

SECONDARY AND POSTSECONDARY
VOCATIONAL EDUCATION IN NORTH CAROLINA:
STUDENT CHARACTERISTICS, OUTCOMES, AND
PROGRAM SIMILARITIES AND DIFFERENCES

by

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(ABSTRACT)

The purpose of this study was to analyze, present and interpret data that have implications for policy making in the evaluation of vocational education in North Carolina. Existing follow-up study databases were merged for the 1985-86 community college and secondary school systems. Characteristics of completers and the relationship of outcome and demographic variables to levels of preparation were analyzed. The degree of similarities and differences in programs was determined through document analysis of curriculum guides and policy manuals.

Findings suggested that completers from selected vocational programs exhibited similar characteristics in demographics, motivation, educational and employment variables. Age was the major difference found in completer characteristics. The analysis of program content from selected programs revealed striking similarities. Industry/trades programs were found to exhibit more similarities between levels than business programs. Several of the six programs were similar in content, instructional

hours, and job preparation between levels. Both levels emphasized employability and the development of occupationally specific skills.

Levels of preparation were associated with several outcome and demographic variables. Gender, reasons for entering, employment status and completer satisfaction were found to be associated with levels of preparation.

Conclusions led to the recommendation that articulation policies within North Carolina need to be evaluated to reduce unnecessary duplication. Better efforts at counseling students into vocational programs as well as assessment of local labor market needs are necessary. Clarification of the purpose of vocational education within program categories was recommended.

Future research comparing characteristics of students and program similarities on a national basis was recommended. The importance of follow-up studies in research related to vocational education was recognized during the course of the study. Educational systems should conduct their follow-up studies with this fact in mind.

DEDICATION

This research is dedicated to my son and my mother . Both have given support and shown understanding far beyond my expectations. Without their love and patience this endeavor could not have been completed.

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CHAPTER I

INTRODUCTION

In 1985 the North Carolina General Assembly, recognizing the importance of vocational education in strengthening the state's economy, mandated a complete review of the status of vocational education. The resulting study focused on agencies and what they teach; their equipment, facilities and faculties; what happens to their graduates; the cost and who pays; whether the agencies are in federal compliance; and last, their unnecessary duplication (Cox, Holley, Lawrence, Davis & Drewes, 1986).

A major finding of this study was that the present vocational delivery system in North Carolina was inefficiently meeting the changing vocational needs of its citizens. Four major elements are causing significant changes in vocational education and its means of delivery in North Carolina. These changes in industrial patterns, citizen demographics, delivery systems, and funding patterns have important implications for needed changes in vocational education (Cox et al., 1986).

Declining economic development and productivity, and technological changes affect job content and eventually the skills and the type of training needed by employees (Johnston & Packer, 1987; Pratzner & Russell, 1984). Cox et

al., (1986) observed that "North Carolina still is in the throes of massive change from an agrarian to an industrial and service economy" (p. 1). Economic development has taken an important role in the state with important implications for vocational education. Johnston & Packer (1987) projected that before the year 2000 a number of skilled jobs will disappear, while high-skill professional jobs will grow rapidly. Evidence indicates that most new higher level jobs will require education beyond high school and an increased level of language, math, and reasoning skills. Studies have demonstrated that a large number of jobs require vocational training provided by formal schooling (Gordon, 1986). Along with this increase in the degree of required competence, the labor force is experiencing a shortage of skilled workers (Parnell, 1985).

Not only has the apparent need for retraining influenced enrollment patterns in vocational education, but changing demographic trends are also exerting force on enrollment. The increase in the adult population, a decrease in the youth cohort, and the increase in interest in meeting the needs of our special populations have proven to have an important impact on the role of vocational education (Cox et al., 1986; Johnston & Packer, 1987).

Another factor affecting the structure of vocational education is the movement to upgrade education through

demands for higher quality (National Commission on Excellence in Education, 1983; National Commission on Secondary Vocational Education, 1984). One of the main issues to be resolved at the public school level and the community college level is that of quality education and its impact on the way vocational education will be delivered (Geyer et al., 1986; Vocational Education Curriculum Study Committee, 1986). Ironically, the demand for increased quality in vocational education comes at a time when federal funding is decreasing. In 1984, changes were initiated by the Carl D. Perkins Vocational Education Act related to the use of funds. Service to special target populations is emphasized rather than maintaining existing programs. This redistribution of federal funding leads to an increase in the use of state funds and scrutiny as to how these funds will be used (Cox et al., 1986).

Many studies related to the status of vocational education on both national and state levels have been conducted, resulting in several recommendations for reform and restructuring of vocational education on a global level (Cox et al., 1986; National Commission on Excellence in Education, 1983; National Commission on Secondary Vocational Education, 1984). Very little research, however, has been conducted comparing systems that deliver vocational education. Cox and associates (1986) study of vocational

education in North Carolina pointed out weaknesses in that system. Cox and associates, however, failed to compare students and programs, crucial elements in the North Carolina system. Because community college and secondary systems are the two largest public deliverers of vocational education in North Carolina, and both prepare students for employment, comparison of students and programs may contribute to the development of a more effective and efficient vocational education structure.

Problem Statement

The problem that this study addressed was to describe the profile and outcomes for students completing similar vocational programs in secondary schools and community colleges in North Carolina. Other follow-up studies at the local, state, and national levels have been conducted to determine the effects of vocational education on individuals. The majority of research regarding vocational education outcomes on completers has been in the area of economic returns. Graduates enter jobs from several types of vocational programs; however, very little research has been conducted to compare programs, vocational students, or relationships of outcomes to various levels of preparation.

Purpose Statement

The general purpose of this study was to analyze, present and interpret data that have implications for policy making in North Carolina. This was accomplished through the following ancillary tasks:

1. Description of the characteristics of vocational educational completers of selected community college and secondary vocational programs in North Carolina;
2. Determination of the degree of similarity and difference in North Carolina community college and secondary school vocational programs; and
3. Determination of the relationships of vocational preparation levels, and selected demographic and outcome variables.

Research Questions

The following questions were answered:

1. What are the characteristics of vocational education completers of selected community colleges and secondary schools in North Carolina?
2. What are the similarities and differences in selected vocational programs offered by North Carolina community colleges and secondary schools?
3. What is the relationship between levels (secondary

- school and community college) of vocational education and completer reasons for entering programs?
4. What is the relationship between levels (secondary school and community college) of vocational education and employment status (employed or unemployed)?
 5. What is the relationship between levels (secondary school and community college) of vocational education and completer employment in fields related to their preparation?
 6. What is the relationship between levels (secondary school and community college) of vocational education and completer rating of the usefulness of the training in their current jobs?
 7. What is the relationship between levels (secondary school and community college) of vocational education and completer satisfaction with programs?
 8. What is the relationship between levels (secondary school and community college) of training and race distribution for completers of vocational education programs?
 9. What is the relationship between levels (secondary school and community college) of vocational education and gender distribution of completers of vocational programs?

Need for Study

North Carolina has determined that vocational education is important in human and economic development. The community colleges and secondary schools in that state, through statutory authority, deliver vocational education within skills categories of (a) pre-vocational education, (b) employability skills development, (c) occupational area preparation, (d) occupationally specific development, (e) job specific training, and (f) work experience (Cox et al., 1986). According to the State Board of Education (1986) the public school system enrolled 263,728 students in vocational courses offered to grades 7-12 with a total expenditure of \$84 million coming from federal, state, and local funds in 1985. The community college system enrolled 98,564 in vocational courses for approximately \$76 million in fiscal year 1985.

Although vocational education has established an important role within education in North Carolina, evidence indicates a need for rethinking and restructuring many aspects of the present system. One of the ongoing issues related to vocational education concerns the delivery system configuration that will lead to the most effective delivery of services with the least duplication. To determine the most efficient, effective, and equitable means of vocational delivery, investigative studies related to the types of

vocational education systems are necessary. This study assembled data related to student characteristics in similar vocational programs, data concerning relationships of outcomes to programs and demonstrated similarities and differences in programs.

Delimitations

This study was limited to selected North Carolina secondary and community college vocational programs and completers from the year 1985-86. The North Carolina Department of Public Instruction Data System, North Carolina Vocational Education Information System (NCVEIS), and the North Carolina Community College Data System provided databases for the study. Twelve of the 58 community colleges in North Carolina were selected to contribute to this database in 1985-86. Completers from these 12 institutions along with completers from high schools serving students in the same counties as the community colleges were also chosen (see Appendix A).

