vocational, two-year, four-year, other
4. Most Frequently Selected Post-secondary Institutions	29 code numbers according to Colorado Commission on High Education
5. Most Frequently Selected Post-secondary Degree Programs (Major)	39 code numbers according to the Classification of Instructional Programs (CIP)
6. Cumulative Credit Hours	0-120+

It is important to note that for the post-secondary institution type variable, the two-year and four-year level categories refer to type of institution or school. On the other hand, the two-year and four-year level categories for the program type variable refer to the program designation or the number of years required to complete the course of study.

Chi-square tests for independence were used to test the association between gender, ethnic background, and graduation year for the following variables: next stage, post-secondary institution type, program type, and post-secondary institution and post-secondary degree programs most frequently selected. If statistically significant relationships were found, a chi-square test for one sample was run to examine each level of the variable. The one sample chi-square test was weighted for unequal distribution for ethnic background and gender based on percentages in each variable as identified by the chi-square test of independence. Graduation year (30.7% 1996, 34.6% 1997, and 34.7% 1998) was measured with assumed equal distribution of 33.3% for each year.

Gender

A summary of the gender data in relation to five of the dependent variables is presented as Table 27 (next stage, post-secondary institution type, and program type) and Table 28 (most frequently selected post-secondary institution and most frequently selected post-secondary degree program). Results of a chi-square test for independence for the next stage variable reveal a statistically significant relationship between gender and next stage, χ^2 (2, N=7946) = 23.991, $p < .001$ (Table 27). A one sample chi-square test to consider differences between each of the next stage levels (enrolled-only, employed-only, and enrolled-and-employed) reveals no statistically significant differences between the male and female graduate participation for the enrolled-only level. However, statistically significant differences were found between male and female graduates for the employed- only, χ^2 (1, N=3640) = 10.313, $p < .001$, and the enrolled-and-employed, χ^2 (1, N=3947) = 36.392, $p < .001$ categories. For the employed-only category, the measured frequency of 1844 male graduates is significantly greater than the

Table 27. A Comparison of Male and Female Jefferson County High School Graduates in Terms of Next Stage, Institution Type, and Program Type

	Male		Female		
	n	%	n	%	χ^2
Next Stage					
Enrolled-only	183	2.3	176	2.2	
Employed-only	1844	23.2	1796	22.6	
Enrolled-and-employed	1784	22.5	2163	27.2	
Total	3811	48.0	4135	52.0	23.991***
Post-secondary Institution Type					
Two-year	556	12.9	635	14.7	
Four-year	1411	32.8	1704	39.6	
Total	1967	45.7	2339	54.3	.668
Program Type					
Non-degree Seeking	170	3.9	161	3.7	
Vocational	103	2.4	96	2.2	
2-year	321	7.5	397	9.2	
4-year	1352	31.4	1665	38.7	
Extended Studies	11	.3	11	.3	
High School Concurrent	10	.2	9	.2	
Total	1967	45.7	2339	54.3	8.990

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

expected frequency of 1747. For the enrolled-and-employed category, the measured frequency of 2163 female graduates is significantly higher than the expected frequency of 2052. In other words, there are more male graduates than expected in the employed-only category and more female graduates than expected in the enrolled-and-employed category.

Data for post-secondary institution type indicate that both male and female graduates prefer four-year schools. However, a chi-square test for independence to compare expected frequencies with measured frequencies indicates no statistically significant relationship between gender and enrollment for post-secondary institution type.

The data show that both male and female graduates prefer four-year programs (degree programs that require an equivalent of at least four years to complete). Two-year programs (usually associate degree programs) were the next type of program most often selected by graduates. A chi-square test for independence to compare expected frequencies with measured frequencies indicates no significant relationship between gender and enrollment for the program type variable.

An SPSS cross tabulation of post-secondary institutions with gender reveal that Jefferson County high school graduates enrolled in 28 Colorado post-secondary institutions; however, five institutions (the University of Northern Colorado, Colorado State University, Red Rocks Community College, Metro State College, and the University Colorado at Boulder) were the most frequently selected by both male and female graduates. For purposes of analysis, the 23 remaining Colorado post-secondary institutions were collapsed into an "other" category.

An analysis of the data reveals that although both genders preferred the same institutions, the order of preference was slightly different for each gender. The most frequently selected post-secondary institution for male graduates was Red Rocks Community College followed closely by the University of Colorado at Boulder. The most frequently selected post-secondary institution for female graduates was Metro State College followed closely by the University of Colorado at Boulder.

A chi-square test for independence to test for a relationship between gender and the most frequently selected post-secondary institution indicates a statistically significant relationship, χ^2 (5, N=4306) = 26.607, $p < .001$ (Table 28). A one-sample chi-square test, adjusted for expected differences of 45.7% male and 54.3% female, was run to consider differences for each level of the most frequently selected post-secondary institution variable. Statistically significant differences were found with more female graduates and fewer male graduates than expected enrolled at the University of Northern Colorado, χ^2 (1, N=419) = 9.533, p=.002, and at Metro State College, χ^2 (1, N=714) = 5.888, p=.015; however, more male graduates and fewer female graduates than expected were enrolled at Red Rocks Community College, χ^2 (1, N=682) = 5.798, p=.016, and the "other" group of 23 post-secondary institutions, χ^2 (1, N=714) = 5.888, p=.015. No significant differences were noted for male/female enrollment at Colorado State University and the University of Colorado at Boulder.

An SPSS cross tabulation of the 39 Colorado post-secondary program majors showed Jefferson County high school graduates enrolled in 33 different and unique programs; however, an analysis of the data indicates the largest percentages of students are enrolled in one of two programs or have yet to declare a major. The most frequently

Table 28. A Comparison of Male and Female Jefferson County High School Graduates in Terms of Most Frequently Selected Institutions and Degree Programs

	Male		Female		
	n	%	n	%	χ^2
Most Frequently Selected Post-secondary Institution					
University of Northern Colorado	160	3.7	259	6.0	
Colorado State University	255	5.9	321	7.5	
Red Rocks CC	343	8.0	339	7.9	
Metro State College	294	6.8	420	9.8	
University of Colorado Boulder	336	7.8	395	9.2	
Other Institutions	579	13.4	605	14.1	
Total	1967	45.7	2339	54.3	26.607***
Most Frequently Selected Post-secondary Degree Program (Major)					
Undeclared	601	14.8	676	16.6	
Liberal Arts and Sciences	325	8.0	410	10.1	
Business Management & Administration	175	4.3	163	4.0	
Other Degree Programs	749	18.4	970	23.8	
Total	1850	45.5	2219	54.5	9.690*

*$p<.05$. **$p<.01$. ***$p<.001$
Note. Missing 237 records.

selected post-secondary degree program for both genders was liberal arts and sciences, which includes general studies and humanities. The next degree program most often selected was business management and administration; however, a large percentage of

students of either gender had not yet declared a major. For purposes of analysis, the remaining 30 program majors were collapsed into an "other" category. The results of a chi-square test for independence indicate a statistically significant relationship between gender and the post-secondary degree programs most frequently selected, χ^2 (3, N=4069) = 9.690, p = .021 (Table 28). A one sample chi-square test for each level of the degree program most frequently selected indicates statistically significant differences for the business management category, χ^2 (1, N=338) = 5/367, p = .021, with more male graduates enrolled than expected.

Ethnic Background

The original data were organized into the following five ethnic categories: American Indian or Alaskan Native, Asian or Pacific Islander, Black, Hispanic, and White. However, in response to the limited diversity of the Jefferson County population, as well as to facilitate reporting, non-White ethnic groups were combined into a single "minority" category. Numbers and percentages of the results for five of the dependent variables for the graduates in the majority and minority categories are presented in Tables 29 (next stage, post-secondary institution type, and program type) and 30 (most frequently selected post-secondary institution and most frequently selected post-secondary degree program).

An SPSS crosstabs summary for ethnic background of the next stage variable found both majority and minority students at all three levels--enrolled-only, employed-only and enrolled-and-employed. A chi-square test for independence to consider measured frequencies with expected frequencies indicates a statistically significant relationship between ethnic background and the next stage variable, χ^2 (2, N=7946) =

14.74, p = .001 (Table 29). A one sample chi-square test for each level of the next stage variable indicates statistically significant differences in the enrolled-only, employed-only, and enrolled-and-employed categories. Fewer majority (White) graduates (310 expected/295 observed) are enrolled-only, χ^2 (1, N=359) = 6.064, p=.014; however, more majority (White) graduates (3152.2 expected/3201 observed) were found in the employed-only category, χ^2 (1, N=3640) = 5.629, p=.018, and in the enrolled-and-employed category (3418 expected/3510 observed), χ^2 (1, N=3947) = 18.438, p<.001).

An SPSS crosstab of data gathered for the next variable, post-secondary institution type, indicates a lower percentage enrolled in two-year schools and a higher percentage enrolled in four-year schools for both ethnic background groups. Expected percentages are consistent with these measures; therefore, results from the chi-square test for independence reveal no statistically significant relationship between ethnicity populations and the post-secondary institution type variable.

Results of data analysis for the post-secondary program type variable presents a unique view of the paths taken by majority and minority Jefferson County high school graduates. For students in either group, the most popular program type was four-year. A chi-square test for independence to test the association between program type and ethnic background indicates statistically significant differences, χ^2 (5, N=4306) = 16.034, p = 007 (Table 29). A chi-square analysis for one sample to investigate differences for each level of the program type variable show statistically significant differences in non-degree. seeking, χ^2 (1, N=331) =3.826, p=.05), and vocational, χ^2 (1, N=199) = 4.044, p=.04), program categories with more majority and fewer minority graduates enrolled in each case.

Table 29. Numbers and Percentages of Majority and Minority Graduates for Next Stage, Post-secondary Institution, and Program Type

	Majority		Minority		
	n	%	n	%	χ^2
Next Stage					
Enrolled-only	295	3.7	64	.8	
Employed-only	3201	40.3	439	5.5	
Enrolled-and-employed	3510	44.2	437	5.5	
Total	7006	88.2	940	11.8	14.741***
Post-secondary Institution Type					
Two-year	1062	24.7	129	3.0	
Four-year	2743	63.7	372	8.6	
Total	3805	88.4	501	11.6	1.034
Program Type					
Non-degree Seeking	304	7.1	27	.6	
Vocational	185	4.3	14	.3	
Two-year	622	14.4	96	2.2	
Four-year	2653	61.6	364	8.5	
Extended Studies	22	.5	0	0	
High School Concurrent	19	.4	0	0	
Total	3805	88.4	501	11.6	16.034**

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

Statistically significant differences were not noted for the two-year, four-year, extended studies, or high school concurrent categories.

Regarding the most frequently selected post-secondary institutions, Table 30 shows that out of the 28 possible post-secondary institutions, graduates measured by ethnic background prefer the same five schools. For purposes of analysis, the other 23 institutions were collapsed into one category called "other." Majority graduates prefer the University of Colorado at Boulder, Metro State College and Red Rocks Community College, while minority students chose the University of Colorado at Boulder followed closely by Metro State College. A chi-square test for independence indicates statistically significant relationships between ethnic background and the most frequently selected post-secondary institutions, χ^2 (5, $\underline{N}$=4306) = 39.980, $\underline{p} < .001$. A one sample chi-square test for each level of the variable indicates significant differences in majority (higher than predicted) and minority (lower than predicted) enrollment at the University of Northern Colorado, χ^2 (1, $\underline{N}$=388) =7.213, $\underline{p}$=.006, and Colorado State University, χ^2 (1, $\underline{N}$=538) =14.058, $\underline{p}$<.001. Statistically significant differences were also noted at the University of Colorado at Boulder with more minority graduates and fewer majority graduates, χ^2 (1, $\underline{N}$=538) =14.058, $\underline{p}$<.001, than expected. No statistically significant differences were found at Red Rocks Community College, Metro State College, or the other Colorado institutions. A large percentage of both majority and minority Jefferson County high school graduates had not declared a degree program (major) during the study period. For those who had declared a major, the most frequently selected by individuals in both groups was liberal arts and sciences, which include general studies and humanities, followed by business management & administration (Table 30). A chi-square test of

independence indicates no statistically significant relationship between ethnic background and most frequently selected post-secondary degree programs.

Table 30. Numbers and Percentages of Majority and Minority Graduates for Most Frequently Selected Post-secondary Institution and Degree Program

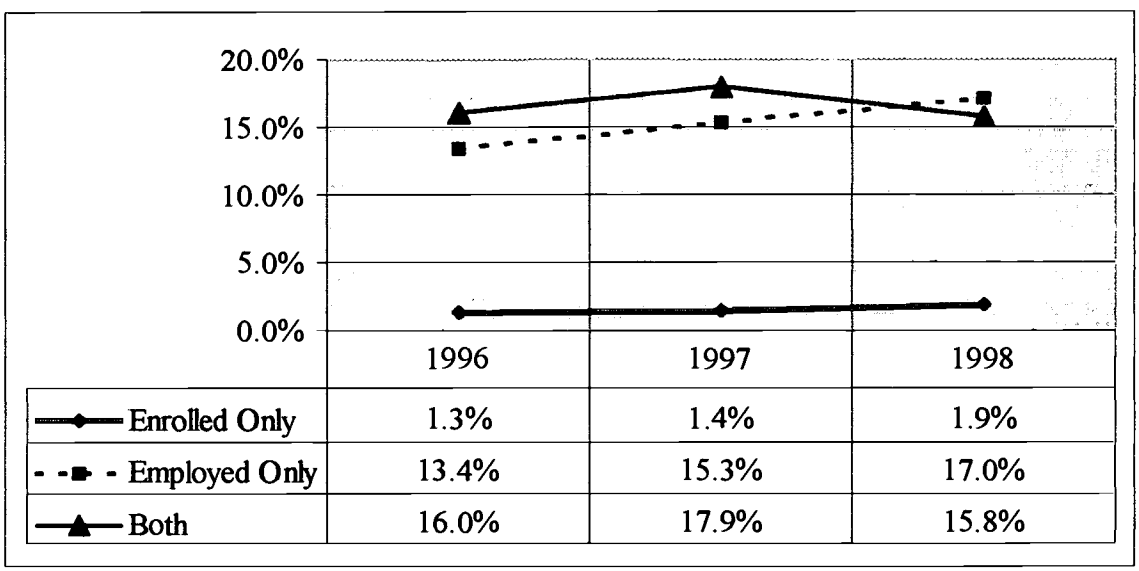
	Majority		Minority		
	n	%	n	%	χ^2
Most Frequently Selected Post-secondary Institution					
University of Northern Colorado	388	9.0	31	.7	
Colorado State University	538	12.5	38	.9	
Red Rocks CC	615	14.3	67	1.6	
Metro State College	615	14.3	99	2.3	
University of Colorado Boulder	617	14.3	114	2.6	
Other Institutions	1032	24.0	152	3.5	
Total	3805	88.4	501	11.6	39.980***
Most Frequently Selected Post-secondary Degree Program (Major)					
Liberal Arts & Sciences	637	15.7	98	2.4	
Business Management & Administration	300	7.4	38	.9	
Undeclared	1115	27.4	162	4.0	
Other Degree Programs	1536	37.7	183	4.5	
Total	3588	88.2	481	11.8	4.916

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

Note. Missing 237 cases for variable.