Vocational programs selected for this study were common offerings in North Carolina community colleges and secondary schools. The selected programs, categorized as either business or trades/industry, have been documented as producing positive economic benefits for their graduates (Campbell, Gardner, & Seitz, 1982a; Kang & Bishop, 1986).

These two areas also have the highest enrollment rates among vocational programs (Lewis, 1983). Accounting, automotive mechanics, cosmetology, general office, secretarial, and welding were programs selected for the study.

Limitations

The study included only completers from secondary schools and community college vocational programs in North Carolina. The difference in the structure of vocational systems from state to state may hinder generalizing the findings of this study on a national basis. It is also recognized that the sample in this study, selected through nonprobability sampling, may not constitute a representative sample of the population of completers in North Carolina. However, it was determined that subject characteristics, such as race and gender were generally comparable to the characteristics of the respondents in the 1985-86 follow-up studies. It was not the intent of this research to generalize to populations other than completers; rather the emphasis of this study was to explore and generate hypotheses for further research. The low response rate from the community college follow-up survey also reduced the representativeness of this research.

Age differences, between high school students and community college students, may also limit generalizations

from this study. Vocational education researchers have been criticized for their use of databases that aggregate students enrolled in community colleges and high schools and including all age cohorts (Sheldon, 1983). Vocational education is delivered by numerous systems which may duplicate competencies, serve the same age cohorts and prepare students for the same employment positions. Issues which must be resolved are who will be served by which system, and what competencies will each system deliver? Therefore comparison of programs, student characteristics, and outcomes to the student regardless of the maturity levels is necessary.

Document analysis of programs was conducted through the use of state policy manuals and curriculum guides. It was assumed that local units use these guides in developing vocational programs.

Definitions

The following definitions were used in this study:

Articulation is an organized plan to assist students in making a smooth transition from one educational system to another (Arnold, 1987).

Career maturity refers to readiness to cope with vocational tasks (Savickas, 1984). It includes the ability

to cope with vocational and career development tasks when confronted with them. (Super, 1977).

Characteristics is used in this study to refer to those variables that will describe the type of students who complete vocational programs in community colleges and secondary schools.

Community colleges include two-year community and technical colleges and institutes.

Completers are individuals who have completed a course of study and received a degree or diploma from the community college system and those who have finished completer courses in the public school system.

Delivery system is an environment that engages the student in learning (Campbell & Panzano, 1985).

Duplication is overlapping of program aims and content between community college and secondary systems.

Educational outcomes include changes in dropout and attendance rates, in verbal and computational skills, in the types of reading, and in participation in further education and training; also included are perceptions of the value of vocational and nonvocational education by trainees and other key groups (Evans, 1982, p. 3).

Educational level refers to secondary schools or community colleges and institutes.

Employability skills are "activities related to development of work oriented values and attitudes, job survival skills, job search skills, and basic skills development where the intent is to increase immediate employability of the individual" (Cox et al., 1986, D-1).

Employment status is the status of the graduate which describes unemployment or employment whether full or part time as used in both the community college and secondary surveys.

Instructional hours is the actual clock time spent in class under teacher supervision.

Job specific preparation is "training for a designated job and generally for a specific employer, including on job training (OJT)" (Cox et al., 1986, D-1).

Labor market outcomes include annual earnings, labor force participation rates, and frequency and duration of unemployment; also included are perceptions of values of vocational education for labor market uses by trainees, employers, parents, and other interested people (Evans, 1982, p. 3).

Major courses are defined as "those courses that are absolutely essential for a person to learn in order to perform the job for which being prepared" (State Board of Community Colleges, undated).

Occupational area preparation is "training to develop general knowledge, skills, and attitudes that are applicable across a family or cluster of related occupations with similar requirements" (Cox et al., 1986, D-1).

Occupational specific preparation is "training to develop knowledge, skills, and attitudes required in the performance of a specific occupation or job type" (Cox et al., 1986, D-1).

Pre-vocational education is "career awareness and explorative activities, vocational counseling and guidance, and vocational occupational skills, abilities, and interest assessment" (Cox et al., 1986, D-1).

Related courses are "courses which are essential or supporting, enriching or foundation-building courses for a given curriculum or group of curriculums" (State Board of Community Colleges, undated).

Specialized skills are skills tied to a particular employer's needs, a piece of equipment, or a production process (Pratzner & Russell, 1984).

Vocational programs are those programs designed to prepare technicians, semi-professional workers, and skilled craftspeople for employment. The North Carolina Community College system offers occupational programs through both technical and vocational curricula designed to prepare individuals for employment. The North Carolina public

school system offers vocational programs as completer courses. A completer course is one in a sequence that has at least one prerequisite for admission and that provides skills and competencies necessary for entry-level employment (Division of Vocational Education, North Carolina Department of Public Instruction, 1982).

Work experience is "activities that provide participants with work experiences and its [their] related benefits as an end in itself rather than as training for a specific job" (Cox et al., 1986, D-1).

CHAPTER II

REVIEW OF THE LITERATURE

Introduction

The history of vocational education, as it evolved nationally and in North Carolina at the public and community college levels, was reviewed. The literature search pertinent to this study was organized around eight major headings: (a) history, (b) criticism related to vocational education, (c) purposes of vocational education and program outcomes, (d) access and equity issues, (e) student characteristics, (f) vocational education skills, (g) duplication and articulation of programs, and (h) comparison of secondary schools and community colleges as vocational education delivery systems.

History

Vocational education in its beginning in America was the responsibility of the family and was conducted through apprenticeships. During American colonial times, in order for children to learn a craft, parents were required to indenture them. According to Hawkins, Prosser, and Wright, (1951) youth traditionally have been considered the labor resource for the future. Following 1907 the industrial revolution took place, and by 1930 manufacturing plants had

grown in size and number. It was soon recognized that some formal means was necessary to provide vocational training. By 1905, the Douglas Commission recommended the including of industrial training, agriculture education, and domestic and mechanical science in public schools in Massachusetts. Several states followed suit and opened schools to those over age fourteen, thus producing a new kind of secondary schooling (Hawkins, Prosser & Wright, 1951; VocEd, 1982).

In 1914 the National Commission of Vocational Education recommended a federally aided system of vocational education leading to the Smith-Hughes Act which authorized federal aid to states to establish vocational education (Hawkins, et al., 1951). Although vocational education is funded mainly through state and local sources, the federal government has exerted and continues to exert a strong influence on policy and planning of both secondary and postsecondary levels.

By the early 1900's leaders of the community college movement found that students could benefit from a two-year occupational education. Founders of the California system included in their programs terminal degrees in agriculture, technical studies, and domestic arts (Cohen & Brawer, 1982). Between 1960 and 1970 a surge of students entered community colleges, and a significant growth in vocational programs took place. Vocational training at the postsecondary level

in the 1970s took place primarily in the community college and technical institutes (Wilms & Hansell, 1982). Between 1965 and 1976 the proportion of two-year students enrolled in vocational programs increased from 35 to 50 percent and reached 75 percent by 1983 (Grubb & Jaussaud, 1985).

Twenty-seven percent of high school seniors in 1982 were enrolled in at least one vocational course. Seventy-five percent of all 1982 graduates of public schools had taken at least one vocational course, and 89 percent had taken exploratory courses (National Center on Education Statistics, 1984). Swanson (1982) noted that there were at least 24,000 high schools offering some type of vocational education and more than 9,000 institutions offering some form of postsecondary vocational instruction. Laughlin (1986) found that some 61 percent of high school graduates who have taken vocational courses go on to college. Of those who attend college, about one half chose 2-year colleges (National Center for Research in Vocational Education, 1987).

Vocational education has been a part of the secondary curriculum in North Carolina since the nineteenth century. Secondary vocational education in North Carolina began with manual arts and commercial arts classes, along with a number of vocational clubs such as corn and tomato clubs. Farm life schools developed and served as the nuclei of some

rural high schools. After World War I, state legislation supported training for machine and industrial workers.

Some 300,000 public secondary students are enrolled in vocational educational programs annually in North Carolina. Programs are offered in clusters preparing students for over 400 occupations in seven major areas: agriculture, marketing education, health occupations, occupational home economics, business and office education, trade and industrial arts, and principles of technology (Vocational Education Curriculum Study Committee, 1986).

North Carolina began its community college system as area-vocational schools that later evolved into comprehensive colleges. By 1956, the governor of North Carolina advocated vocational education as a means to train a labor force that would attract industry to the state. Within a year the general assembly had allocated funds for area vocational schools in North Carolina known as industrial centers (Segner, 1974). The first industrial education center offered five programs in areas of machine operations, crafts, supervisory training, and classes for upgrading skills of employed adults and trade preparatory courses (Segner, 1974).

Criticism Related to Vocational Education

Critics of vocational education continue to focus in three major areas: (a) vocational education is used to stratify society into upper and lower classes, (b) training programs have no real economic value, demonstrated by so few graduates working in fields for which they were prepared, and c) the skills that are taught are overly narrow (Grubb & Lazerson, 1981).

Stratification of society. Teachers and researchers such as Oakes (1983, 1986), Pincus (1980, 1986), and Karabel (1972, 1986) have criticized vocational education severely for maintaining a class system by educating students in the same occupations in which their parents were educated. Both secondary vocational education and postsecondary have been criticized for tracking students into lower level courses and subsequently lower level occupations.

However, within the context of division of labor, Bowles and Gintis (1976) have described this expansion as stratifying and bureaucratic in nature. Bowles and Gintis viewed the expansion of public secondary education and the transition from serving the upper class to serving the masses as consistent with democratic and egalitarian ideas. Bowles and his associates present perhaps the most critical and crucial indictment against work-related education. They believe that educational systems mirror the economy and

therefore reinforce capitalist values (Bowles, Gintis, & Meyer, 1975), thus contributing to trapping people in certain occupation.

Students expect to receive certain rewards after completion of a vocational program. Students express expected outcomes related to occupational skills, employment opportunities, and employer satisfaction (Smith, Wentling, & Barnard, 1986). Critics of work-related education claim that student expectations are unreachable, and vocational education is a means of deterring these expectations.

Vocational educators in community colleges have been criticized heavily for their claim that vocational education serves as an avenue for the upward mobility of low-income and minority students. Pincus (1986) noted that terminal vocational programs in two-year colleges are the lowest tracks, and students in these tracks are deprived of the economic benefits that come from achieving a bachelor's degree.

Economic value. Americans have assumed that increasing levels of education are necessary to find and keep jobs, to make more money, and to obtain the respect of others (Special Task Force to the Secretary of Health, Education, and Welfare, 1971; Thurow, 1975). The American workforce has already attained an educational level which exceeds the requirements of many jobs in the economy (Rumberger, 1984).

Berg (1970) noted that additional education raises earning power; however, additional education has not been proven to make people more capable of producing goods and resources. Jencks (1972) found that 22 percent of the variance in personal income is explained by factors other than education. Much of the economic return to schooling is in fact attributable to the socio-economic backgrounds. Variables such as intelligence, parents' background, race, sex, North versus South, and other such variables distort the results in determining education's contribution to income (Alexander, 1976; Bowles, 1971).

Critics are quick to point out the shortcomings of the relationship between work and education. This relationship is based on achievement of degrees, rather than ability or job competency (Berg, 1970; Rumberger, 1984). National policies related to occupational and professional jobs have created a demand for workers with higher degrees. The focus has been on credentialing rather than learning and the market value of education has driven out other values such as the intrinsic rewards of a general education (Special Task Force to Secretary of Health, Education, and Welfare, 1971). Critics have accused vocational education of not having any real economic value. It has been seen as a waste of taxpayers' money because it is unrealistic to the labor market; unnecessary because of the degree of on-the-job

training; and obsolete because of changing occupational structures (Wilms, 1980).

Ineffective Curriculum. The Russell Commission in the 1930s found that vocational education was overly narrow, denying flexibility in employment and creating a dual school system (Lazerson & Grubb, 1974). In the 1960s the Panel of Consultants on Vocational Education appointed by President Kennedy reported sharp criticism against vocational education for its job-specific training and its lack of relatedness to the labor market (Advisory Council on Vocational Education, 1968).

Secondary schools, on the contrary, have claimed that there is a need for training in the areas of specific skills, job knowledge, and work attitudes. Oakes (1986) has claimed that this content emphasis has not produced the economic and other benefits claimed by secondary education. Pincus (1986) and Karabel (1986) lodged similar criticisms at community college vocational education. Although community college vocational education is, in general, job-specific, Karabel has pointed out that the effects are negative when compared to a four-year college education. Researchers such as Semple (1986) have stressed that vocational education fares poorly because the students' basic academic preparation is not an adequate basis for occupationally specific training.

In summary, although vocational education has become a major component of instruction at both secondary and postsecondary levels, critics argue that neither high school nor community college graduates have received the promised returns (Grubb & Lazerson, 1981; Pincus, 1980, 1986). Studies have provided evidence that graduates of both levels are employed in jobs for which they are not prepared (Grasso & Shea, 1979; Pincus, 1980). Others have argued that vocational education serves the purpose of sorting and tracking students into lower level occupations (Karabel, 1986; Pincus, 1980, 1986).

There is a growing concern that schools are not developing vocational skills, but rather are simply credentialing students in inefficient and inequitable ways. Still others claim that graduates continue to be "over-educated" in relation to labor market demands (Grubb & Lazerson, 1981). Research has linked higher unemployment rates, lower level jobs, lower hourly wages, and declining labor force participation with inadequate education (Sum, Harrington, & Simpson, 1983). Graduates of vocational programs are leaving school unable to compete effectively in the labor market (Ekstrom, Freeberg, & Roch, 1987).

Purposes of Vocational Education and Program Outcomes

The solution to many problems related to vocational education lies in determining the purposes and the outcomes to be accomplished by levels of vocational education. Numerous purposes and outcomes have been described in the literature.

Purposes of vocational programs. As the economy weakens, vocational education becomes important as an agent to train a workforce and as a means of assuring marketable skills for the American public. The literature presents the question of whether vocational education should be viewed as a means of eliminating social problems and meeting the nation's need for workers (Copa, 1986), or if its responsibility is to enhance the individual's education (Darcy, 1980). The basic purposes which seem to have gained consensus are (a) meeting society's need for workers (Evans & Herr, 1978; Oakes, 1983; Pratzner & Russell, 1984), (b) increasing student options (Evans & Herr, 1978; Oakes, 1983; Pratzner & Russell, 1984), and (c) serving to enhance student learning (Evans & Herr, 1978; Plihal & Copa, 1986).

Although early advocates viewed manual training as complementary to academics, vocational education soon became a means for achieving certain goals. In addition to the common purpose of supplying youth with skills and supplying

the nation's workforce, some researchers view vocational education's purposes as making school more relevant to life and equalizing educational opportunities (Oakes, 1983). Evans (1984) explained that it is the responsibility of both secondary and postsecondary schools to provide vocational programs designed for youth who will not pursue a bachelor's degree. Parents, students, and employers feel that vocational education should provide skills to obtain jobs, create an awareness of occupations, and provide opportunities to explore different occupations (McKinney, Franchak, Halaxa-Salster, Morrison & McElwain, 1981).

Another idea which has gained credence is that vocational education also serves to develop the individual by producing a sense of competence, by developing the ability to think through problems and work with others, and by developing an aesthetic appreciation. Vocational education should also teach students about their responsibility to community and the rewards of service to community (Plihal & Copa, 1986; Silberman, 1982).

Vocational education at different levels is viewed as having different purposes. Pratzner and Russell (1984) perceived secondary education as driven by the needs of the individual, its goal being educational; they perceive training to meet society's needs for skilled workers as the purpose of the postsecondary level. Smith, Wentling &

Barnard (1986) found that programs at different levels need to address different sets of outcomes. This finding challenges the idea that all programs are meeting essentially the same outcomes.