Graduation Year

The next examined independent variable to consider was graduation year 1996, 1997, and 1998. A summary of the data reveals slight differences in the enrolled-only/not employed category (an increase from 1.3% in 1996 to 1.9% in 1998) and the employed-only/not enrolled category (from 13.4% in 1996 to 15.3% in 1997 and 17.0% in 1998). For the enrolled-and-employed group, a slight increase was noted between 1996 (16.0%) and 1997 (17.9%) followed by a decrease in 1998 (15.8%). Figure 8 provides a graphic presentation of the differences among graduate groups for each level of the next stage variable.



	1996	1997	1998
Enrolled Only	1.3%	1.4%	1.9%
Employed Only	13.4%	15.3%	17.0%
Both	16.0%	17.9%	15.8%

Figure 8. Comparison of Jefferson County High School Graduates for Three Levels of Next Stage According to Graduation Year.

A chi-square test of independence reveals a statistically significant relationship between graduation year and the next stage variable, χ^2 (4, N=7946) = 33.109, p <.001 (Table 31). A one sample chi-square test for each level of the next stage variable reveals statistically significant differences for all three categories, enrolled-only, χ^2 (2, N=359)

=11.872, $p = .003$, employed-only, χ^2 (2, N=3640) = 33.734, $p < .001$, and enrolled-and-employed, χ^2 (2, N=3947) = 12.548, $p = .002$. To determine the precise location of these differences, three one sample chi-square tests were performed using pairs of graduating classes. Results of these findings, which support the trends in the prior paragraph, are presented in Appendix E.

The percentage of graduates enrolled in two-year post-secondary institutions increased from 8.3% in 1996 to 10.6% in 1997, then decreased to 8.8% in 1998; however, a chi-square test for independence indicates no statistically significant relationship between the post-secondary institution type variable and graduation year (Table 31).

As with gender and ethnic background groups, four-year programs were the most commonly selected type for all three graduating classes. Fluctuation was noted for two-year program enrollment with an increase for 1997 graduates and a decrease for 1998 graduates. A chi-square test for independence indicates a statistically significant relationship for the post-secondary program type variable and graduation year, χ^2 (10, N=4306) = 29.962, $p = .001$ (Table 31). A one sample chi-square test for each level indicates significant differences in enrollment between non-degree seeking, χ^2 (2, N=331) = 12.350, $p = .002$, and two-year programs, χ^2 (2, N=718) = 9.813, $p = .007$. To determine the precise location of these differences, three one sample chi-square tests were performed using pairs of graduating classes; however, no statistically significant differences were found among vocational, four-year, extended studies, and high school concurrent types. Results of the chi-square tests by pairs of graduation years are presented in Appendix E.

Table 31. Differences in Numbers and Percentages of Graduates for Next Stage, Post-secondary Institution, and Program Type

	1996		1997		1998		
	n	%	n	%	n	%	χ^2
Next Stage							
Enrolled-only	100	1.3	109	1.4	150	1.9	
Employed-only	1068	13.4	1218	15.3	1354	17.0	
Enrolled-and-employed	1273	16.0	1420	17.9	1254	15.8	
Total	2441	30.7	2747	34.6	2758	34.7	33.109***
Post-secondary Institution Type							
2-year	357	8.3	457	10.6	377	8.8	
4-year	1016	23.6	1072	24.9	1027	23.9	
Total	1373	31.9	1529	35.5	1404	32.7	6.142
Program Type							
Non-degree Seeking	83	1.9	113	2.6	135	3.1	
Vocational	58	1.3	80	1.9	61	1.4	
Two-year	231	5.4	277	6.4	210	4.9	
Four-year	988	22.9	1049	24.4	980	22.8	
Extended Studies	11	.3	4	.1	7	.2	
High School Concurrent	2	0	6	.1	11	.3	
Total	1373	31.9	1529	35.5	1404	32.6	29.962***

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

The most frequently selected post-secondary institutions according to graduation year are consistent with those selected according to gender and ethnic background. The most frequently selected institutions for 1996 and 1997 graduates were Metro State College followed closely by the University of Colorado at Boulder. For the 1998 graduates, the most favored institutions were the University of Colorado at Boulder and Red Rocks Community College (Table 32).

A chi-square test for independence indicates a statistically significant relationship between the most frequently selected post-secondary institutions variable and graduation year, χ^2 (10, N=4306) = 26.044, p = .004 (Table 32). Results from one sample chi-square tests to look for differences within each level of the variable indicate significant differences in enrollment at Metro State College, χ^2 (2, N=714) = 9.782, p=.008, and Colorado State University, χ^2 (2, N=576) = 6.219, p=. 045. Figure 9 provides a graphic presentation of the differences in enrollment for Metro State College and Colorado State University. To determine the exact location of the differences, another one sample chi-square was run by paired graduation year. Results of these findings, which show that enrollment at Colorado State University increased while Metro State enrollment decreased are presented in Appendix E.

Also similar to the data analyzed in terms of gender and ethnic background, the most common single category for degree programs for Jefferson County high school students in terms of graduating year was undeclared. Again, the next most often-selected degree program was liberal arts and sciences, then business management and administration.

Table 32. Differences in Numbers and Percentages of Graduates for Most Frequently Selected Post-secondary Institutions

	1996		1997		1998		
	n	%	n	%	n	%	χ^2
Most Frequently Selected Post-secondary Institution							
University of Northern Colorado	140	3.3	128	30.	151	3.5	
Colorado State University	181	4.2	175	4.1	220	5.1	
Red Rocks CC	200	4.6	250	5.8	232	5.4	
Metro State College	248	5.8	266	6.2	200	4.6	
University of Colorado Boulder	231	5.4	268	6.2	232	5.4	
Other Colorado Institutions	373	8.7	442	10.3	369	8.6	
Total	1373	31.9	1529	35.5	1404	32.6	26.044***

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

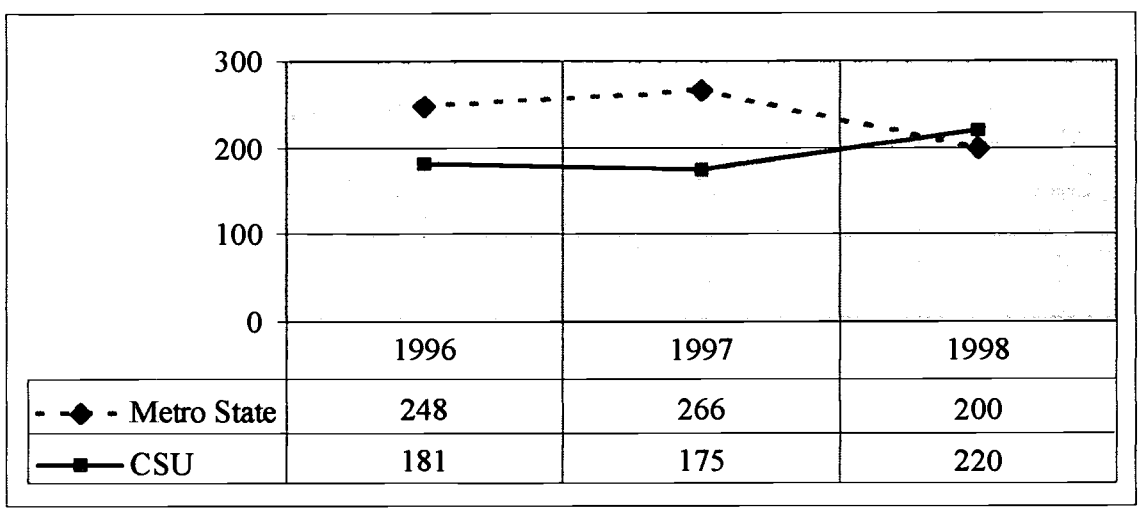


Figure 9. Number of Jefferson County High School Graduates Enrolled at Metro State College and Colorado State University.

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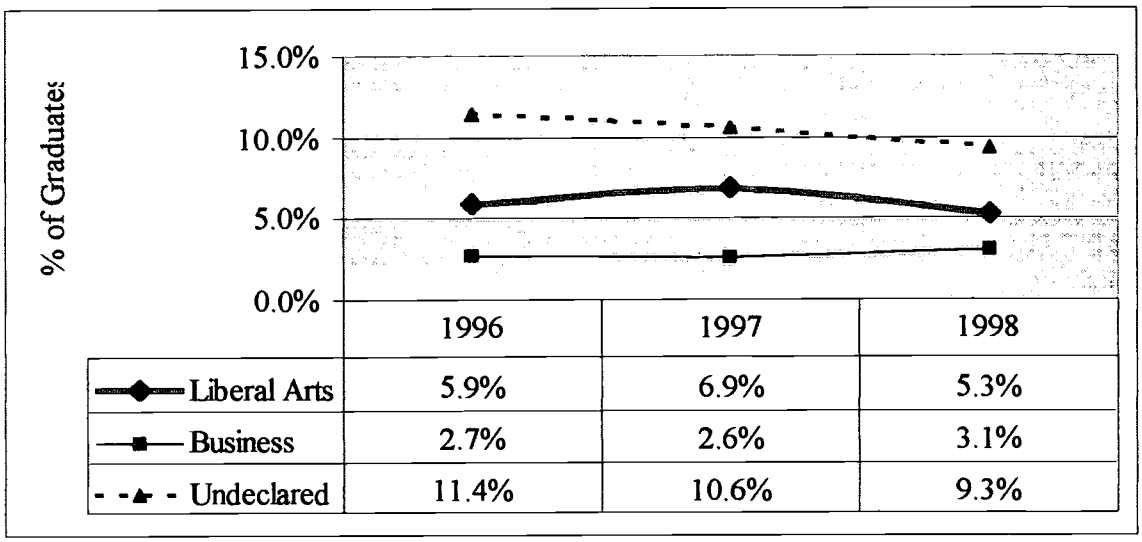
A chi-square test for independence indicates a statistically significant relationship between the variable graduation year and the most frequently selected post-secondary degree programs variable, χ^2 (6, N=4069) = 14.282, p = .027 (Table 33). One sample chi-square test results for each level of the variable indicate statistically significant differences between enrollment and expected enrollment for undeclared, χ^2 (2, N=1277) = 8.628, p=. 013), and the liberal arts and sciences, χ^2 (2, N=735) = 9.314, p = .009) categories. Figure 10 provides a graphic presentation of the graduation year data for liberal arts and sciences, business management and administration, and undeclared. Again, to determine the exact location of these differences a chi-square test by paired years was completed. Results of the analysis are presented in Appendix E.

Table 33. Differences in Numbers and Percentages of Graduates for Most Frequently Selected Post-secondary Degree Programs (Major)

	1996		1997		1998		
	n	%	n	%	n	%	χ^2
Most Frequently Selected Post-secondary Degree Program (Major)							
Liberal Arts & Sciences	240	5.9	281	6.9	214	5.3	
Business Management	108	2.7	105	2.6	125	3.1	
Undeclared	465	11.4	432	10.6	380	9.3	
Other Degree Programs	560	13.8	604	14.8	555	13.6	
Total	1373	33.7	1422	34.9	1274	31.3	14.282*

*p<.05. **p<.01. ***p<.001
Note. Missing 237 cases for this variable.



	1996	1997	1998
Liberal Arts	5.9%	6.9%	5.3%
Business	2.7%	2.6%	3.1%
Undeclared	11.4%	10.6%	9.3%

Figure 10. Percentage of Enrolled Jefferson County High School Graduates in Most Frequently Selected Degree Programs.

Question D.6 focused on differences of post-secondary cumulative hours completed by Jefferson County high school graduates according to gender, ethnic background, and graduation year. A t-test failed to identify statistically significant differences in the number of cumulative hours completed by male and female graduates, but did indicate statistically significant differences for hours completed by majority and minority groups, $t(4231)=2.490$, $p=.013$. Majority students earned an average of almost 28 cumulative credit hours, and minority students earned an average of 26 cumulative credit hours (Table 34). However, a calculation of an effect size of .11 indicates, according to Cohen's guidelines, a small effect size (Morgan, Griego, and Gloeckner, 2001).

An ANOVA was used to identify significant differences in completed cumulative hours by graduating class. However, since the results of the Levene test indicated the presence of significantly different variances, the non-parametric test, Kruskal-Wallis was

Table 34. Cumulative Hours Completed by Male/Female and Majority/Minority Group Graduates of Jefferson County High Schools, 1996-1998

Groups	M	SD	t (4321)	d
Gender				
Male	27.25	13.25	-1.20	
Female	27.73	12.52		
Ethnic Background				
Majority	27.69	12.72	2.49*	.11
Minority	26.15	13.85		

*p<.05

performed. The results of this test revealed significant differences, χ^2=(2, N=4233) = 64.163, p<.001, between year graduated and cumulative hours earned; therefore, three Mann-Whitney U tests were run to determine which groups were significantly different. The Mann Whitney U test results identified significant differences between 1996 and 1997 graduates (U=847447.00, p<.001) with 1997 ranked higher; between 1996 and 1998 graduates (U=872061.00, p=.001) with 1998 ranked higher; and between 1997 and 1998 graduates (U=918369.00, p<.001) with 1997 ranked higher (Table 35). Figure 11 presents a graphic presentation of these findings.

Workforce Employment

An analysis of the employment data was the focus of Part E questions. Comparative questions were posed to determine relationships and differences among graduates in terms of gender, ethnic background, and graduation year as they pertain to the three workforce employment dependent variables of industry division, company size, and earnings (Table 36).