Outcomes to vocational graduates. Much research has been conducted in an effort to determine the outcomes to vocational education graduates. Outcomes have been defined and categorized in many different ways. While federal policy tends to emphasize student and employee satisfaction and job placement, researchers have looked at other outcomes as important to determining the effectiveness of vocational education. Several studies using the National Longitudinal Study (NLS) data have been conducted to determine secondary outcomes related to employment, earnings, occupational categories, and job relatedness (Campbell, Gardner, Seitz, Chukwoma, Cox, & Orth, 1981; Mertens & Gardner, 1983; Rumberger & Daymont, 1984). Although researchers have demonstrated an increase in the number of students entering vocational education at secondary and community college levels (Bell, 1984; Bottoms & Copa, 1983; Grubb & Jaussaud, 1985), evidence has demonstrated that outcomes such as earnings, placement, job relatedness, and outcomes for the nation's employers are not realized (Pincus, 1986; Semple, 1986).

Levine (1981) defined an outcome as the change occurring in participants, whereas Evans and Hunter (1979) defined outcomes as value added or taken away from the participants. Darcy (1979) approached the question from a perspective of the consequences of vocational education in the real world. These consequences may be classified as long or short-term, output or product, intended or unintended, positive or negative, and economic or noneconomic. Darcy (1979, 1980) described labor market outcomes as (a) job related placement, (b) reducing the risk of unemployment, (c) higher earnings for vocational students, (d) reducing the amount of time it takes young workers to find regular full-time jobs, and (e) employer satisfaction. He also described a group of outcomes which are educational in nature: increasing student satisfaction with school, preventing dropout, and promoting enrollment in postsecondary education or training programs.

Like Darcy, Evans (1984) described a typology of outcomes related to secondary vocational education. His typology also included labor-market and educationally related outcomes. The major difference between the two authors was that Evans related the two main classifications to the individual, the institution, and society. Labor market outcomes for the individual include (a) annual earnings, (b) labor market participation rates, (c)

frequency of employment, (d) job satisfaction, (e) work knowledge, (f) occupational mobility, and (g) expectations of future job security, promotion, and upward socioeconomic mobility.

According to Evans (1984) the educational outcomes for the individual are

- (1) decreased dropout rates;
- (2) school re-enrollment rates;
- (3) frequency of shifts from one program to another;
- (4) number of school credits attempted and completed;
- (5) pre-enrollment and end of program achievement scores;
- (6) student satisfaction with training;
- (7) participation in further education;
- (8) expectations of further education;
- (9) perceptions of formal education;
- (10) awareness of alternative types of programs; and
- (11) adequacy of previous education (p. 24).

Other researchers have described outcomes in different ways. For example, Smith, Wentling, and Barnard (1986) classified outcomes in two categories. First are those occurring to the individual as a result of the educational program; second are those related to the institution and to society occurring as consequences of the educational program.

McKinney and Fornash (1988) identified five vocational outcomes for graduates from secondary and postsecondary education that affect the individual and the program: (a) satisfaction of employees, (b) development of trained workers for the labor force, (c) acquisition of occupational skills, (d) upgrading occupational competencies, and (e) retraining of workers. In 1982, Copa suggested employer satisfaction with quality of graduates' work, number of graduates employed in occupations related to programs, projected job opening within occupations, performance of students, and program cost as outcomes by which to measure the effectiveness of a delivery system.

Four major clusters of skill outcomes are significant to the evaluation of vocational programs and are identified in the literature: occupational skills, basic skills, employability skills, and job performance skills (Cox et al., 1986; Levine, 1981; Smith, et al., 1986; Starr, Fraser, Russell, & Orth, 1983).

Training-related outcomes. One aim of vocational education has been to make students employable in a job related to the type of training program the former student left (Copa, 1982, p. 1). However, reports from the U.S. Department of Labor, Bureau of Labor Statistics (1983) have indicated that of the 53 million jobs requiring some training, preparation for only 5 percent of these is offered

in secondary schools. Training-related placement is affected by the availability of employment in the training area. Training-related placement is also affected by the developmental stage of graduates, career choices of the graduates, and employer's perceptions of the high school curriculum (Campbell et al., 1981). Campbell, Gardner, and Seitz (1982b) discovered that fewer than 40 percent of vocational graduates find work in their area of training. Wilms and Hansell (1982) likewise found that although graduates of community college programs obtain employment, most students are placed in unrelated areas. On the high school level, however, Mertens, McElwain, Garcia, and Whitmore (1980) found that a large percentage of vocational graduates were placed in jobs related to their programs, with business and health programs having the highest documented percentage.

Several factors related to curriculum also seem to exert influence on training-related employment. If the program is developed to provide specialized preparation for jobs, then the expectation of graduates to find employment is an appropriate criterion to evaluate (Copa, 1982). The greater number of vocational courses an individual takes in an area, the more likely that individual is to obtain employment in that area (Campbell et al., 1982b; Rumberger & Daymont, 1984). Bishop (1985) found that employees with

job-relevant training from high school were nine percent less costly to train during the first three months; those from community colleges were 22 percent less costly to train.

Earning outcomes. One of the most important measures of vocational education effectiveness is the evaluation of individual earning power. Although earning outcomes are not emphasized by federal standards, much research has been conducted in this area. Little difference has been found between the earnings of vocational and nonvocational graduates (Mertens et al., 1980), although vocational graduates show a long-term earning advantage over general education graduates (Desy et al., 1984). Kang and Bishop (1986) discovered that the complementary effect of academic and vocational courses on earnings is positive.

For men and women enrolling in certain vocational courses research has shown wage advantages related to gender (Bragg, Parks, Dauner & Campbell, 1986). Studies have shown significant earning advantages for women who have been trained in business courses (Campbell, Basinger, Dauner, Parks & Seitz, 1986; Grasso & Shea, 1979; Gustman & Steinmeier, 1982; Kang & Bishop, 1986; Meyers, 1981). Analysis of National Longitudinal Survey (NLS) data shows small earning advantages for vocational education males who specialized in trade and industry (Campbell et al., 1982a;

Kang & Bishop, 1986). Women and minority graduates of vocational programs seem to enjoy an advantage over other graduates (Campbell et al., 1986).

In the long-term, high school education has no effects on earning; however, postsecondary education does (Desy et al., 1984; Mertens & Gardner, 1983). This earnings advantage tends to increase with years of postsecondary schooling (Campbell et al., 1986). Desy et al. (1984) found that completion of any post high school program will lead to higher long-term earnings. Community college programs for men and apprenticeship programs for women seem to be the exception.

Employment outcomes. The goal of vocational education programs at both levels has been to prepare students for entry level employment (Miller, 1985). Secondary schools also prepare students to continue their education and to make consumer decisions (Division of Vocational Education, North Carolina Department of Public Instruction, 1982). Follow-up studies at both state and national levels on vocational graduates and research on effectiveness have addressed how many completers and leavers are employed.

Educated persons in the job market receive preferential treatment while the less educated tend to be unemployed (Alexander, 1976). The less educated, for example are susceptible to layoffs, especially as advances in technology

occur (Owens, 1974). As the number of vocational courses taken increases, unemployment decreases (Gardner, 1984). Secondary vocational students are likely to experience less unemployment than general education graduates (Catterral & Stern, 1986), and postsecondary education reduces unemployment even further. This reduction, however, is related to specific programs and not to overall trends in the field (Desy et al., 1984; Lewis & Mertens, 1981; Mertens et al., 1980).

Several studies have found contradictory evidence related to the economic value of vocational education at the secondary and postsecondary levels. A synthesis of research, developed by Lewis and Mertens (1981) indicated mixed conclusions regarding unemployment of secondary graduates, with little difference noted between vocational and non-vocational graduates. However, there appeared to be some differences in employment related to sex and race.

Usefulness and satisfaction outcomes. According to Campbell et al. (1981) most vocational graduates are pleased with their programs. Whether vocational graduates are satisfied with their training because their aspirations have waned or whether they are satisfied because they have the opportunity to use their skills is not clear. Desy et al. (1984), in support of the latter, found that satisfaction may be related to usefulness of skills and the practical

applicability of skills. Though most secondary and postsecondary vocational students agree that program content is useful to them in their jobs and that the content meets their practical needs (Copa, 1986), it is important to note that vocational program graduates have little expectation of obtaining different jobs requiring different skills after their first job. Trade/industry and business graduates are likely to indicate the intent, to remain with the same job for years. Those who report that they expect to obtain other jobs indicated that they need further schooling (Desy et al., 1984).