Table 35. Mann Whitney Test Results for Statistically Significant Differences between Graduation Year and Cumulative Hours Completed

	M	Mean Rank	z
Set 1			
1996	25.02	1304.22	-7.92***
1997	30.76	1548.86	
Set 2			
1996	25.02	1322.15	-3.334***
1998	26.48	1422.92	
Set 3			
1997	30.76	1499.23	-4.642***
1998	26.48	1355.85	

***p< .001

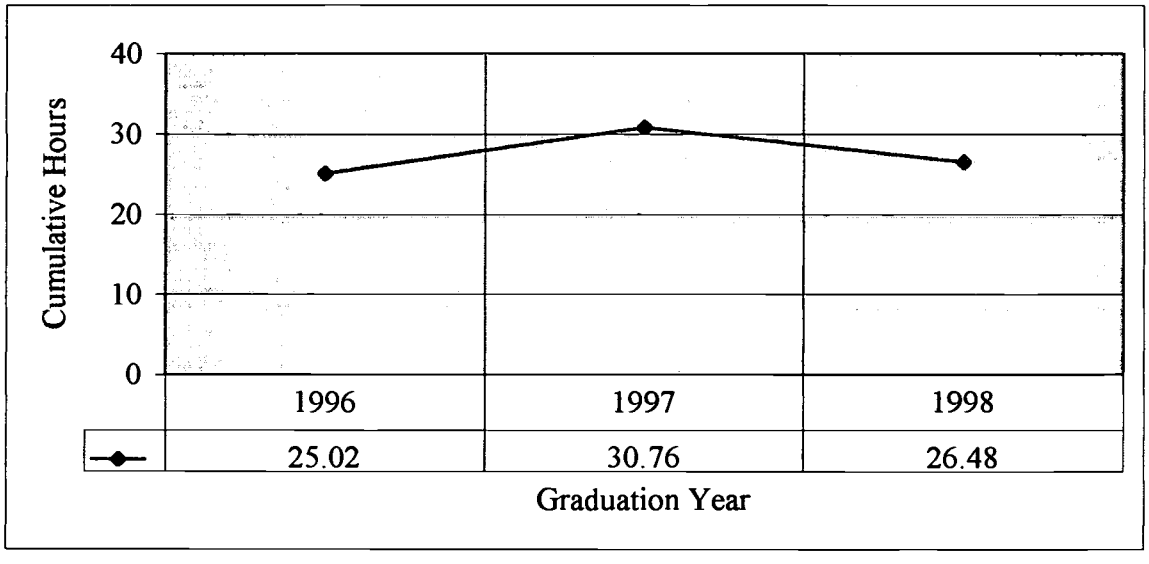


Figure 11. Differences Between Graduation Year and Cumulative Hours Completed.

Table 36. Description of Independent Group and Dependent Employment Variables

Independent Variables	Levels
1. Gender	male, female
2. Ethnic Background	majority: White minority: American Indian or Alaskan Native; Asian or Pacific Islander, Black; Hispanic
3. Graduation Year	1996, 1997, 1998
Employment Variables	**Levels**
1. Industry Divisions most frequently employed	Eleven divisions as per SIC Codes
2. Company Size	1-14,009 employees
3. Quarter 1 Earnings	$4 - $15,076

Question E.1 looked at potential differences between male and female Jefferson County graduates, between majority and minority graduates, and between members of different graduating classes in terms of the industry divisions in which students were most frequently employed during quarter one (January – March). Quarter one data were selected for analysis to align with the post-secondary information for second semester (January-June) data.

Gender

As shown in Table 37, of the eleven possible industry divisions Jefferson County high school graduates were most likely to be employed in the retail trade division. The next most likely division for high school graduate employment was the services division. For purposes of analysis, the other nine divisions were collapsed into one category

labeled "other." A chi-square test for independence indicates a statistically significant relationship between gender and the most frequently selected industry division variable, χ^2 (1, N=5131) = 44.789, p < .001. One sample chi-square tests for each level indicate statistically significant differences, χ^2 (1, N=1354) = 24.546, p<.001, in the services category with more female and fewer male graduates than expected. Also, Statistically significant differences were found in the "other" divisions category, χ^2 (1, N=1138) = 19.937, p<.001, with more male students and fewer female students than expected.

Table 37. Gender Differences in Industry Divisions Employing the Greatest Numbers of Jefferson County High School Graduates

	Male		Female		
	n	%	n	%	χ^2
Most Common Industry Employers					
Retail Trade	1236	24.1	1403	27.3	
Services	536	10.4	818	16.0	
Other Divisions	602	11.7	536	10.4	
Total	2374	46.3	2757	53.7	44.789***

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

Ethnic Background

The data show that Jefferson County high school graduates from both groups were employed in the retail and service divisions. A chi-square test for independence indicates the percentages of majority and minority graduates employed in both divisions are consistent with expectations; therefore, no statistically significant relationships were found between ethnic background and the industry division most frequently employed (Table 38).

Table 38. Ethnic Background Differences in Industry Divisions Employing the Greatest Numbers of Jefferson County High School Graduates

	Majority		Minority		
	n	%	n	%	χ^2
Most Common Industry Employers					
Retail Trade	2337	45.8	302	5.9	
Services	1187	23.1	167	3.3	
Other Divisions	1015	19.8	123	2.4	
Total	4539	88.5	592	11.5	.483

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

Graduation Year

As shown in Table 39, all three years of graduates (1996,1997, and 1998) were about twice as likely to be employed in the retail trade division than in the services division. Employment among graduates fluctuated slightly with more 1997 graduates employed in the retail division (962 employed compared with 938 expected) and more 1998 graduates employed in the services division (470 employed compared with 450 expected). Fluctuations were also evident with fewer 1998 graduates employed in the retail division (857 employed compared with 877 expected) and fewer 1997 graduates employed in the services division (458 employed compared with 481 expected). However, the chi-square test for independence indicates no statistically significant relationship between graduation year and the industry division most frequently employed.

Table 39. Differences in Most Frequently Employed Industry Division by Graduation Year

	1996		1997		1998		
	n	%	n	%	n	%	χ^2
Most Frequently Selected Industry							
Retail Trade	820	16.0	962	18.7	857	16.7	
Services	426	8.3	458	8.9	470	9.2	
Other Divisions	359	7.0	371	7.2	408	8.0	
Total	1605	31.3	1791	34.9	1735	33.8	.126

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

Question E.2 looked at differences in company size according to gender, ethnic background, or graduation year of the Jefferson County students who were employed during quarter one of the year following graduation. After performing t-tests for gender and ethnic background (Table 40) and an ANOVA for graduation year (Table 41), no statistically significant differences were noted in this category.

Table 40. Differences in Most Frequently Employed Company Size Between Male/ Female or Majority/Minority Jefferson County High School Graduates, 1996-1998

Groups	M	SD	t (4321)
Gender			
Male	1087.54	2508.52	1.15
Female	1010.18	2236.63	
Ethnic Background			
Majority	1040.60	2370.42	-.450
Minority	1087.07	2336.42	

Table 41. Results From an ANOVA Test for Relationships Between Graduation Year and Size of Employing Company

Source	df	SS	MS	F
Between Groups	2	2623910.30	1311955.17	.234
Within Group	5141	2.88E+10	5601242.50	
Total	5143	2.88E+1		

Differences between males/females and majority/minority graduates and among graduating classes in terms of first quarter (January-March) earnings were the focus of question E.3 (Table 42). A t-test indicated statistically significant differences between male and female students, $t(4825)=5.599$, $p=<.001$, with male students earning approximately $250 more than female students during the quarter. Statistically significant differences were also found between members of the two ethnic groups, $t(5141)=-2.628$, $p=.009$, with minority individuals earning approximately $185 more during the quarter; however, the effect size of .16 and .12 respectively indicate a small effect size (Morgan et al., 2000).

Table 42. Differences in First Quarter Earnings Between Male/Female Groups and Between Majority/Minority Groups for Jefferson County Graduates, 1996-1998

Groups	M	SD	t (4321)	d
Gender				
Male	$2,135.07	$1,703.73		
Female	$1,880.45	$1,530.74	5.60***	.16
Ethnic Background				
Majority	$1,976.86	$1,623.52		
Minority	$2,162.51	$1,565.59	-2.63**	.12

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

An ANOVA test was performed in an attempt to find statistically significant differences between graduation year and earnings. However, since the Levene test for homogeneity of variances identified a significant difference, the non-parametric test Kruskal-Wallis was used. No significant differences were noted for this category (Table 43).

Table 43. Results of a Kruskal-Wallis Test for Statistically Significant Differences Between Graduation Year in Terms of First Quarter Earnings

Graduation Year	M	Mean Rank	z
1996	$1,890.60	2506.14	4.625
1997	$2,006.13	2597.26	
1998	$2,089.21	2606.63	

Post-Secondary Education and Workforce Employment

Part F questions looked at potential relationships between post-secondary education and workforce employment. Question F.1 focused on relationships between two levels of next stage (employed-only and enrolled-and-employed) and the earnings of Jefferson County high school graduates. As expected, the results of a t-test using data from first quarter earnings indicated a significant difference between the two groups, $t\ (4470)=22.549$, $p<.001$. The mean of the employed-only group was $2,507.54 while the mean for the enrolled-and-employed was $1,526.28. A calculation to measure the strength of the relationship showed an effect size of .64 indicating a medium to large effect size (Morgan, et al., 2000).

The next question F.2, considered the potential relationship between the number of cumulative hours completed and earnings for Jefferson County high school graduates.

Results from a Pearson test indicated a significant negative correlation, r (2624) = -.13, p<.001, between first quarter earnings and total cumulative credit hours earned—in other words, as cumulative credit hours earned in college increased, earnings decreased.

Summary

This chapter presented the results of the statistical analysis of the collected data for this study. In summary, statistically significant relationships were found for groups by gender, ethnic background, and graduation year. For gender groups, relationships were found for next stage, most frequently selected post-secondary institutions, degree programs most frequently selected, industry divisions most frequently employed, and earnings variables. For ethnic background groups, relationships were found for the variables next stage, program type, most frequently selected post-secondary institutions, cumulative credit hours, and earnings. For graduation year groups, statistically significant relationships were found for next stage, program type, most frequently selected post-secondary institution, and most frequently selected post-secondary degree program variables. Statistically significant differences were not found for gender, ethnic background, or graduation year for institution type or company size variables. Table 44 presents a summary of these results. In the following chapter, the author will discuss the implications of these findings.

Table 44. Results of the Statistical Analysis of the Collected Data for the Study

Dependent Variable	Findings
1. Next Stage	% of All Participants 4.5% enrolled-only 45.8% employed-only 49.7% enrolled-and employed Gender: More male students employed-only More female students enrolled-and-employed Ethnic Background: More minority students enrolled-only More majority students employed-only and enrolled-and-employed Graduation Year: Enrolled-only and Employed-only increasing
2. Post-secondary institution type	% of Enrolled Group 27.6% two-year schools 72.4% four-year schools No significant differences for gender, ethnic background, or graduation year groups
3. Program type	% of Enrolled Group 7.7% non-degree 4.6% vocational 16.7% two-year 70.1% four-year 0.9% extended studies/high school concurrent Gender: No significant differences Ethnic Background: More majority students in non-degree and vocational Graduation Year: Non-degree enrollment increasing
4. Post-secondary institutions most frequently selected	% of Enrolled Group 9.7% University of Northern Colorado (UNC) 13.4% Colorado State University (CSU) 15.8% Red Rocks Community College (RRCC) 16.6% Metro State College 17.0% University of Colorado, Boulder (CU) 27.5% "other" post-secondary schools Gender: More female students at UNC and Metro More male students at RRCC and other schools Ethnic Background: Fewer minority students at CSU and UNC More minority students at CU Graduation Year: Metro decrease and CSU increase

Table 44. Results of the Statistical Analysis of the Collected Data for the Study (continued)

Dependent Variable	Findings
5. Post-secondary degree programs most frequently selected	% of Enrolled Group 29.6% undeclared 17.1% liberal arts 7.8% business 45.5% all "other" majors Gender: More male students enrolled in business management Ethnic Background: No significant differences Graduation Year: Undeclared decreasing
6. Cumulative credit hours	Range of 0-90 hours. Mean = 27.51 Gender: No significant differences Ethnic Background: Majority students earn more credit hours (small effect) Graduation Year: Increase in 1997, then decrease in 1998
7. Industry divisions most frequently employed	% of All Participants 42.6% retail trade 27.2% services 23.1% all "other" divisions 7.1% missing Gender: More female students in the services division More male students in other divisions No significant differences for retail trade
8. Company size	Range 0-13,696 employees No significant differences
9. Quarter 1 earnings	Range $4-$15,076 Gender: Male students earn more than female students (small effect) Ethnic Background: Minority students earn more than majority students (small effect)
10. Comparison of earnings for employed-only and enrolled-and-employed groups	Employed-only earn more than enrolled-and-employed (medium to large effect)
11. Comparison of cumulative credit hours and employment earnings	Negative correlation. As cumulative credit hours increase, employment earnings decrease

CHAPTER 5: DISCUSSION

This chapter discusses the findings of the study and provides a summary of the study's purpose, motivation, and procedures. It also presents an interpretation of the data with conclusions, implications, and recommendations. Finally, it identifies the need and possibilities for future research.

Purpose and Procedures

The current political environment demands accountability from secondary education. Near the top of the list is the request for proof that secondary schools are adequately preparing students for post-secondary education and/or employment. For the most part, education accountability systems do not accurately measure post-secondary enrollment, and are even less accurate in reporting on the success of students who pursue full-time employment after graduation. Thus, one goal of this study was to examine two primary paths taken by former high school students one year after graduation. Another goal of the study was to match data from a large suburban school district in Colorado with data from the state's higher education agency and the office of labor and employment.

Post-secondary variables examined included institution type and name, program type, degree program (academic major), and cumulative hours. Workforce employment variables included industry division, company size, and earnings. Each variable was measured in terms of student gender, ethnic background (majority/minority), and

graduation year (1996, 1997, or 1998). The study population consisted of 7,946 graduates with 48% male/52% female and 88.2% majority/11.8% minority. The data represented approximately 60% of Jefferson County high school graduates for the three-year study period. In addition, a comparison was made between the actual paths high school graduates took one year after graduation and the students' original intentions as recorded on exit surveys completed during pre-graduation activities.

Findings and Data Interpretation

This section describes the study results according to the variables described in previous chapters. The comprehensive findings for each variable are discussed in light of the study's descriptive and comparative research questions.

Next Stage: Enrolled-only, Employed-only, and Enrolled-and-Employed

The primary focus of the next stage variable is an investigation of the numbers and percentages of graduates who enrolled in post-secondary education and the numbers and percentages of graduates who were employed. A comparison is also made between this study and data taken from the high school exit surveys. The research questions for this variable are the following:

Question A.1: What number and percentage of high school graduates from this district are enrolled in post-secondary education?

Question B.1: What number and percentage of high school graduates from this district are employed?

Question C.1: What number and percentage of high school graduates from this district are enrolled in post-secondary education compared with the number and percentage indicating they were planning to enroll on their high school exit survey?

Question C.4: What number and percentage of high school graduates from this district are employed compared with the percentage that indicated on the high school exit survey report that they intended to find employment?

Question D.1: Are there relationships between the factors gender, ethnic background, and graduation year and the next stage (enrolled and/or employed) that high school graduates from this district select after graduation?

Findings: SPSS descriptive statistics and frequency distributions show that of the students who remained in Colorado, 54.2% of the 1996-1998 Jefferson County high school graduates enrolled in post-secondary education and 45.8% did not. In other words, just over half of the students from these three graduating classes enrolled in post-secondary institutions, which is considerably fewer than the number of students who stated an intent to enroll. According to the district's high school exit survey report, 72.9% of the graduates indicated they were planning to enroll in post-secondary education. One possible explanation of the difference in actual enrollment when compared to projected enrollment could be that students wanted to report themselves as part of the select group continuing their education; however, perhaps more realistically, financial restraints or inadequate academic skills and grades limited their options. Differences in the results might also be attributed to differences in the study populations. The exit survey included students who were planning to enroll in post-secondary institutions outside of Colorado.

The current study only considered graduates who remained in Colorado and were either enrolled in Colorado post-secondary institutions or employed in Colorado industries.

The percentages of 1996-1998 Jefferson County graduates who actually enrolled in post-secondary education are lower than those presented by the U.S. Bureau of Labor Statistics and the National Center for Education Statistics (NCES). The Current Population Survey (1996 & 1999) indicates that 62% of the 1995 recent graduates and 66% of the 1999 recent graduates were enrolled in some form of post-secondary education. NCES (1998) reported 67% of the recent high school graduates enrolled in post-secondary education. However, the Jefferson County percentages found in this study are higher than those reported by the National Center for Public Policy and Higher Education that only 38% of Colorado students attend college immediately after graduation (Curtin 2001). The National Center (2000) also reports that top ranking states send 54% of their recent graduates to post-secondary education. By comparison, reports published by NCES (1994 & 1999) stated that the percentage of high school sophomores "aspiring" to a college education increased from 73% in 1980 to 90% in 1990. In addition, a study conducted by the Colorado School-to-Career Partnership (1999) found that 43% of the students with no career experiences and 66% of the students with six or more career experiences stated their intent to continue their education after high school. While these studies provide interesting comparisons, the diverse data collection methods and the array of percentages make it difficult to draw direct comparisons between the findings and this study.

According to research reports from other states, the percentages of high school graduates enrolling in post-secondary institutions range from a high of 70.3% in

Michigan (Claus and Quimper, 1997) to a low of 42% in Oregon (Chatman and Smith, 1998). The range in percentages from the other state studies is reflective of the variety in data collection and reporting methods that make the results of these studies inappropriate for generalization to other studies.

The data for the current study revealed that 95.5% of the 1996-1998 Jefferson County's high school graduates were employed at least part-time sometime during the year following graduation. Almost 46% of the study participants were employed and not enrolled in post-secondary education; however, about 50% of the employed students were also enrolled in post-secondary education. It is interesting to note that 91.6% of the graduates who were enrolled in post-secondary education were also employed at sometime during the year—higher than the national average as measured by the U.S. Bureau of Labor Statistics. The Bureau reported that in 1995, 86% of the students attending college part-time and 52% of students attending full-time also held jobs, and in 1999, 87% of the students attending college part-time and 53% of the students attending full-time were employed (1996, 2000). The NCES also reports an increase in this variable during the past three decades with 34% of the full-time college students working in 1970 and 47% working in 1988. A literature search revealed only two state studies presenting data on high school graduate employment—Michigan (Claus & Quimper, 1997) reported 81.5% of the recent graduates were employed, and Texas (Marable, 1995) reported 51% were employed; however, neither state report compared employment with post-secondary enrollment.

The current study shows that of the Jefferson County high school graduates enrolled in post-secondary schools, 45.6% were male and 54.3% were female. These

data, which reflect higher female and lower male enrollment, are consistent with Owings' (1995) finding that the gender gap of more males in post-secondary education had all but disappeared by 1992. It is also consistent with Ownings' findings that in some areas, more females than males were enrolling in post-secondary education programs.

Chi-square tests for independence indicate statistically significant relationships between the next stage variable for gender, ethnic background, and graduation year. One sample chi-square tests for each category show that for gender the difference lies in the employed-only and employed-and-enrolled categories, while for ethnic background and graduation year statistically significant differences were found in all three levels, enrolled-only, employed-only, and enrolled-and-employed. For gender groups, data show 1784 male graduates and 2163 female graduates in the enrolled-and-employed category. These numbers are considerably different from the expected count of 1893 and 2054 respectively. Therefore, results indicate that statistically more females and fewer males are enrolled-and-employed than expected. Data also show significantly more male graduates than expected in the employed-only category.

Results from one sample chi-square tests (adjusted for an unequal distribution of 88.2% and 11.8%) of each level for ethnic background indicate more minority/fewer majority students than expected in the enrolled-only category; however, more majority/fewer minority students than expected were in the employed-only and in the enrolled-and-employed categories. These numbers are surprising in light of the prevailing image of majority students transitioning to post-secondary education immediately after high school graduation, while minority students find employment;

however, the data are consistent with Astin's (1982) findings that a trend seemed to be developing for decreased post-secondary enrollment especially for White males.

For graduation year, one sample chi-square tests reveal statistically significant differences in all three levels: enrolled-only, employed-only, and enrolled-and-employed. Increases were noted in the enrolled-only (100 to 150 graduates) and employed-only (1068 to 1354 graduates) categories between 1996 and 1998. The enrolled-and-employed category increased from 1996 to 1997 and then decreased in 1998. It is important to note that both the enrolled-only and employed-only categories increased during the study period, while the enrolled-and-employed decreased. It would be interesting to follow the data to determine if a trend is developing that will affect the future of post-secondary education enrollment and entry level employment; however it is beyond the context of the current study.

Type of Post-secondary Institution: Two-year and Four-year

The post-secondary institution type variable levels are two-year and four-year classifications established by the Colorado Commission on Higher Education (CCHE). The associated questions focused on the numbers and percentages of graduates enrolled in either institution type, how the numbers and percentages compared with data from the high school exit surveys, and differences in terms of gender, ethnic background, and graduation year.

Question A.2: In what type of post-secondary institution are high school graduates from this district enrolled?

Question C.2: In what type of post-secondary institution are high school graduates from this district enrolled as compared with the type of post-secondary institution in which they planned to enroll on the high school exit survey.

Question D.2: Are there relationships between the factors gender, ethnic background, and graduation year and the type of post-secondary institution in which high school graduates from this district enroll?

Findings: The data for this variable show that of the students enrolled in post-secondary education approximately one-third were enrolled at two-year schools and two-thirds were enrolled at four-year schools. These data are consistent with graduate plans as reported on the high school exit surveys. They are also similar to the Bureau of Labor Statistics' reports (1995-1996) showing that approximately two-thirds of the 1994/1995 high school graduates who did enroll in colleges or universities enrolled in four-year institutions, and the rest enrolled in two-year institutions. The state studies, described in the literature review section of this study, also reported similar percentages. These findings suggest that four-year institutions are preferred by the largest percentage of students; however, two-year institutions definitely fulfill a need for a number of students. While data for this study indicate a difference in the number of students who select two-year and four-year post-secondary schools, a chi-square test for independence reveals no statistically significant relationship for this variable with gender, ethnic background, nor graduation year groups.

Type of Post-secondary Program: Non-degree Seeking, Vocational, Two-year, Four-year, Extended Studies, and High School Concurrent

Colorado post-secondary programs are organized into non-degree seeking, vocational, two-year, four-year, and high school concurrent enrollment. It is important to note that program type differs from institution type; for example--a student can be enrolled at a two-year institution but be part of a four-year transfer program.

The questions for this variable focus on the numbers and percentages of graduates enrolled in each program type and relationships for gender, ethnic background, and graduation year groups.

Question A.3: In what type of post-secondary programs are high school graduates from this district enrolled?

Question D.3: Are there relationships between the factors gender, ethnic background, and graduation year and the type of program in which high school graduates from this district enroll?

Findings: The data indicate that the largest percentage of Jefferson County high school graduates enrolled in four-year programs followed by two-year, non-degree, vocational, and extended studies/high school concurrent. Results of a chi-square test for independence indicate statistically significant relationships for ethnic background and graduation year, but not for gender. One sample chi-square tests (adjusted for unequal distribution of 88.4% and 11.6%) reveal statistically significant differences for ethnic background with fewer minority graduates enrolled in non-degree seeking and vocational programs. This means that more majority students than expected were enrolled as non-degree seeking and enrolled in vocational programs. Traditionally, one would expect

minority students to be enrolled in these specialty programs with majority enrollment focused on four-year programs. In addition, statistically significant differences were noted for graduation year with an increase in non-degree seeking program enrollment between 1996 and 1997 and between 1997 and 1998. These results indicate a steady increase in non-degree program enrollment. A statistically significant increase was also found in two-year program enrollment from 1996 to 1997 followed by significant decrease between 1997 and 1998. These data indicate that Jefferson County high school graduates may be becoming more aware of non-traditional post-secondary enrollment options.

Most Frequently Selected Post-secondary Institutions

Colorado's post-secondary system consists of 12 community colleges, 3 junior colleges, 5 state colleges, and 10 universities. The data show that the 1996-1998 Jefferson County high school graduates enrolled in 28 of these institutions. The questions for this variable were designed to identify the most popular post-secondary institutions and to identify relationships in terms of gender, ethnic background, and graduation year.

Question C.3: What are the most frequently selected post-secondary institutions which high school graduates from this district indicated they were planning to attend compared with the post-secondary institutions in which they are most frequently enrolled?

Question D.4: Are there relationships between the factors gender, ethnic background, and graduation year and the most frequently selected post-secondary institution where high school graduates from this district enroll?

Findings: The five most popular post-secondary institutions for Jefferson County high school graduates were the University of Colorado at Boulder, Metro State College, Red Rocks Community College, Colorado State University, and the University of Northern Colorado. Their popularity was generally the same regardless of gender, ethnic background, or graduation year although some differences were noted in preference order. The frequency of Jefferson County students attending these five post-secondary institutions is consistent with Tinto's (1972) findings that the rate of enrollment is affected by the students' proximity to the post-secondary institution. All five of the most popular post-secondary institutions are within one to two hours drive from the local school district.

A chi-square test for independence of the most frequently selected institutions data indicates statistically significant relationships for all three independent variables, gender, ethnic background, and graduation year. One sample chi-square tests for each level of the gender variable indicates statistically significant differences between male and female graduates. Results show a higher percentage of female students than expected enrolled at the University of Northern Colorado and Metro State College. In contrast, there were higher numbers of male students enrolled at Red Rocks Community College and the "other" post-secondary institution category. Differences in enrollment were also found for the ethnic background categories at Colorado State University (CSU), the University of Northern Colorado (UNC), and the University of Colorado at Boulder (CU). Data show fewer minority students enrolled than expected at both CSU and UNC, and more minority students than expected enrolled at the CU. Statistically significant differences were noted for the graduation year levels with decreased enrollment at Metro

State College and increased enrollment at Colorado State University. Fluctuations in enrollments at other post-secondary schools were not statistically significant.

Most Frequently Selected Post-secondary Degree Programs

The Instruction Program Codes and Title (1990) lists 39 degree program categories (commonly known as "majors"). The questions for this variable were designed to identify how many Jefferson County high school graduates had declared a major during the study period, which degree programs were most frequently selected, and what differences existed in terms of gender, ethnic background, and graduation year.

Question A.4: What number and percentage of high school graduates from this district have declared a post-secondary degree program (major)?

Question A.5: What are the most frequently selected post-secondary degree programs (majors) for high school graduates from this district?

Question D.5: Are there relationships between the factors gender, ethnic background, and graduation year and the post-secondary degree program (major) that high school graduates from this district most frequently select?

Findings: Jefferson County high school graduates were enrolled in 34 of the 39 possible post-secondary degree programs (majors). According to the data, of the students enrolled in post-secondary education, the largest percentage (approximately 1/3) had not declared a major one year after graduation. For those who had declared major, the most popular area was liberal arts and sciences, which includes general studies and humanities. The next most popular area was business management and administration. Other majors selected by groups of students included biological science/life sciences, social sciences and history, engineering, visual and performing arts, and psychology; however, these

majors were selected by less than 3% of the students in this study and were not included for further analysis.

The data for this study, shows that most of the Jefferson County high school graduates who enrolled in post-secondary education were enrolled as undeclared or in a liberal arts program and supports the general belief that students trend to enter post-secondary education with unclear plans for their future. A review of the literature produced one state study and one newspaper article that addressed post-secondary degree programs. Claus and Quimper (1997) reported that 24.6% of the Michigan post-secondary students were enrolled in general studies courses or undecided about a major. They also reported education/social studies and business selected by 18.9% and 17.2% of the study participants, respectively. These percentages are also similar to the 25% liberal arts majors and 25% business majors reported by Matthews (Will, 1997).

A chi-square test for independence of the data for the current study indicates a statistically significant relationship between most frequently selected post-secondary degree program for gender and graduation year groups. One sample chi-square tests for each level of the gender variable reveal statistically significant differences for the business management category with more male students and fewer female students enrolled than expected. One sample chi-square tests for each level of the graduation year variable reveal statistically significant differences for both undeclared and liberal arts/sciences. In general, the number and percentage of Jefferson County high school graduates who had not yet declared a major by second semester decreased from 1996 to 1998. While the number and percentage that selected liberal arts and sciences increased in 1997 and then decreased 1998. The decreasing number of undeclared students is seen

as encouraging, based on the author's belief that more is gained from the college experience if students have direction and focus. No statistically significant relationships were found for the most frequently selected post-secondary degree programs when considered for the gender or ethnic background variables.

Cumulative Credit Hours

This variable refers to the number of credit hours completed by students enrolled at post-secondary institutions, and corresponds to the student level designation at the end of the term. The total includes transfer credits, as well as credits completed at the reporting institution, and advanced placement credits. The questions for this variable address differences in the numbers of cumulative credit hours earned in terms of gender, ethnic background, and graduation year, as well as potential relationships between the number of hours completed and earnings.

Question D.6: In terms of the factors gender, ethnic background, and graduation year, are there differences in the number of post-secondary cumulative hours completed by high school graduates from this district?

Question F.2: Is there a relationship between the number of post-secondary cumulative hours completed by high school graduates from this district and their earnings?

Findings: Results from a t-test revealed statistically significant differences in the number of cumulative credit hours earned by majority and minority students. The mean number of cumulative hours completed by majority graduates was just under 28 compared to 26 for minority graduates; however, the effect size (as defined by Cohen's guidelines) was small, which indicates that the strength of the relationship is weak.