According to Lewis and Mertens (1981), very few studies address employer satisfaction. Of those few, employers have been found to be satisfied with graduates' attitudes, preparation, and skills from the secondary and postsecondary levels. Asche and Vogler (1980) have identified several reasons for assessing employer satisfaction: (a) validate worth, (b) identify improvement needs, (c) improve employer/employee relations, (d) improve student guidance, (e) bolster recruitment, (f) enhance labor force capability, and (g) satisfy legislative mandates.

In summary, the purposes of vocational education advanced in the literature are to benefit both students and society. Researchers view the purpose as being both producing workers for society and producing an individual

equipped to function in society. The North Carolina secondary school system has four purposes: (a) to prepare individuals for entry-level employment, (b) to prepare individuals for participation in advanced postsecondary vocational and technical education, (c) to provide experiences which will assist students in making informed and meaningful occupational choices, and (d) provide experiences which will assist students to make informed consumer decisions and to apply practical survival skills (Division of Vocational Education, North Carolina Department of Public Instruction, 1982). The North Carolina community colleges purpose in offering vocational education is to prepare individuals for entry-level employment (State Board of Community Colleges, 1986).

Benefits to the individual have been measured through educational and labor market outcomes. Positive and negative outcomes are described for the individual, institution, and society and outcomes to the graduate have been used to determine effectiveness of programs, especially from a federal standpoint.

Access and Equity Issues

Minorities, those in a low socioeconomic class, and those with lower academic abilities are generally students found in vocational educational programs at both levels

(Campbell et al., 1986; Goodlad, 1984; Oakes, 1986). Entering the vocational program at either level is up to the individual, though some researchers have found the choice to be a directed one. Students who can benefit from hands-on experience, those who are not motivated otherwise, those who have special needs, and those whom administrators, counselors, and teachers feel can benefit are placed in or at least encouraged to enter vocational education (Copa, 1986; Plihal, Ernest, & Rehm, 1986).

The paradox of vocational education serving as an element to cure social needs and as an element to reinforce social class constitutes the main access issue. In 1985 Lotto, noted that some people view vocational education as a service to promote equity for the disadvantaged, for the less able, and for those who plan to enter the labor market upon graduation. Others may see these same programs as a means of maintaining social class (Oakes, 1986; Pincus, 1986).

Access to vocational education seems to fluctuate as national trends, community norms, family values, and school dynamics change (American Vocational Association, 1988; Plihal et al., 1986). A reflection of national trends is noted in the Carl D. Perkins Vocational Act of 1984. It provides money to states to make programs accessible to the disadvantaged, handicapped, single parents, homemakers, and

the incarcerated (P.L. 98-542, 1984). Access is most influenced by socioeconomic status and academic ability, as well as gender, which has a strong influence on the program choice (Campbell, 1986; Desy, 1984).

Pratzner and Russell (1984) noted that high schools, more than other institutions, are in the position to ensure both access and equity through their traditional comprehensive philosophy. Vocational education is a means of assuring this comprehensiveness and providing for the different types of student needs (Plihal et al., 1986). However, when vocational education is used as a dumping ground for the nontraditional students, the secondary school becomes a deterrent to equity and access. Access to vocational programs in community colleges is facilitated by low tuition and by entrance without selectivity (Grubb & Jaussaud, 1985).

Equal access and the opportunity to benefit from programs should be afforded to all students (Copa et al., 1986; National Commission on Secondary Vocational Education, 1984). When students are assigned to programs or poorly assigned on bases other than ability and preference, inequities occur (Berryman, 1982). The consequence of inequitable tracking is increased underemployment. Campbell (1986) also found male graduates experience wage equity, whereas female graduates experience wage inequities.

Although several blue ribbon panels have recommended higher standards for secondary education, many educators view stiffened academic requirements as a deterrent to the vocational student. With the higher general education graduation requirements, vocational education may be squeezed out of the curriculum (Lotto, 1985).

Certain factors seem to be influential in a student's decision to enter a vocational program. A study conducted by the Louisiana State University (1986) noted that family affiliation, education, and aspiration played an important part in the decision-making process. Family has a tremendous influence on vocational decisions (Falk, 1980; Mills, 1981; Singer & Sechiar, 1984), perhaps offering some credence to the claim by critics such as Pincus and Karabel that vocational education tracks students in the same occupations as their parents.

Counselors also play an important role in students' vocational decisions (Baker, 1984; Plihal et al., 1986). They may steer some students toward the vocational curriculum, while other students are encouraged to take general or college preparatory tracks. Sometimes teachers elicit counselors' help in getting students in their classes. However, it is difficult to assert the power of the counselor's advice when students actually register (Plihal et al., 1986). Friends or peers also seem to have

an influence on students' decisions (Falk, 1980; Plihal, et al., 1986).

Vocational interests have also influenced student decisions to enter vocational programs. Students who do not plan to go to college also generally make decisions to take vocational courses. Other students have an interest in vocational courses because of the opportunity to work with their hands (Plihal et al., 1986). For instance, a large percentage of white students are enrolled in courses with general vocational content and in those oriented toward business skills, in contrast to a larger percent of ethnic minorities enrolled in courses leading to low-level occupations (Goodlad, 1983).

In summary, access to vocational education for the most part is linked to the student's socio-economic states and vocational ambitions. The student's decision to enter vocational education is influenced by counselors, teachers, family and friends. When students are placed in courses without regard to ability and their preference, equity and access become an issue. The question of whether vocational education is used as a means of reinforcing social class or as a means to upward mobility continues unanswered.

Student Characteristics

Decisions related to how and what a delivery system can offer certainly depends on the students to be served and therefore merits careful consideration. However, the characteristics of vocational students have been the subject of much research.

Maturity. As outcomes of vocational programs at different levels are compared, one of the important variables that may affect findings is maturity. Career maturity includes the ability to make decisions regarding a career path and is characterized by an individual's readiness to cope with the vocational task (Savickas, 1984; Stewart, 1985). The different age cohorts and levels of maturity in secondary and community college programs make comparison of these levels difficult. However, if the most efficient and effective means of delivery is to be found then comparisons must be made regardless of these differences. Career maturity may be affected by age (Herr & Enderlein, 1976); by curriculum, school, and gender differences; by time and experience which may change vocational preference (Super, 1977); and by socioeconomic status (Nelms, Pentecost, & Lowe, 1982; Super & Nevill, 1984). Differences in abilities, interests, and personalities that qualify people for a number of occupations (Super, 1977) also affect career maturity.

The opposite of career maturity is vocational indecision, the inability of a person to choose or commit to an occupation. Because over one-third of high school students experience indecision, many argue that high school students should not commit to a career too soon, to keep their options open (Stewart, 1985). Osipow, Carney and Bark's (1976) model demonstrated several reasons for students' indecision about vocational selection: lack of knowledge of their interest and aptitudes, interest in many different areas, internal conflict related to choice, and inability of students to develop alternatives.

Vocational maturity differs in adolescent and adult stages. The degree of awareness and information needed is different. Adolescents need to know available curriculum options upon entering high school, whereas adults need information about a variety of training and occupations (Super, 1977). Super's conclusion is supported by a study conducted by the Louisiana State University (1986) which concluded that individuals make a series of occupational choices at different stages of life.

Student demographics. According to Bottoms and Copa (1983), "vocational education serves 16.5 million Americans who represent a cross section of U.S. society in terms of race, sex, academic ability, socioeconomic levels and goals" (p. 349). The increased numbers of students in vocational

programs again point to the important role which vocational education plays in eliminating socioeconomic problems.

Community college students enrolling in vocational programs are diverse in their backgrounds, demographics, and intentions. Sixteen percent of community college students complete their programs. These completers are usually recent high school graduates and are in their early 20s. Thirty-eight percent are job seekers and tend to be more interested in earning money than earning good grades or credit for courses. This group may lack requisite skills to complete a program (Bottoms & Copa, 1983). Thirty-five percent are seeking to up-grade skills in order to get promotions, raises, or recognition. Nine percent are seeking to change jobs, while two percent are seeking credit hours for licensure or certification (Bottoms & Copa, 1983). The average age of postsecondary students is twenty-nine with 6.5 million students categorized as adults or older (Bottoms & Copa, 1983).