Results from a Kruskal-Wallis test indicated statistically significant differences in cumulative credit hours earned according to graduation year. Using a Mann-Whitney test to accommodate for paired years, significant differences were found between 1996/1997, 1996/1998, and 1997/1998 graduating classes: cumulative credit hours earned increased from 1996 to 1997 and decreased in 1998. A Pearson correlation test indicated a significant negative correlation between quarterly earnings and the total cumulative hours: as cumulative credit hours increased, earnings decreased.

Most Common Industry Divisions

The industry categories used in this study were taken from the Standard Industrial Classification (SIC) Manual provided by the Colorado Department of Labor and Employment (*Standard Industrial Classification Manual*, 1988). The manual presents 11 divisions and 83 major groups; however, for simplification purposes, analysis of the data was limited to the division levels only. The questions for this variable were designed to identify the industry divisions employing the largest numbers and percentages of Jefferson County high school graduates. Another consideration included whether relationships existed in terms of gender, ethnic background, or graduation year.

Question B.2: What are the most common industry divisions in which these graduates are employed?

Question E.1: Are there relationships between the factors gender, ethnic background, and graduation year and the industry divisions where high school graduates from this district are most frequently employed?

Findings: According to the data, Jefferson County high school graduates were employed in all 11 of the industry divisions. The largest numbers and percentages were employed

by retail trade (42.6%) and service (27.2%) firms with less than 5% employed in each of the nine other divisions. Graduates were primarily employed in three of the eight retail division categories and two of the sixteen service division categories. The major groups for retail trade employment were food services, general merchandise, and miscellaneous retail. For the services division the most popular groups included amusement/recreation and business services. These data are similar with those reported for Michigan (Claus and Quimper, 1997) and Texas (Marable, 1995). As shown in Table 7, most of the companies that employed high school graduates in the Michigan and Texas studies were categorized as retail and services industries.

A chi-square test for independence indicates a statistically significant relationship between gender and the most common industry variable. One sample chi-square test results indicate statistically significant differences between male and female employment in the services division and in the "other" divisions categories. Data indicate that more female and fewer male graduates than expected were employed in the services division and more males graduates were employed in the "other" category. There were no statistically significant differences between male and female employment in the retail trade division. There were also no statistically significant relationships between ethnic background and graduation year when compared with the most common industry category.

Size of Company Employing Graduates

In this section, the size of company will be presented in terms of the number of employees. The focus of the questions involved identifying the most common sizes of

companies employing Jefferson County graduates and looking for relationships in terms of gender, ethnic background and graduation year.

Question B.3: What is the most common company size in which these high school graduates are employed?

Question E.2: In terms of the factors gender, ethnic background, and graduation year, are there differences in the size of company in which high school graduates from this district are employed?

Findings: Data shows that companies with 1 to 14,009 employees hired Jefferson County high school graduates. Results of a t-test indicate no single size company being dominant in hiring Jefferson County high school graduates. No statistically significant differences were noted in terms of the size of company for male/female, majority/minority, or graduation year groups for employment.

Earnings

Earnings data were collected from the Colorado Department of Labor and Employment. The questions for this variable focused on average earnings and differences in terms of gender, ethnic background, and graduation year.

Question B.4: What are the average earnings for high school graduates from this district?

Question E.3: In terms of the factors gender, ethnic background, and graduation year, are there differences in the earnings of high school graduates from this district?

Question F.1: Are there differences for high school graduates from this district between two levels of next stage (employed-only and enrolled-and-employed) and their earnings?

Findings: The data for this variable included figures for the earnings of Jefferson County high school graduates from the quarter immediately following their graduation (July-September) to the second quarter of the following year (March-June). The mean for quarterly earnings ranged from a low of $1927 in third quarter to a high of $2119 for fourth quarter. Moreover, the mean for an entire year's earnings was $5682 with a range of $9 to $32,603 per year. The variety in earnings and the broad range make it difficult to draw any conclusions on the earnings of study participants. Perhaps the median number provides a more clear view of the participant earnings. Data show a median low of $1675 in quarter two and a median high of $1835 in quarter four. In addition, the yearly median for all participants is $4041. The wide range of earnings makes it difficult to draw any conclusions and may create an unrealistic picture of the earnings for students the first year after high school graduation. However, it is apparent that the average earnings for students were very low.

Results from a t-test also revealed a statistically significant difference between the earnings for the employed-only group ($2,507.54) and the enrolled-and-employed group ($1,526.28). According to Cohen's guidelines, the effect size of .6 indicates a large effect size, which indicates that there is a strong relationship between employed-only and enrolled-and-employed in terms of earnings. This difference is anticipated since graduates who are enrolled in post-secondary education are probably working part-time, whereas graduates who are not enrolled may be employed full-time. However, the data provided for this study did not differentiate between full-time and part-time employment; therefore, it is impossible to draw specific conclusions. Nevertheless, students who were employed-only (not enrolled in post-secondary education) only earned an average of

about $10,000 a year. These results indicate that students who enter employment directly after high school may need more education and/or training to be financially independent.

For purposes of analysis, first quarter earnings, which align most closely with semester two enrollment, were used for comparisons of gender, ethnic background, and graduation year. An analysis of these earnings revealed statistically significant differences between male and female graduates, with male graduates earning approximately $250 more per quarter than female graduates. This discrepancy is consistent with Cleary, Lee, and Knapp (1998) finding that men consistently earn more than women earn regardless of their respective levels of education. Statistically significant differences were also noted between majority and minority graduates, with the latter earning approximately $185 more per quarter than the former; however, further analysis of the effect size for both of these findings indicate, according to Cohen's guidelines (Gliner and Morgan, 2000), a small effect size. The small effect size indicates that even through statistically significant differences were found, the strength of the relationship is small.

Conclusions

The first conclusion that can be drawn from the study's results is that while high school exit surveys are a source of information on students' plans, they may not accurately predict the paths students actually take. One year after graduation, slightly more than one-half (54.2%) of the Jefferson County high school graduates who stayed in Colorado were enrolled in post-secondary education. The remainder of participants in this study (45.8%) was employed in the workforce. Of the graduates who were enrolled

in post-secondary education, over 91% were also employed sometime during the year. In other words, when students who were enrolled-and-employed are considered along with the students who were employed-only, employment skills become an important part of life for 95.5% of Jefferson County's students within the first year following high school graduation.

Second, statistically significant differences were identified among Jefferson County graduates in terms of gender, ethnic background, and graduation year. The differences for gender groups include a higher percentage of female students than expected 1) enrolled in post-secondary education and also working, 2) attending the University of Northern Colorado and Metro State College, and 3) employed in the service divisions. Higher percentages of male students than expected were 1) employed and not enrolled in post-secondary education, 2) attending Red Rocks Community College and the "other" institutions category, 3) enrolled in business and management degree programs, and 4) employed in the "other" industry divisions. In addition, as might be expected, male students also earned statistically significantly more than female students in their first year after high school graduation.

For the ethnic background groups, the differences include higher percentages of majority (White) students than expected 1) employed in the workforce and not enrolled in post-secondary education, 2) enrolled in non-degree and vocational programs. On the other hand, fewer minority students were enrolled at Colorado State University and the University of Northern Colorado, while more minority students were enrolled at the University of Colorado. It is also of interest to note, that minority graduates earned more than majority (White) graduates earned in their first year after high school graduation.

Results for the graduation year groups are more difficult to understand and explain. Statistically significant differences between years do exist; however, data from additional years need to be collected before specific trends can be identified.

A third conclusion that can be drawn from this study is that existing data from three unique and separate education and employment databases can be matched and used for follow-up studies on high school graduates. The data can provide statistical evidence and comparisons to help educators and others understand the paths students take after graduation.

Implications

Follow-up studies on the paths that high school graduates select can help school districts, post-secondary institutions, and employment agencies understand the needs of students. In addition, the information collected can be used to design programs that effectively meet the needs of all students. The following implications can be drawn from the results of this chapter:

1. The model for the current study found approximately 60% of Jefferson County high school students enrolled in Colorado post-secondary institutions and/or employed in Colorado industries the first year after graduation. The data show that for this group of students, both post-secondary education and workforce employment play an important role. These results imply that when students graduate from high school they need to be prepared with skills for quality employment as well as have the perquisite academic skills needed to succeed in post-secondary education.

2. The current study indicates that there are statistically significant differences in groups in terms of gender, ethnic background, and graduation year. The implication is that strategies for counseling and guiding students as they transition from high school may not be the same for all students. For example, significantly higher percentages of female and majority students (more than expected) work while attending school. This implies that perhaps female and majority students are more aware of employment opportunities that support continuing their education. At the same time, significant differences were found for male/female and minority/majority enrollment in the Colorado post-secondary schools most often selected by Jefferson County high school graduates. These differences in enrollment figures imply that post-secondary institutions may not be reaching all students equally. Perhaps Colorado post-secondary schools need to review their current enrollment procedures, outreach programs, entrance guidelines, and recruitment processes.

According to the findings, almost 70% of the graduates in the study population who found employment were employed in the retail trade and services industries. Data also indicate that these students were earning an average quarterly wage of approximately $1500. These results imply that most graduates (even those who are employed-only) are working in general customer service industries and earning minimum wages or less. The results also imply that high school graduates are not prepared with the knowledge and skills to enter fields related to their career aspirations, and that limited earnings may limit their personal and professional options.

In addition to being employed in customer service industries, almost one-third of the students enrolled in post-secondary had not declared a major during the study period.

This implies that students lack a specific academic focus. An argument can be made that the students who chose liberal arts and sciences majors (another one-fifth of the post-secondary group) also lacked a specific career focus; however, some may feel that a liberal arts education provides excellent preparation for future employment.

3. The sharing of data among state and local government agencies and post-secondary institutions can provide school districts with useful information about the paths students take after graduation. The success of the current study to match information implies that developing strong relationships among agencies can increase the participants understanding of different systems. The results of the study also imply that outcomes from these relationships can be used to improve community awareness and perhaps, increase support for education.

Recommendations

The results of this study provide a unique picture of two of the paths Jefferson County high school graduates took one year after graduation. This section includes the recommendations based on the preceding conclusions and implications.

1. In terms of identifying the paths students take after graduation, it is recommended that Jefferson County Schools develop a three-tier comprehensive evaluation program. This evaluation program could provide accurate information on the paths students plan to take (exit survey), the paths they do take (data follow-up study), and their impression of secondary education and its relationship to their success (mail survey). The first step in the process would be to collect high school exit information from students about their future plans then continue the current study to determine the

paths students actually take after high school graduation. The third step would include a mail survey to collect information from students about their perceptions of how well their education in Jefferson County Schools prepared them for their future.

2. Results from this study indicate that students need to be prepared for both employment and post-secondary education as they transition from high school. Therefore, it is recommended that Jefferson County Schools provide students with opportunities to learn the skills needed for both pathways. In addition, the study results indicate that students who transition directly to post-secondary education will probably also be employed. The study also shows that students who transition directly to employment are limited in their earnings and need further education and/or training to become financially independent. Therefore, it is recommended that Jefferson County Schools, Colorado post-secondary institutions, and employment agencies work together to provide programs that help all students transition successfully to post-secondary education and quality employment.

3. The statistically significant differences for both gender and ethnic groups indicate Colorado post-secondary education institutions need to re-examine and adjust their recruitment policies to address the needs of all students. It is recommended that the most frequently selected post-secondary institutions work closely with Jefferson County Schools to design counseling and recruitment procedures to increase enrollment for all student segments.

4. It is recommended that Colorado industries work with secondary and post-secondary education institutions to provide opportunities for quality employment for all students. Helping students connect employment to their education goals could increase

their commitment to high academic achievement as well as improve their workplace performance.

5. Finally, it is recommended that school districts from all 50 states establish cooperative agreements with employment and higher education agencies to develop procedures for matching data for the purpose of establishing secondary and post-secondary programs that best serve the needs of students in the current work/education environment.

Recommendations for Further Research

The current study was accomplished through a unique partnership coordinated through the Colorado School to Career Partnership. It would be difficult for any single person to duplicate the relationships and cooperation needed to replicate this study. However, the current study has shown that it is possible to match data records from three separate institutions to gain information on the paths students take after high school graduation. In addition, the high school follow-up study completed by the Oregon State System of Higher Education (1996) indicates that state agency partnerships can provide valuable, although limited information on the future paths for high school graduates. Therefore, it is recommended that the current Colorado partnership be continued to facilitate ongoing studies. It is also recommended that other states consider similar partnerships to collect information on their high school graduates.

The data analyzed and presented in this study provide a limited picture of the paths Jefferson County high school students take after graduation. As shown in Table 10 (Chapter 3) the data that were analyzed for this study include only a small portion of the

data collected. It is recommended that additional studies be completed with the existing data. Perhaps it would be beneficial to analyze each graduation year and measure change over time. Moreover, additional data could be collected to determine if, or when, the high school graduates in the current study complete their post-secondary degrees. This type of longitudinal study could provide Jefferson County Schools with pertinent evaluation information for instructional programs, and provide post-secondary institutions and employment agencies specific student information to revise current programs to meet the needs of all students.

The results of the current study are limited to an analysis of student data files. The study does not provide the reader with information about why these results exist, or how they relate to student perceptions. It is recommended that Jefferson County Schools conduct a follow-up survey of the students in this study to gain an understanding of the motivation behind their post high school graduation choices.

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APPENDICES

Appendix A: Graduate Report Compilation Form

JEFFERSON COUNTY PUBLIC SCHOOLS
GRADUATE REPORT 1999

Please complete the following requested information so that I will be able to compile the Graduate Report for 1999. Return this completed form to Barb Bostwick, Safe & Drug-Free schools, no later than Sept. 3, 1999.

School _____ Graduating Class of 1999
Total Graduates _____ College Counselor _____
Total School Enrollment _____
Number of Academic Scholarships _____
Number of Athletic Scholarships _____
Number of Talent Scholarships _____
Number of Other Scholarships _____
Number of Honors at entrance given by a college or scholarship agency _____
Number of graduating seniors attending college:

_____ Adams State
_____ Aims College
_____ Arapahoe Community College
_____ Colorado Christian University
_____ Colorado College
_____ Colorado Mountain College
_____ Colorado Northwestern Com. College
_____ Colorado School of Mines
_____ Colorado State University
_____ Community College of Denver
_____ Fort Lewis College
_____ Front Range Community College
_____ Lamar Community College
_____ Mesa State College
_____ Metropolitan State College
_____ Morgan Community College
_____ Northeastern Junior College
_____ Otero Junior College
_____ Pikes Peak Community College
_____ Pueblo Vocational Comm. College
_____ Red Rocks Community College
_____ Regis University
_____ St. Thomas Seminary
_____ Trinidad State Junior College
_____ University of CO (Boulder)
_____ University of CO (Co. Springs)
_____ University of CO (Denver)
_____ University of Denver
_____ University of Northern Colorado
_____ University of Southern Colorado
_____ Western State College

Number attending trade/vocational _____
Number going into the military _____
Number going into full-time work _____
Number going into Apprenticeship _____
Number Undecided _____
Number Other _____

Number of Students attending:
2 year Colorado Colleges _____
2 year Out of State Colleges _____
4 year Colorado Colleges _____
4 year Out of State Colleges _____

Academies:
West Point _____
Air Force Academy _____
Air Force Academy Prep Sch._____
Naval Academy _____
Naval Academy Prep School _____
Merchant Marine _____
Coast Guard _____
Total Students Attending College _____

PLEASE LIST ALL OUT-OF-STATE COLLEGES AND COLLEGES IN FOREIGN COUNTRIES ON ATTACHED PAGES BY STATE (INCLUDE NAME OF COLLEGE, CITY, STATE, & NUMBER ATTENDING.

PLEASE NOTE: The total of the above six categories An the total number of students attending college should Equal the total number of graduates.

PLEASE CHECK YOUR SCHOOL PROFILE SHEET (ATTACHED) AND RETURN WITH FORM.

Appendix B: Report on Graduation Classes for 1996, 1997, and 1998

REPORT ON THE GRADUATING CLASS OF 1996
JEFFERSON COUNTY PUBLIC SCHOOLS

Purpose

The purpose of this report is to present a general summary of the post-high school plans for students who graduated in 1996. This data should be treated with caution since post-high school intentions of graduates are tentative, general indicators, not certainty.

This report will first present information on graduating seniors' plans by individual high schools within Jefferson County Public Schools.

This report does not include information about graduation of the Jeffco Open School or the Adult High School. Contact these schools directly for information about their graduates.

College

Total Jefferson County High School graduates were 4,187. Seventy-two percent of the 1996 graduates planned to enter college following high school graduation. This figure compares to 70% in 1995 and 73% in 1994. The percentage of students planning to enter college from each Jefferson County high school may be seen in Table I.

Table I

Tentative Plans for September 1996
Percentage of students planning to enter
College from each high school.

SCHOOL	PERCENTAGE
Alameda Senior	59
Arvada Senior	60
Arvada West Senior	71
Bear Creek Senior	76
Chatfield Senior	77
Columbine Senior	81
Evergreen Senior	78
Golden Senior	78
Green Mountain Senior	69
Jefferson Senior	44
Lakewood Senior	74
Pomona Senior	71
Standley Lake Senior	72
Wheat Ridge Senior	71
County Average	72

Twenty-two percent of the total number of students planning to enter college planned to attend a two-year school and 78% planned to attend a four-year school. Twelve students intended to enter one of the five service academies. Eighty-one percent of the students

planned to go to Colorado colleges or universities. The number of 1996 graduates intending to enroll in each Colorado college or university is presented in Table II.

Table II

Numbers of 1996 graduates planning to attend each Colorado college or university

# of Students	College or University	# of Students	College or University
24	Adams State College	2	Lamar Community College
6	Aims Community College	59	Mesa State College
8	Air Force Academy	460	Metro State College
82	Arapahoe Community College	31	Northeastern Jr. College
28	Colorado Christian University	2	Otero Junior College
11	Colorado College	357	Red Rocks Community College
22	Colorado Mountain College	25	Regis University
6	Colorado Northwestern Community College	1	Trinidad College
62	Colorado School of Mines	366	University of Colorado (Boulder)
299	Colorado State University	11	University of Colorado (Colorado Springs)
2	Community College of Aurora	84	University of Colorado (Denver)
12	Community College of Denver	35	University of Denver
72	Front Range Community College	311	University of Northern Colorado
64	Fort Lewis College	12	University of Southern Colorado
2	Colorado Institute of Art	51	Western State College

Nineteen percent of the 1996 graduates planned to attend an out-of-state college or university. These students planned to attend colleges or universities in 46 different states and the District of Columbia. In addition, eight students intended to go to college in a foreign county. Six percent of the graduates going out-of-state planned to attend a college or university in California, 6% in Utah, 6% in Kansas, 6% in Montana, and 6% in Nebraska.

Other plans

Seventeen percent of the students intended to obtain full-time employment upon graduation from high school. Other high school graduates planned to attend proprietary schools (2%), join the military (3%) and (less than 1%) apprenticeships. Five percent were undecided or have other plans following graduation.

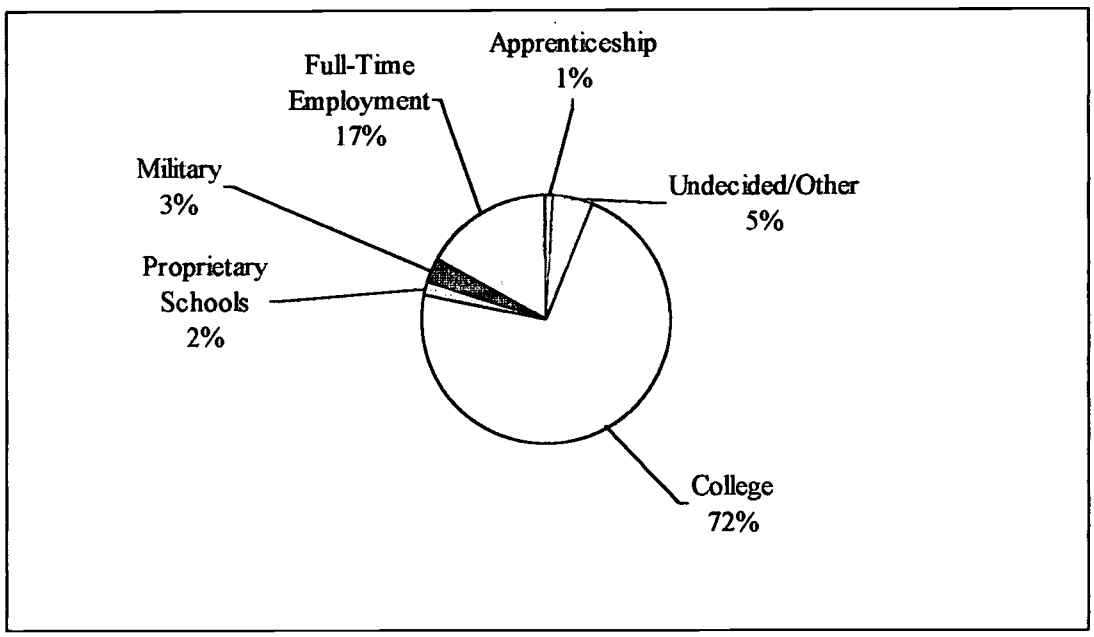

Figure 1. Percentage breakdown of plans of high school graduates of 1996.
Note. Adapted with permission from Jefferson County Schools.

REPORT ON THE GRADUATING CLASS OF 1997
JEFFERSON COUNTY PUBLIC SCHOOLS

Purpose

The purpose of this report is to present a general summary of the post-high school plans for students who graduated in 1997. This data should be treated with caution since post-high school intentions of graduates are tentative, general indicators, not certainty.

This report will first present information on graduating seniors' plans by individual high schools within Jefferson County Public Schools.

This report does not include information about graduation of the Jeffco Open School or the Adult High School. Contact these schools directly for information about their graduates.

College

Total Jefferson County High School graduates were 4,268. Seventy-five percent of the 1997 graduates planned to enter college following high school graduation. This figure compares to 72% in 1996 and 70% in 1995. The percentage of students planning to enter college from each Jefferson County high school may be seen in Table 1.

Table I

Tentative Plans for September 1997
Percentage of students planning to enter
College from each high school

SCHOOL	PERCENTAGE
Alameda Senior	64
Arvada Senior	55
Arvada West Senior	75
Bear Creek Senior	82
Chatfield Senior	78
Columbine Senior	81
Evergreen Senior	83
Golden Senior	67
Green Mountain Senior	71
Jefferson Senior	48
Lakewood Senior	73
Pomona Senior	74
Standley Lake Senior	81
Wheat Ridge Senior	82
County Average	75

Twenty-two percent of the total number of students planning to enter college planned to attend a two-year school and 78% planned to attend a four-year school. Nine students intended to enter one of the five service academies. Eighty-two percent of the students

planned to go to Colorado colleges or universities. The number of 1997 graduates intending to enroll in each Colorado college or university is presented in Table II.

Table II

Numbers of 1997 graduates planning to attend each Colorado college or university

# of Students	College or University	# of Students	College or University
23	Adams State College	1	Lamar Community College
4	Aims Community College	45	Mesa State College
3	Air Force Academy	517	Metro State College
99	Arapahoe Community College	31	Northeastern Jr. College
18	Colorado Christian University	10	Otero Junior College
11	Colorado College	356	Red Rocks Community College
30	Colorado Mountain College	29	Regis University
3	Colorado Northwestern Community College	1	Trinidad College
59	Colorado School of Mines	431	University of Colorado (Boulder)
264	Colorado State University	9	University of Colorado (Colorado Springs)
0	Community College of Aurora	100	University of Colorado (Denver)
15	Community College of Denver	40	University of Denver
70	Front Range Community College	222	University of Northern Colorado
93	Fort Lewis College	20	University of Southern Colorado
2	Colorado Institute of Art	0	Western State College

Eighteen percent of the 1997 graduates planned to attend an out-of-state college or university. These students planned to attend colleges or universities in 48 different states and the District of Columbia. In addition, eight students intended to go to college in a foreign county. Ten percent of the graduates going out-of-state planned to attend a college or university in California, 9% in Utah, 6% in Nebraska, 5% Arizona, and 5% in Kansas.

Other plans

Twelve percent of the students intended to obtain full-time employment upon graduation from high school. Other high school graduates planned to attend proprietary schools (2%), join the military (3%) and (less than 1%) apprenticeships. Eight percent were undecided or have other plans following graduation.

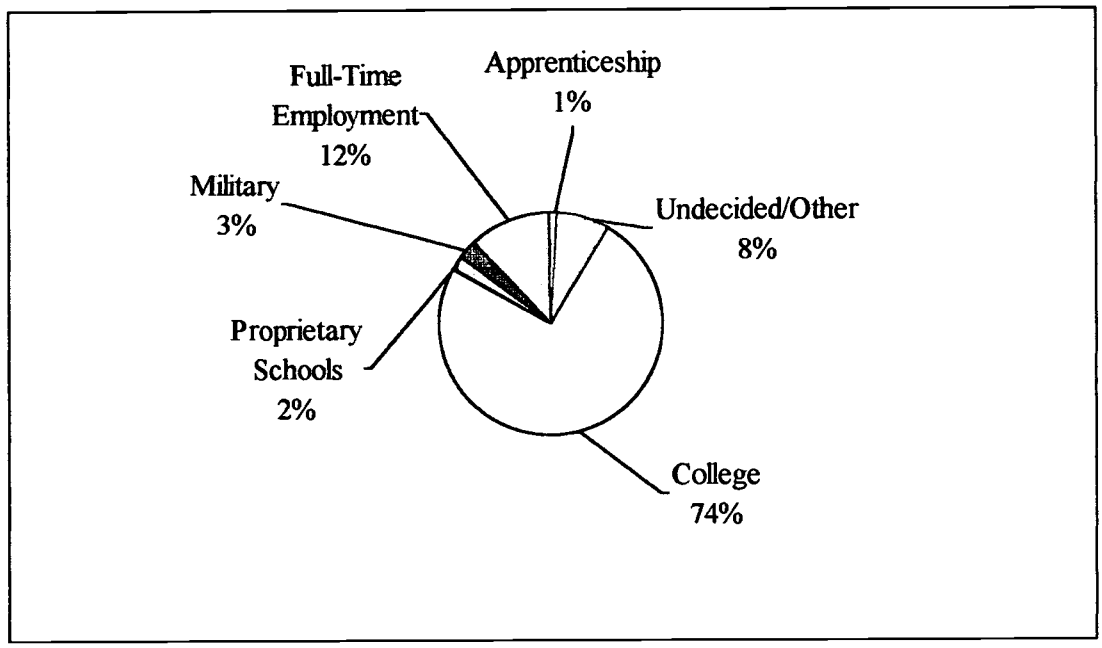

Figure 1. Percentage breakdown of plans of high school graduates of 1997.
Note. Adapted with permission from Jefferson County Schools.

REPORT ON THE GRADUATING CLASS OF 1998
JEFFERSON COUNTY PUBLIC SCHOOLS

Purpose

The purpose of this report is to present a general summary of the post-high school plans for students who graduated in 1998. This data should be treated with caution since post-high school intentions of graduates are tentative, general indicators, not certainty.

This report will first present information on graduating seniors' plans by individual high schools within Jefferson County Public Schools.

This report does not include information about graduation of the Jeffco Open School or the Adult High School. Contact these schools directly for information about their graduates.

College

Total Jefferson County High School graduates were 4,594. Seventy-two percent of the 1998 Jefferson County graduates planned to enter college following high school graduation. This figure compares to 75% in 1997 and 72% in 1996. The percentage of students planning to enter college from each Jefferson County high school may be seen in Table 1.

Table I

Tentative Plans for September 1998
Percentage of students planning to enter
College from each high school

SCHOOL	PERCENTAGE
Alameda Senior	66
Arvada Senior	65
Arvada West Senior	72
Bear Creek Senior	76
Chatfield Senior	80
Columbine Senior	82
Conifer	72
Dakota Ridge	67
DeEvelyn Junior/Senior	94
Evergreen Senior	81
Golden Senior	73
Green Mountain Senior	59
Jefferson Senior	48
Lakewood Senior	65
Pomona Senior	67
Standley Lake Senior	79
Wheat Ridge Senior	72
County Average	72

Twenty-two percent of the total number of students planning to enter college planned to attend a two-year school and 78% planned to attend a four-year school. Eleven students intended to enter one of the five service academies. Eighty-two percent of the students planned to go to Colorado colleges or universities. The number of 1998 graduates intending to enroll in each Colorado college or university is presented in Table II.