Generally, a high proportion of vocational students come from poor families (Campbell, 1986; Campbell et al., 1986). Minorities make up about 24 percent of vocational education students (Bottoms & Copa, 1983). Vocational students tend to have lower academic abilities than academic students, and the same influencing factors which led them to vocational programs in high school lead them to vocational

programs in postsecondary schools (Campbell, 1986). More females tend to enter vocational courses than men (Bottoms & Copa, 1983), with a majority of females entering business (Lewis, 1983), and a majority of males entering trades/industry (Grant & Snyder, 1986).

Vocational Education Skills

Many researchers have tried to determine what should be included in the vocational education curriculum. Most programs in some form tend to offer skills development in occupational employability skills, occupationally specific training, and recently the basics including communication and computational skills. The main question related to program content has been "Should content that is occupationally specific or general in nature be taught?" A second issue is related to the need to determine the skills that different vocational delivery systems should teach and the extent to which preparation is related to the changes in jobs skills in the labor market. Recent questions have also centered on the need for basic content in the vocational education program.

Occupational employability skills. Many researchers have found that occupational employability skills constitute a main portion of most vocational curriculum. One of the purposes of vocational education, according to McKinney et

al., (1981), is to create an awareness of various occupations. National vocational leaders and educators agree that secondary level vocational education should include employability skills development and occupational exploration (Starr et al., 1983). The National Center for Research in Vocational Education (1987) defined employability skills as attitudes toward work, work habits, job seeking and retention skills.

Vocational graduates report high levels of satisfaction with their occupational employability skills (Desy et al., 1984). Most students view vocational programs as being more important in teaching occupationally specific skills than employability skills (Darcy, 1979; Smith et al., 1986). Interpersonal skills and a positive attitude are important to success, perhaps more important than occupationally specific skills (Greenan & Amick, 1986). Gardner (1984) found that the economic benefits to the employee come from occupationally specific skills rather than employability skills. Manufacturers place a high value on teaching employability skills (Miller, 1984).

Occupationally specific training. The purpose of occupationally specific training is to develop skills in particular areas and to prepare students for employment (Copa, 1983; Semple, 1986). Postsecondary level is concerned with labor market needs; its program, tend to be

designed to teach mostly specialized skills. The secondary level, however, should teach a more general course of study (Pratzner & Russell, 1984). Programs tend to become more specific at higher levels (Evans, 1982).

Approximately 80 percent of high school students take some occupationally specific courses (Semple, 1986) in curricula such as agriculture, business education, distributive education, health occupations, and trades and industry (Campbell, 1986). Researchers have discovered that occupational skills development has an important role at both secondary and postsecondary levels (Starr, et al., 1983).

Although occupationally specific skills are possibly the most typical kind of program content in secondary schools (Plihal & Copa, 1986), national leaders and educators feel that content should be more general (Pratzner & Russell, 1984) with emphasis on exploring and understanding the role of work (Copa, 1986). Halasz and Behm (1983) noted that vocational students spend about 56 percent of total class studying content tasks and 73 percent of content tasks on technical or job specific skills. Educators argue, however, that specific skills which students are taught in school give them an edge in the job market (Copa, 1986).

Graduates of secondary vocational programs indicate that they use their specialized training in immediate jobs and in those jobs taken in later years. Graduates of postsecondary programs indicate a high degree of use of specialized skills (Desy, et al., 1984). The National Association of Manufacturers (NAM) survey showed that 73 percent of employers valued the teaching of specialized skills at both the postsecondary and secondary levels (Miller et al., 1984).

Another reason teaching specialized skills is important is the growth of mid-level jobs in industry, including demands for technicians, paraprofessionals, and semi-professionals. Technology has caused increased specialized skills training (Grubb & Jaussaud, 1985) though only 23 percent of employers in Wilm's (1984) study indicated technical or specialized skills as the most important factor in job success.

Basic skills. Basic skills refers to communications skills, speaking and writing skills, reading skills, and computational skills. The National Commission on Excellence in Education (1983) identified the new basics as English, mathematics, science, social studies, and computer sciences.

Students will fare better in labor markets if they are prepared as generalists rather than as specialists (Pratzner & Russell, 1986). Developing basic academic competencies is

the means for preparing for future employment and is a determinant of success in the labor market (Pratzner & Russell, 1986; Taggart, 1983). This assumption calls for upgrading the quality of academic work in high school, with an increase in communication, math, and reasoning skill requirements (Bishop, 1985). However, researchers such as Kang and Bishop (1986) found that the effect of taking math courses on earnings is close to zero and English seems to have the most positive effect. Research has shown a relationship between workers' basic skills and productivity, as well as basic skills and acquisition of job-specific skills (Bishop, 1985). Weber et al. (1982), found basic skills to be related to employment levels, salary, and employment in areas of related training.

While only 5 percent of time in vocational courses is spent on basics, (Halasz & Behm, 1983) skill specific vocational programs are becoming outdated and non-responsive to contemporary needs (Wilms, 1984). A renewed education that seeks to promote theory, practice, thinking, and doing is necessary (Wilms, 1984; National Commission on Secondary Vocational Education, 1984).

The lack of generalizable skills may deter educational and occupational success since they serve as a background to build occupational and employability competence, and are also transferable to a broad range of occupations (Greenan,

1984). There is a core of skills, such as mathematics, communication, interpersonal relations and reasoning ability, that are generalizable within secondary training programs in agriculture, business, marketing and management, health, home economics, and industrial occupations (Greenan, 1984). These skills should be transferrable to a wide range of work situations (Pratzner & Russell, 1984).

Literature clearly points out that occupational success depends on the student's learning basic academic concepts such as reading, writing, and basic computational skills (Manley & Vogler, 1981). Starr et al., (1983) found that basic skills development is an important role at both secondary and postsecondary levels; however, it has been demonstrated that basic skills are more important at the secondary level. Obtaining these skills at the secondary level are necessary to the acquisition of employability and occupational competencies. They play an important role in job success because employers expect employees to use basic skills for finding solutions to work-related problems (Miller et al., 1984).

Business and trade/industry curricula. Research continues to find positive outcomes for graduates prepared in business and office courses (Gardner, 1984; Lewis, 1983). Not only is the unemployment time reduced for business graduates, but also there appears to be an increase in the

weekly earnings. About one half of females obtain jobs in their area of training (Lewis, 1983). Males involved in trades and industry are more likely than females to obtain jobs classified as skilled. Training in trades/industry includes occupational areas such as automobile mechanics, welding, carpentry, drafting, electronics and cosmetology (Gardner, et al., 1982; National Center for Education Statistics, 1984).

In summary, employability, specific training skills, and basic skills are important to the overall general purpose of vocational education. It appears that the emphasis on each of these skills changes at different levels. If employers place a high value on basic skills development then the appropriate place to emphasize these skills is at the secondary level. Those students preparing for job entry and postsecondary vocational education could benefit by engaging in basic skills. Employability skills should be emphasized at the secondary level also. Evans (1982) defended the idea of teaching occupationally specific skills at the secondary level because students in high school are ready to learn concrete facts and skills. He feels that non-vocational ideas are best retained if students are shown the relevance of what they are learning.

Some researchers recognize the importance of all of these areas and feel that a balanced curriculum may produce

a more efficient entrant into the job market (National Commission on Secondary Vocational Education, 1984; Pratzner & Russell, 1984). The Center of Occupational Research takes the position that vocational programs in a community college should present the student with (a) an opportunity to gain a broad base knowledge, (b) an understanding of updated job-specific content, (c) a basic understanding of several disciplines, and (d) a strong understanding of technology principles (Groves, 1985).

Duplication and Articulation of Programs

Educators have different opinions regarding the curriculum emphasis for each level of vocational education. In states where different boards govern different levels, controversy about vocational education is likely to ensue (Starr et al., 1983). However, among this array of different opinions, it is clear that researchers, administrators, and educators agree that articulation is important for the efficient use of funds and to avoid program duplication (Arnold, 1987; Cox et al., 1986; Doty, 1985; Lotto, 1985; National Commission on Secondary Vocational Education, 1984).

In order to reduce duplication, the American Vocational Association, the American Association of Junior Colleges, and state and local concerns have produced cooperative

efforts. However, these efforts have been inadequate, and where efforts are duplicated, increased costs from ineffective use of resources occur, redundancy in program offerings exist, and narrowing of student opportunities becomes evident (David, 1983).