Table II

Numbers of 1998 graduates planning to attend each Colorado college or university

# of Students	College or University	# of Students	College or University
17	Adams State College	7	Lamar Community College
1	Aims Community College	41	Mesa State College
8	Air Force Academy	471	Metro State College
96	Arapahoe Community College	16	Northeastern Jr. College
14	Colorado Christian University	2	Otero Junior College
10	Colorado College	434	Red Rocks Community College
19	Colorado Mountain College	28	Regis University
2	Colorado Northwestern Community College	1	Trinidad College
61	Colorado School of Mines	414	University of Colorado (Boulder)
368	Colorado State University	17	University of Colorado (Colorado Springs)
0	Community College of Aurora	98	University of Colorado (Denver)
10	Community College of Denver	42	University of Denver
66	Front Range Community College	324	University of Northern Colorado
89	Fort Lewis College	18	University of Southern Colorado
2	Colorado Institute of Art	52	Western State College

Eighteen percent of the 1998 graduates planned to attend an out-of-state college or university. These students planned to attend colleges or universities in 43 different states and the District of Columbia. In addition, three students intended to go to college in a foreign county. Twelve percent of the graduates going out-of-state planned to attend a college or university in California, 8% in Utah, 7% in Nebraska, 7% Arizona, and 5% and 4% for Kansas, Texas, and Washington.

Other plans

Thirteen percent of the students intended to obtain full-time employment upon graduation from high school. Other high school graduates planned to attend trade/vocational schools (2%), join the military (3%) and (less than 1%) apprenticeships. Ten percent were undecided or have other plans following graduation.

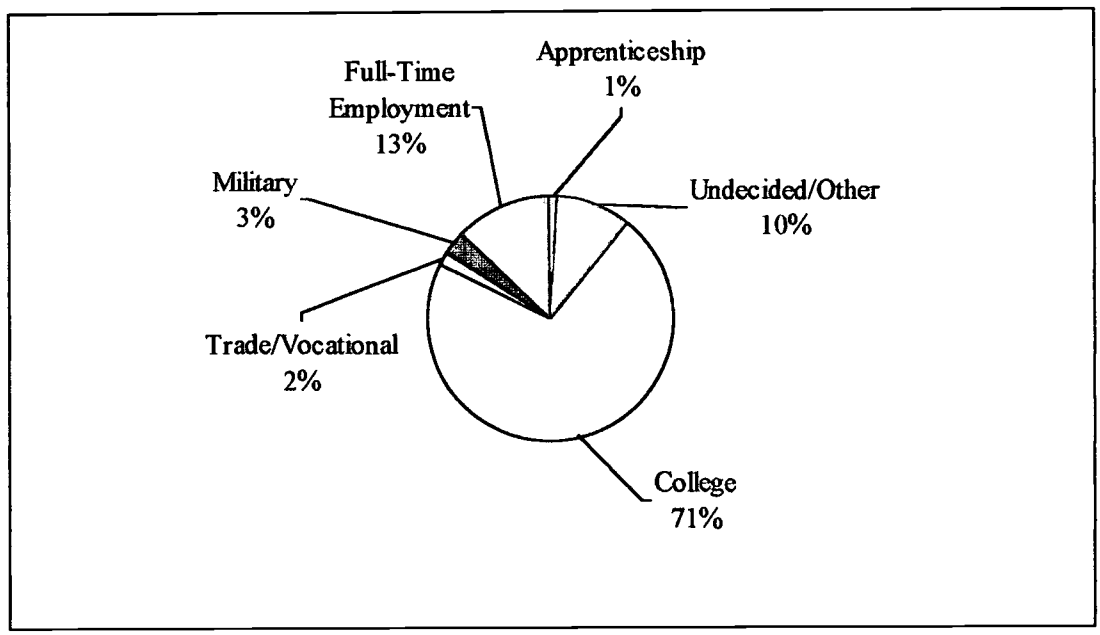

Figure 1. Percentage breakdown of plans of high school graduates of 1998.
Note. Adapted with permission from Jefferson County Schools.

Appendix C: Excerpt From Instructional Program Codes and Title Listings – 1990

INSTRUCTIONAL PROGRAM CODES AND TITLE LISTINGS - 1990
(Excerpt from Chapter 3)

01. Agricultural Business and Production
- 01.01 Agricultural Business and Management
- 01.02 Agricultural Mechanization
- 01.03 Agricultural Production Workers and Managers
- 01.04 Agricultural and Food Products Processing
- 01.05 Agricultural Supplies and Related Services
- 01.06 Horticulture Services Operations and Management
- 01.07 International Agriculture
- 01.99 Agricultural Business and Production, Other

02. Agricultural Sciences
- 02.01 Agriculture/Agricultural Sciences
- 02.02 Animal Sciences
- 02.03 Food Sciences and Technology
- 02.04 Plant Sciences
- 02.05 Soil Sciences
- 02.99 Agriculture/Agricultural Sciences, Other

03. Conservation & Renewable Natural Resources
- 03.01 Natural Resources Conservation
- 03.02 Natural Resources Mgmt & Protective Services
- 03.03 Fishing and Fisheries Sciences and Management
- 03.04 Forest Production and Processing
- 03.05 Forestry and Related Sciences
- 03.06 Wildlife and Wildlands Management
- 03.99 Conservation and Renewable Natural Resources, Other

04. Architecture And Related Programs
- 04.02 Architecture
- 04.03 City/ Urban, Community, and Regional Planning
- 04.04 Architectural Environmental Design
- 04.05 Interior Architecture
- 04.06 Landscape Architecture
- 04.07 Architectural Urban Design and Planning
- 04.99 Architecture and Related Programs, Other

05. Area, Ethnic And Cultural Studies
- 05.01 Area Studies
- 05.02 Ethnic and cultural Studies
- 05.99 Area, Ethnic, and Cultural Studies, Other

08. Marketing Operations/Marketing & Distribution
- 08.01 Apparel and Accessories Marketing Operations
- 08.02 Business & Personal Services Marketing Operations
- 08.03 Entrepreneurship
- 08.04 Financial Services Marketing Operations
- 08.05 Floristry Marketing Operations
- 08.06 Food Products Retailing and Wholesaling Operations

08.07 General Retailing & Wholesaling Operations & Skills
08.08 Home and Office Products Marketing Operations
08.09 Hospitality and Recreation Marketing Operations
08.10 Insurance Marketing Operations
08.11 Tourism and Travel Services Marketing Operation
08.12 Vehicle & Petroleum Products Marketing Operations
08.13 Health Products and Services Marketing Operations
08.99 Marketing Operations/Marketing & Distribution, Other

09. Communications

09.01 Communications, General
09.02 Advertising
09.03 Journalism and Mass Communications
09.04 Public Relations and Organizational Communications
09.07 Radio and Television Broadcasting
09.99 Communications, Other

10. Communications Technologies

10.01 Communications Technologies

11. Computer and Information Sciences

11.01 Computer and Information Sciences, General
11.02 Computer Programming
11.03 Data Processing Technology
11.04 Information Sciences and Systems
11.05 Computer Systems Analysis
11.07 Computer Science
11.99 Computer and Information Sciences, Other

12. Personal And Miscellaneous Services

12.02 Gaming and Sports Officiating Services
12.03 Funeral Services and Mortuary Science
12.04 Cosmetic Services
12.05 Culinary Arts and Related Services
12.99 Personal and Miscellaneous Services, Other

13. Education

13.01 Education, General
13.02 Bilingual/Bicultural Education
13.03 Curriculum and Instruction
13.04 Education Administration and Supervision
13.05 Educational/Instructional Media Design
13.06 Educational Evaluation, Research, and Statistics
13.07 International and comparative Education
13.08 Educational Psychology
13.09 Social and Philosophical Foundations of Education
13.10 Special Education
13.11 Student Counseling and Personnel Services
13.12 General Teacher Education
13.14 Teacher ED. Specific Academic & Vocational Programs
13.14 Teaching English as a Second Language/Foreign Lang.

13.15 Teacher Assistant/Aide
13.99 Education, Other

14. Engineering

14.01 Engineering, General
14.02 Aerospace, Aeronautical, & Astronautical Engineering
14.03 Agricultural Engineering
14.04 Architectural Engineering
14.05 Bioengineering and Biomedical Engineering
14.06 Ceramic Sciences and Engineering
14.07 Chemical Engineering
14.08 Civil Engineering
14.09 Computer Engineering
14.10 Electrical, Electronics, & Communications Engineering
14.11 Engineering Mechanics
14.12 Engineering Physics
14.13 Engineering Science
14.14 Environmental/Environmental Health Engineering
14.15 Geological Engineering
14.16 Geophysical Engineering
14.17 Industrial/Manufacturing Engineering
14,18 Materials Engineering
14.19 Mechanical Engineering
14.20 Metallurgical Engineering
14.21 Mining and Mineral Engineering
14.22 Naval Architecture and Marine Engineering
14.23 Nuclear Engineering
14.24 Ocean Engineering
14.25 Petroleum Engineering
14.27 Systems Engineering
14.28 Textile Sciences and Engineering
14.29 Engineering Design
14.30 Engineering/Industrial Management
14.31 Materials Science
14.32 Polymer/Plastics Engineering
14.99 Engineering, Other

15. Engineering-Related Technologies

15.01 Architectural Engineering Technology
15.02 Civil Engineering/Civil Technology
15.03 Electrical & Electronic Engineering-Related Technology
15.04 Electromechanical Instrumentation & Maintenance Technology
15.05 Environmental Control Technologies
15.06 Industrial Production Technologies
15.07 Quality Control and Safety Technologies
15.08 Mechanical Engineering-Related Technologies
15.09 Mining and Petroleum Technologies

15.09 Mining and Petroleum Technologies
15.10 Construction/Building Technology
15.11 Miscellaneous Engineering-Related Technologies
15.99 Engineering-Related Technologies, Other

16. Foreign Languages And Literatures

16.01 Foreign Languages and Literatures
16.03 East and Southeast Asian Languages and Literatures
16.04 East European Languages and Literatures
16.05 Germanic Languages and Literatures
16.06 Greek Languages and Literatures (Modern)
16.07 South Asian Languages and Literatures
16.09 Romance Languages and Literatures
16.11 Middle Eastern Languages and Literatures
16.12 Classical & Ancient Near Eastern Languages & Lit.
16.99 Foreign Languages and Literatures, Other

19. Home Economics

19.01 Home Economics, General
19.02 Home Economics Business Services
19.03 Family and Community Studies
19.04 Family/consumer Resource Management
19.05 Foods and Nutrition Studies
19.06 Housing Studies
19.07 Individual and Family Development Studies
19.09 Clothing/Apparel and Textile Studies
19.99 Home Economics, Other

20. Vocational Home Economics

20.02 Child Care and Guidance Workers and Managers
20.03 Clothing, Apparel, and Textile Workers and Managers
20.04 Institutional Food Workers and Administrators
20.05 Home Furnishings & Equip. Installers & Consultants
20.06 Custodial, Housekeeping, & Home Svcs Wkrs & Mngrs
20.99 Vocational Home Economics, Other

22. Law And Legal Studies

22.01 Law and Legal Studies

23. English Language And Literature/Letters

23.02 English Language and Literature, General
23.03 Comparative Literature
23.04 English Composition
23.05 English Creative Writing
23.07 American Literature (United States)
23.08 English Literature (British and Commonwealth)
23.10 Speech and Rhetorical Studies
23.11 English Technical and Business Writing
23.99 English Language and Literature/Letters, Other

24. Liberal Arts & Sci., Gen. Studies & Humanities

24.02 Liberal Arts & Sciences, General Studies & Humanities

25. Library Science
- 25.02 Library Science/Librarianship
- 25.03 Library Assistant
- 25.99 Library Science, Other

26. Biological Sciences/Life Sciences
- 26.01 Biology, General
- 26.02 Biochemistry and Biophysics
- 26.03 Botany
- 26.04 Cell and Molecular Biology
- 26.05 Microbiology/Bacteriology
- 26.06 Miscellaneous Biological Specialization
- 26.07 Zoology
- 26.99 Biological Sciences/Life Sciences, Other

27. Mathematics
- 27.02 Mathematics
- 27.03 Applied Mathematics
- 27.05 Mathematical Statistics
- 27.99 Mathematics, Other

29. Military Technologies
- 29.01 Military Technologies

30. Multi/Interdisciplinary Studies
- 30.01 Biological and Physical Sciences
- 30.05 Peace and Conflict Studies
- 30.06 Systems Science and Theory
- 30.08 Mathematics and Computer Science
- 30.10 Biopsychology
- 30.11 Gerontology
- 30.12 Historic Preservation, Conserv., & Architec. History
- 30.13 Medieval and Renaissance Studies
- 30.14 Museology/Museum Studies
- 30.15 Science, Technology and Society
- 30.99 Multi/Interdisciplinary Studies, Other

31. Parks, Recreation, Leisure, & Fitness Studies
- 31.01 Parks, Recreation, and Leisure Studies
- 31.03 Parks, Recreation, and Leisure Facilities Management
- 31.05 Health and Physical Education/Fitness
- 31.99 Parks, Recreation, Leisure, & Fitness Studies, Other

38. Philosophy And Religion
- 38.01 Philosophy
- 38.02 Religion/Religious Studies
- 38.99 Philosophy and Religion

39. Theological Studies And Religious Vocations
- 39.01 Biblical & Other Theological Languages & Literatures
- 39.02 Bible/Biblical Studies
- 39.03 Missions/Missionary Studies and Misology
- 39.04 Religious Education

39.05 Religious/Sacred Music
39.06 Theological and Ministerial Studies
39.07 Pastoral Counseling and Specialized Ministries
39.99 Theological Studies and Religious Vocations, Other

40. Physical Sciences

40.01 Physical Sciences, General
40.02 Astronomy
40.03 Astrophysics
40.04 Atmospheric Sciences and Meteorology
40.05 Chemistry
40.06 Geological and Related Sciences
40.07 Miscellaneous Physical Sciences
40.08 Physics
40.99 Physical Sciences, Other

41. Science Technologies

41.01 Biological Technology
41.02 Nuclear and industrial Radiologic Technologies
41.03 Physical Science Technologies
41.99 Science Technologies, Other

42. Psychology

42.01 Psychology
42.02 Clinical Psychology
42.03 Cognitive Psychology and Psycholinguistics
42.04 Community Psychology
42.06 Counseling Psychology
42.07 Developmental and Child Psychology
42.08 Experimental Psychology
42.09 Industrial and Organizational Psychology
42.11 Physiological Psychology/Psychobiology
42.16 Social Psychology
42.17 School Psychology
42.99 Psychology, Other

43. Protective Services

43.01 Criminal Justice and Corrections
43.02 Fire Protection
43.99 Protective Services, Other

44. Public Administration And Services

44.02 Community Organization, Resources, and Services
44.04 Public Administration
44.05 Public Policy analysis
44.07 Social Work
44.99 Public Administration and Services, Other

45. Social Sciences And History

45.01 Social Sciences, General
45.02 Anthropology
45.03 Archeology

45.04 Criminology
45.05 Demography/Population Studies
45.06 Economics
45.07 Geography
45.08 History
45.09 International Relations and Affairs
45.10 Political Science and Government
45.11 Sociology
45.12 Urban Affairs/Studies
45.99 Social Sciences and History, Other