Some educators advocate different outcomes and purposes for different levels of vocational education, whereas others are finding the outcomes should be the same. McKinney and Fornash (1984) found that most educators and leaders in vocational education supported upgrading occupational competencies, acquisition of useful occupational skills, and retraining workers as proposed outcomes at both the secondary and postsecondary levels of vocational education.

Few studies have attempted to analyze similarities and differences in programs; however, Pratzner and Russell (1984) found that both levels teach technical or occupationally specific skills. Secondary technical skills tend to be geared to a group of occupations, whereas postsecondary skills are more likely to be geared specifically to one occupation. Both teach work values, work attitudes skills, and basics. The population served by these groups, however, is different in some instances. Traditionally, the secondary level serves in-school youth and the postsecondary level serves nontraditional eighteen

to twenty-one year old youth and adults (Pratzner & Russell, 1986).

If the purpose of vocational education in high school is basic skills preparation and exploration of the workplace, then duplication is not an issue. However, if the mission is directed toward training for specific jobs, duplication becomes a problem and articulation between levels becomes necessary (Galambos, 1984). Articulation between high schools and community colleges can reduce the narrowness of the student's experience occurring through occupationally specific job training and reduce the loss of continuity in learning (Arnold, 1987; Parnell, 1985). Another advantage of articulation is the increase in self-esteem produced by leavers feeling like college-bound students (Wambrod & Lang, 1986).

In summary, studies have demonstrated duplication of skills training among many agencies delivering vocational education. Articulation and the reduction of occupationally specific skills training in high schools can help offset the cost accrued through declining enrollment, obsolete equipment, and the difficulty of retraining high quality faculty (Pratzner & Russell, 1984). Articulation between secondary schools and community colleges is an advantage to students and should complement both types of institutions (Miller, 1985).

Comparison of Preparation Levels as Delivery Systems

Both community colleges and secondary schools have increased their emphasis on vocational programs. Bottoms and Copa (1983) noted that the number of vocational programs increased from 100 in 1965 to more than 400 in 1983. Students at community colleges are seeking more career or vocational programs than those which are transferrable (Baron, 1982). Dearman and Plisko (1982) noted that 92 percent of community colleges offer vocational education, while Bell (1984) noted that 16 million persons are enrolled in vocational education with 65 percent of the enrollment at the secondary level. Programs are offered at both levels in areas such as home economics, agriculture, trade and industry, business, marketing and distributive education, health occupations, and technology (Bragg, 1986; Cohen & Brawer, 1982; Cox et al., 1986). Growth in interest in vocational education reflects job opportunity in that particular program area. For instance, vocational agriculture enrollment remained constant between 1965 and 1980, whereas enrollment in the areas of trades and industry, office occupation, and health occupation expanded (Bottoms & Copa, 1983).

Vocational programs in community colleges have become less terminal and have become suppliers of transfers to four-year colleges (Karabel, 1986). Likewise the growth of

two-year colleges has produced a less terminal effect at the high school level. Most high school graduates are enrolling in some form of postsecondary education (Campbell, Gardner, & Seitz, 1982a; Pratzner & Russell, 1984). For example, as many as 61 percent of secondary vocational graduates go on to postsecondary education (Laughlin, 1986).

Both secondary schools and community colleges have played a role in providing vocational training. The historical willingness of the community college to maintain open access and to customize programs and services to the individual and community needs makes it an excellent system for the delivery of vocational education (Benson, 1982; Galambos, 1984; Groves, 1985). Its technological advances in instruction (Brawer & Cohen, 1982) also enhances ability to offer vocational education. Indeed, offering vocational programs has become one of the major functions of the community college. Its ties with labor, along with career-focused student service, makes the community college the ideal place for vocational education (Bottoms, 1983). The flexibility and comprehensiveness of these postsecondary institutions is important to the delivery of vocational education to special groups such as displaced workers, handicapped groups, and those seeking career education (Mehallis & Mehallis, 1983; Pratzner & Russell, 1984).

Vocational education at the secondary level provides a means of access for diverse student groups. Offering vocational education also is a means by which high schools produce a comprehensive curriculum and serve all students within a geographical area (Copa, 1986). Another strength of the secondary schools is their use of vocational skills to develop non-vocational courses. This has contributed to the effectiveness of secondary education by placing emphasis on the use of skills developed from vocational courses in other areas of the school curriculum (Copa, 1986). For example, vocational courses offered in the secondary system help students develop and practice reasoning skills (Copa, 1986), contribute toward the aims of liberal arts education (Herbert, 1983) and have served to help students learn non-vocational skills through use of relevant content (Evans, 1982).

In summary vocational education at both levels is one means of producing comprehensive curricula. Likewise both levels offer vocational course in areas which are not terminal or which enhance the student's movement to the next level. Access for all students to education is one of the influencing factors leading to educational systems offering vocational education. The greatest strength of the secondary delivery system stems from its ability to enhance education in general through concrete and relevant ideas

taught in vocational education. However, the community college's advanced technology, ability to tailor programs, and its ties to labor makes it more suitable for offering vocational education, especially in the area of occupationally specific training.

CHAPTER III
DESIGN AND METHODS

Introduction

This chapter contains descriptions of data sources, subjects, variables, and method of analysis. The major foci of the study are (a) the characteristics of vocational education students who participate in community college and secondary school vocational programs, (b) a description of the similarities and differences of selected programs, and (c) the relationship of selected labor market and educational outcomes to the levels of vocational preparation.

Data Sources

Two extant databases were used in this study: (a) the 1985-86 follow-up study from the Research and Information Service Division, North Carolina Department of Community Colleges and (b) the North Carolina Vocational Education Information Systems, North Carolina Department of Public Instruction, Division of Vocational Education.

According to the Research and Information Services Division, North Carolina Department of Community Colleges (1987), students who attended vocational and technical curriculum programs at 12 of the North Carolina community

colleges and technical institutes were surveyed (see Appendix A). The population included 14,299 leavers and completers, 34.3 percent (n=4,904) of whom had completed their programs. Two mailings of the survey were conducted between November 1986 and January 1987. Additional follow-up was conducted by phone in January and February 1987 producing a response rate of 38.3 percent (5,476 respondents). In 1986, the North Carolina public school system surveyed 39,941 of its 1985-86 vocational completers from its 140 school units. According to the 1987 follow-up report, 31,144 of the completers responded producing a response rate of 78 percent (Division of Vocational Education, 1988).

Subjects Participating in 1985-86 Follow-up Studies:

A total of 378 community college completers and 1083 secondary school completers were selected from the two follow-up populations to be included in the present study. Subjects selected for the present study had completed one of the six programs and responded to the survey. Secondary completers must have attended schools located in units which corresponded with the counties served by the community colleges. Only those secondary completers who had completed their programs and graduated were included.

Community college completers. According to the 1985-86 community college survey report, 55.6 percent of the survey population were women who also constituted 60.4 percent of the respondent pool. Approximately 26 percent of the population and 23.1 percent of the respondent pool were minorities. Day students represented 57.8 percent of the survey population compared with 56.8 percent of respondents. Students under 25 years of age represented 40.6 percent of the respondents and 46.2 percent of the survey population, compared to those 25 and older which represented 59.4 percent of respondents and 53.8 percent of the survey population. Subjects surveyed were from 12 of the 58 community and technical colleges and were enrolled in 110 programs. These subjects attended college in 1985-86 and did not return in the fall of 1986. The survey population consisted of both leavers and completers.

Community college completers selected for this present study are consistent in characteristics with the population and respondent pool. Of the completers selected for this study, the racial composition was 73 percent white, 21.7 percent black, 4.0 percent American Indian, and 1.3 percent Hispanic. Females made up 69.0 percent of the completers. Day classes were attended by 64 percent of the completers. Age of this group was similar to both respondent and survey population.

Secondary school completers. The population for the secondary survey consisted of high school students who had finished program completer courses (Division of Vocational Education, 1987). Analysis of data from the secondary school indicated 71.3 percent of the survey population was white, while 26.6 percent was black. Of those in the survey population 1.6 percent were American Indians, 3 percent were Asian, and .2 percent Hispanic. The respondent pool of the secondary school completers was represented by 73.2 percent whites, 24.7 percent blacks, 1.7 percent American Indians, with .3 percent and .2 percent Asian and Hispanic, respectively. The survey population was 41.2 percent female. The respondent pool was made-up of 40.5 percent females.