46. Construction Trades

46.01 Masons and Tile Setters
46.02 Carpenters
46.03 Electrical and Power Transmission Installers
46.04 Construction and Building Finishers and Managers
46.05 Plumbers and Pipefitters
46.99 Construction Trades, Other

47. Mechanics And Repairers

47.01 Electrical & Electronics Equip. Installers & Repairers
47.02 Heating, Air Cond., & Refrig. Mechanics & Repairs
47.03 Industrial Equipment Maintenance and Repairers
47.04 Miscellaneous Mechanics and Repairers
47.05 Stationary Energy Sources Installers and Operators
47.06 Vehicle & Mobile Equipment Mechanics & Repairers
47.99 Mechanics and Repairers, Other

48. Precision Production Trades

48.01 Drafting
48.02 Graphic and Printing Equipment Operators
48.03 Leatherworkers and Upholsterers
48.05 Precision Metal Workers
48.07 Woodworkers
48.99 Precision Production Trades, Other

49. Transportation & Materials Moving Workers

49.01 Air Transportation Workers
49.02 Vehicle and Equipment Operators
49.03 Water Transportation Workers
49.99 Transportation and Materials Moving Workers, Other

50. Visual And Performing Arts

50.01 Visual and Performing Arts
50.02 Crafts, Folk Art, and Artisanry
50.03 Dance
50.04 Design and Applied Arts
50.05 Dramatic/Theater Arts and Stagecraft
50.06 Film/Video and Photographic Arts
50.07 Fine Arts and Art Studies
50.09 Music

50.99 Visual and Performing Arts, Other

51. Health Professions And Related Sciences

51.01 Chiropractic (D.C., D.C.M.)
51.02 Communication Disorders Sciences and Services
51.03 Community Health Services
51.04 Dentistry (D.D.S., D.M.D.)
51.05 Dental Clincial Sci./Graduate Dentistry (M.S., Ph.D.)
51.06 Dental Services
51.07 Health and Medical Administrative Services
51.08 Health and Medical Assistants
51.09 Health & Medical Diagnostic & Treatment Services
51.10 Health and Medical Laboratory Technologies
51.11 Health and Medical Preparatory Programs
51.12 Medicine (M.D.)
51.13 Medical Basic Sciences
51.14 Medical Clinical Sciences (M.S., Ph.D.)
51.15 Mental Health Services
51.16 Nursing
51.17 Optometry (O.D.)
51.18 Ophthalmic/Optometric Services
51.19 Osteopathic Medicine (D.O.)
51.20 Pharmacy
51.21 Podiatry (D.P.M., D.P., Pod.D.)
51.22 Public Health
51.23 Rehabilitation/Therapeutic Services
51.24 Veterinary Medicine (D.V.M.)
51.25 Veterinary Clinical Sciences (M.S., Ph.D.)
51.26 Miscellaneous Health Aides
51.27 Miscellaneous Health Professions
51.99 Health Professions and Related Sciences, Other

52. Business Management & Administrative SVCS

52.01 Business
52.02 Business Administration and Management
52.03 Accounting
52.04 Administrative and Secretarial Services
52.05 Business Communications
52.06 Business Managerial Economics
52.07 Enterprise Management and Operation
52.08 Financial Management and Services
52.09 Hospitality Services Management
52.10 Human Resources Management
52.11 International Business
52.12 Business Information and Data Processing Services
52.13 Business Quantitative Methods & Mgmt. Science
52.14 Marketing Management and Research
52.15 Real Estate

52.16 Taxation
52.99 Business Management & Administrative Svcs., Other

Appendix D: Excerpt From the Standard Industrial Classification Manual

STANDARD INDUSTURAL CLASSIFICATION MANUAL
(Reprinted from the Contents Page)

Division A	**Agriculture, forestry, and fishing**	
	Major Group 01	Agricultural production --crops
	Major Group 02	Agriculture production livestock and animal specialties
	Major Group 07	Agricultural services
	Major Group 08	Forestry
	Major Group 09	Fishing, hunting, and trapping
Division B	**Mining**	
	Major Group 10	Metal mining
	Major Group 12	Goal mining
	Major Group 13	Oil and gas extraction
	Major Group 14	Mining and quarrying of nonmetallic minerals, except fuels
Division C	**Construction**	
	Major Group 15	Building construction--general contractors and operative builders
	Major Group 16	Heavy construction other than building construction contractors
	Major Group 17	Construction--special trade contractors
Division D	**Manufacturing**	
	Major Group 20	Food and kindred products
	Major Group 21	Tobacco products
	Major Group 22	Textile mill products
	Major Group 23	Apparel and other finished products made from fabric and similar materials
	Major Group 24	Lumber and wood products, except furniture
	Major Group 25	Furniture and fixtures
	Major Group26	Paper and allied products
	Major Group 27	Printing, publishing, and allied industries
	Major Group 28	Chemicals and allied products
	Major Group 29	Petroleum refining and related industries
	Major Group 30	Rubber and miscellaneous plastics products
	Major Group 31	Leather and leather products
	Major Group 32	Stone, clay, glass, and concrete products
	Major Group 33	Primary metal industries
	Major Group 34	Fabricated metal products, except machinery and transportation equipment
	Major Group 35	Industrial and commercial machinery and computer equipment
	Major Group 36	Electronic and other electrical equipment and components, except computer equipment
	Major Group 37	Transportation equipment

	Major Group 38	Measuring, analyzing, and controlling instruments; photographic, medical, and optical goods; watches and clocks
	Major Group 39	Miscellaneous manufacturing industries
Division E	**Transportation, communications, electric, gas, and sanitary services**	
	Major Group 40	Railroad transportation
	Major Group 41	Local and suburban transit and interurban highway passenger transportation
	Major Group 42	Motor freight transportation and warehousing
	Major Group 43	United States Postal Service
	Major Group 44	Water transportation
	Major Group 45	Transportation by air
	Major Group 46	Pipelines, except natural gas
	Major Group 47	Transportation services
	Major Group 48	Communications
	Major Group 49	Electric, gas, and sanitary services
Division F	**Wholesale Trade**	
	Major Group 50	Wholesale trade--durable goods
	Major Group 51	Wholesale trade—non-durable goods
Division G	**Retail trade**	
	Major Group 52	Building materials, hardware, garden supply, and mobile home dealers
	Major Group 53	General merchandise stores
	Major Group 54	Food stores
	Major Group 55	Automotive dealers and gasoline service stations
	Major Group 56	Apparel and accessory stores
	Major Group 57	Home furniture, furnishings, and equipment stores
	Major Group 58	Eating and drinking places
	Major Group 59	Miscellaneous retail
Division H	**Finance, insurance, and real estate**	
	Major Group 60	Depository institutions
	Major Group 61	Non-depository credit institutions
	Major Group 62	Security and commodity brokers, dealers, exchanges, and services
	Major Group 63	Insurance carriers
	Major Group 64	Insurance agents, brokers, and services
	Major Group 65	Real estate
	Major Group 67	Holding and other investment offices
Division I	**Services**	
	Major Group 70	Hotels, rooming houses, camps, and other lodging places
	Major Group 72	Personal services
	Major Group 73	Business services
	Major Group 75	Automotive repair, services, and parking
	Major Group 76	Miscellaneous repair services
	Major Group 78	Motion pictures

	Major Group 79	Amusement and recreation services
	Major Group 80	Health Services
	Major Group 81	Legal services
	Major Group 82	Educational services
	Major Group 83	Social services
	Major Group 84	Museums, art galleries, and botanical and zoological gardens
	Major Group 86	Membership organizations
	Major Group 87	Engineering, accounting, research, management, and related services
	Major Group 88	Private households
	Major Group 89	Miscellaneous services
Division J	**Public administration**	
	Major Group 91	Executive, legislative, and general government, except finance
	Major Group 92	Justice, public order, and safety
	Major Group 93	Public finance, taxation, and monetary policy
	Major Group 94	Administration of human resource programs
	Major Group 95	Administration of environmental quality and housing programs
	Major Group 96	Administration of economic programs
	Major Group 97	National security and international affairs
Division K	**Non classifiable establishments**	
	Major Group 99	Non classifiable establishments

Appendix E: One Sample Chi-square Results with Paired Graduation Years

ONE SAMPLE CHI-SQUARE RESULTS WITH PAIRED GRADUATION YEARS

Results of one sample chi-square tests of paired graduation year with next stage variable

Category	Year	Results	Comment
Enrolled-only	1996/1997		Not Significant
	1997/1998	χ^2 (1, N=259) = 6.490, p=. 011	Increase
	1996/1998	χ^2 (1, N=250) = 10.000, p=.002	Increase
Employed-Only	1996/1997	Not Significant	
	1997/1998	χ^2 (1, N=2572) = 7.191, p=. 009	Increase
	1996/1998	χ^2 (1, N=2422) = 33.772, p<. 001	Increase
Enrolled-and-Employed	1996/1997		Not Significant
	1997/1998	χ^2 (1, N=2674) = 10.305, p=. 001	Decrease
	1996/1998	χ^2 (1, N=2527) = 11.965, p=. 001	Decrease

Results of one sample chi-square tests of paired graduation years with post-secondary degree program variable

Category	Year	Results	Comment
Non-degree	1996/1997	χ^2 (1, N=196) = 4.592, p=. 032	Fewer 1996 graduates More 1997 and 1998 graduates
	1997/1998		Not Significant
	1996/1998	χ^2 (1, N=218) = 12.404, p=. 000	Fewer 1996 graduates More 1997 and 1998 graduates
Two-year Programs	1996/1997	χ^2 (1, N=508) = 4.165, p=. 041	Increased enrollment
	1997/1998	χ^2 (1, N=487) = 9.218p=. 002)	Increased enrollment
	1996/1998		Not Significant

ONE SAMPLE CHI-SQUARE RESULTS WITH PAIRED GRADUATION YEARS (CONTINUED)

Results of one sample chi-square tests of paired graduation years with post-secondary Institution variable

Category	Year	Results	Comment
Metro State College	1996/1997		Not significant
	1997/1998	χ^2 (8, N=466) = 9.348, p=. 002	Enrollment decrease from 266 to 200
	1996/1998	χ^2 (1, N=448) = 5.143, p=. 023	Enrollment decrease from 248 to 200
Colorado State University	1996/1997		Not significant
	1997/1998		Not significant
	1996/1998	χ^2 (1, N=401) = 3.793, p=. 051)	Enrollment increase from 181 to 220

Results of one sample chi-square tests of paired graduation years with post-secondary degree program variable

Category	Year	Results	Comment
Undeclared	1996/1997		Not significant
	1997/1998		Not significant
	1996/1998	χ^2 (2, N=1277) = 8.628, p=. 013	Decreasing enrollment
Liberal Arts	1996/1997		Not significant
	1997/1998	χ^2 (2, N=735) = 9.314, p=. 009	Increase then decrease in enrollment
	1996/1998		Not significant

Appendix F: Human Research Review Committee Approval Letter

Colorado State University

Office of Regulatory Compliance
Office of Vice President for Research
and Information Technology
Fort Collins, CO 80523-2046
(970) 491-1563
FAX: (970) 491-2293

MEMORANDUM

TO: Gene Gloeckner, School of Education, 1588

FROM: Linda Kovar, Administrator for the Human Research Committee LLKovar ccw

SUBJECT: PROJECT APPROVAL
Title: Longitudinal Study on High School Graduates.
Protocol No.:00-190H
Funding Agency: N/A
Funding Agency Deadline: N/A

DATE: August 23, 2000

I am pleased to inform you that the above-referenced project was approved by the Human Research Committee on August 23, 2000 for the period August 23, 2000 to August 23, 2001. Because of the nature of this research, it will not be necessary to obtain a signed consent form. Consent is waived under § __.116 (d). **Approval is for 1200 participants (data).**

A status report of this project will be required within a 12-month period from the date of approval. You will be sent a reminder approximately two months before the protocol expires. The Principal Investigator will report on the numbers of subjects who have participated this year and project-to-date, about problems encountered, and provide a verifying copy of the consent form or cover letter used. The necessary form (H-101) is available from the Regulatory Compliance web page (see below). Should the protocol not be renewed before expiration, all activities must cease until the protocol has been re-reviewed.

It is the responsibility of the investigator to immediately inform the Committee of any serious complications, unexpected risks, or injuries resulting from this research. It is also the investigator's responsibility to notify the Committee of any changes in experimental design, participant population, or consent procedures or documents. This can be done with a memo which completely describes the changes and their consequences (new consent form or cover letter, or altered survey instrument, for example). Students serving as Co-Principal Investigators may not alter projects without first obtaining PI approval. The PI is ultimately responsible for the conduct of the project.

This approval is issued under Colorado State University's OPRR Multiple Projects Assurance M-1153-01 issued August 1, 1996. If approval did not accompany a proposal when it was submitted to a sponsor, it is the researcher's responsibility to provide the sponsor with the approval notice.

Please direct any questions about the Committee's action on this project to me for routing to the Committee.

Additional information is available from the Regulatory Compliance web site at www.research.colostate.edu/regulatory/

xc: Linda Harrison

Colorado State University

Office of Regulatory Compliance
Office of Vice President for Research
and Information Technology
Fort Collins, CO 80523-2046
(970) 491-1563
FAX: 491-2293

AMENDMENT APPROVAL

MEMORANDUM

To: Gene Gloeckner, School of Education, 1588

From: Celia Walker, Administrator for the Human Research Committee

Date: April 11, 2001

Re: Longitudinal Study on High School Graduates, #00-190H

Request to Amend

The Human Research Committee reviewed and approved your request to amend the above-referenced project:

Effective April 9, 2001 approval is given to increase the sample size from 1,200 students to less than 9,500 students.

It is the responsibility of the investigator to immediately inform the Committee of any serious complications, unexpected risks, or injuries resulting from this research. It is also the investigator's responsibility to notify the Committee of any changes in experimental design, participant population, or consent procedures or documents. This can be done with a memo which completely describes the changes and their consequences (new consent form or cover letter, or altered survey instrument, for example). Students serving as Co-Principal Investigators may not alter projects without first obtaining PI approval. The PI is ultimately responsible for the conduct of the project.

This approval is issued under Colorado State University's OPRR Multiple Projects Assurance M-1153-01 issued August 1, 1996.

If you have questions, please contact me at 1-0232 or Celia.Walker@colostate.edu.

xc: Linda Harrison

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Signature: Linda R. Harrison	Printed Name/Position/Title: Linda R. Harrison/ Coordinator
Organization/Address: 13300 W. 2nd Place, Lakewood, CO 80228	Telephone: 303-982-8624 FAX: 303-982-8622
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