The secondary completers selected for the present study were consistent with those in the population and respondent pool. Of the 1083 secondary completers 74.6 percent were white, 20.2 percent black, 4.8 percent American Indian, .1 percent Asian, and .3 percent Hispanic. Approximately 59 percent of the subjects in this study were females. Completers were selected from 31 secondary units located in the counties served by the community colleges in the study (see Appendix A).

Instrumentation

Survey questionnaires were used by the North Carolina Community College system and secondary school system to collect data for follow-up studies in 1985-86. Both survey questionnaires included questions related to personal data as well as opinions regarding certain aspects of the vocational programs. Although the two questionnaires were different in wording, in instances where statistical analysis were necessary, the research matched questions and question options to allow analysis (See Appendix B).

Variables

Variables to be analyzed in this study were grouped into major categories: (a) demographics, (b) motivational, (c) educational, (d) satisfaction, and (e) employment variables (See Appendix C). The questionnaires used in the 1985-86 follow-up studies were analyzed to determine questions related to the variables selected for this study. Data related to the selected variables were analyzed to describe the characteristics of completers from each level.

Demographics. Variables analyzed in this category were race, gender, and residential information. Age distribution was also analyzed for community college completers.

Motivational factors. The motivational variables were analyzed based on questions which asked community college

completers their reasons for entering programs and their expectations of completing program degrees. The motivational characteristics of the secondary completers were analyzed through questions which asked reasons for remaining in school, reasons for entering vocational programs, and influences on the completer to obtain jobs and attend postsecondary school.

Educational activities. Distribution of evening and day students was analyzed for community college completers, as well as educational activities within the community college before enrolling in current programs. The secondary educational activity variable was analyzed by determining their current educational status and the relatedness of the secondary programs to postsecondary programs.

Completer satisfaction. This variable from the community college was analyzed through questions that asked completers their views on support services and how well their programs were fulfilling their employment preparation needs. Secondary completer satisfaction was also analyzed through assessing content needs as perceived by completers. Four major areas were examined: (a) basic skills, (b) employability skills, (c) occupational specific skills and (d) career exploration. Completer satisfaction with training was assessed.

Employment data. This variable was analyzed through examining the current employment status of community college completers and the point at which they secured their jobs. The reasons community college completers were not employed in training-related jobs as well as usefulness of this training in their jobs were also analyzed as employment outcomes. This variable category was analyzed for secondary school completers by examining their employment status and how their jobs related to prior training. The usefulness of training in jobs was also examined.

The following variables were used to analyze the relationships of outcomes, race, and gender, to program levels: (a) reasons for entering (b) employment status, (c) training-related employment, (d) satisfaction with programs, (e) usefulness of training in current jobs, and (f) demographics (See Appendix C).

Reasons for entering. Reasons completers entered programs fell within three categories: career objectives, external influence, and access. The options for questions related to reasons completers entered programs on each questionnaire were collapsed into these three categories. Options from the community college question included in the new options "career objective" were "obtain certification for this occupational field," "improve existing job skills in the field," and "learn or develop new job skills."

Options included in the new option "access" were "required by my employer," "take course(s) of interest to me," "low cost," and "take advantage of financial benefits available from the Veterans Administration, Social Security, JTPA or other sources." Options included in the new "external influence" option were "continue my education after high school," "parents/family urged me to attend college," "obtain credit for transfer to another college" and "be with friends."

Options from the secondary question included in the new option "career objective" were "program was related to my career objective." Options included in the new "access" option was "the program I wanted most already had a maximum number of students enrolled," "the program I wanted the most was not offered," and "I was assigned to the program by the school. Options included in the new "external influence" option included "my parents advised me to be in the program" and "a friend recommended the program."

Employment status. The employment status questions found on the secondary and community college questionnaires were matched according to the answer options. The resulting three major options included: (a) employed (full-time or part-time), (b) unemployed looking for work, and (c) unemployed not looking for work.

Training-related employment. The options for this variable allowed completers to answer "yes" or "no" to the question of employment in training-related fields.

Satisfaction with program. The community college survey offered a three-option answer for the question of completer satisfaction: "yes," "no," and "in part." The secondary questionnaire dealt with a five-option answer based on a Likert scale. The five options (very satisfied, satisfied, neutral, disappointed, and very disappointed) were collapsed to match the community college options answer. The resulting options were "satisfied," "neutral," and "not satisfied." The "yes" and "satisfied," "neutral" and "in part," as well as "no" and "not satisfied" were matched options.

Usefulness of training in current job. The options for the question of usefulness on both questionnaires were determined on a Likert scale and allowed the respondent to rate usefulness as being "very good," "good," "average," "poor," or "very poor." For the purpose of this study, the options "very good" and "good," as well as "poor" and "very poor" were combined on both questionnaires, resulting in three options "good" "average" and "poor."

Demographics. Race and gender were important demographic variables in this study and were analyzed to determine their association with levels of training.

Study Design and Procedures

Data from both systems were examined for utility. The low return rate from the community college posed a representativeness problem. However, the sample in the present study was found to be like the total population and respondents in the follow-up studies in terms of race, gender, and etc. (See page 58).

There were 12 community colleges in the 1985-86 community college follow-up study. Eleven of those 12 were included in this study. Southeastern Community College was eliminated because it reported only data related for leavers. Community college counties were matched with public school units resulting in 20 counties and 32 public school units. Completers from these areas were selected and included in this study. The 12 community colleges were located in all regions of the state.

Further selection of completers included only those who had returned the questionnaires and for the secondary levels only those who had graduated from high school. After selection of completers the sample size for this study resulted in 1461 subjects.

Method of Analysis

The research questions called for descriptive and document analysis of data. Research question 1 is related

to student characteristics and was analyzed using descriptive measures. Frequencies and proportions were computed for the variables used to describe the profile of students in selected programs.

Research question 2, related to the degree of similarities and differences in programs, was examined using document analysis. Document analysis is "the systematic examination of current records or documents as sources of data" (Best, 1977, p. 129) and may be conducted to describe prevailing practices (Best & Kahn, 1986). Cox et al.'s (1986) classification of skills taught in various agencies responsible for vocational education in North Carolina, served as the framework for this analysis. This classification included (a) pre-vocational education, (b) employability skills development, (c) occupational areas preparation, (d) occupationally specific preparation, (e) job specific preparation, and (f) work experience. This list was expanded to include basic skill preparation and general education. The question was also analyzed through examining factors common to secondary and postsecondary programs: overall aim of the system, aim of vocational programs, preparation for licensure or certification, time interval for completing, instructional hours, learning experiences and jobs for which students are being prepared.

Research questions 3, 4, 5, 6, 7, 8, and 9 regarding relationships of variables to program levels of preparation were analyzed using frequencies and proportions. Chi-square was used to assess the relationships between variable and levels of preparation. A phi coefficient was used to determine the strength of the chi-square for 2 x 2 cells, and a contingency coefficient was used for those containing more than 2 x 2 cells.

CHAPTER IV
RESULTS AND ANALYSIS OF DATA

Introduction

The purpose of this study was to analyze, present, and interpret data which have implications for policy makers in the evaluation of vocational education in North Carolina. Completer characteristics, differences and similarities in selected programs, and relationships of outcomes and demographic data to program levels (secondary school and community college) were studied. Student profiles were constructed through data analysis of the following variables: (a) demographics, (b) motivational factors, (c) educational activities, (d) completer satisfaction, and (e) employment data.

The similarities and differences in programs were examined through document analysis using Cox's et al. (1986) category of skills. Also, an examination of the aims of each system and program, the time for completion, certification practices, jobs for which students are prepared, instructional time, learning experiences, and major competencies were examined. Data related to the relationship among selected variables and program levels were examined through statistical procedures.

A total of 1461 completers, 378 community college and 1083 secondary, were selected from the 1985-86 follow-up studies conducted by the North Carolina community college and secondary schools and included in this study. After all completers from the two studies were identified, only those who returned the questionnaires were included in the present study. Since completers from secondary schools might have been in high school at the time of the survey, only those who had graduated were included.

This chapter reports data regarding (a) completer profiles, (b) comparison of selected programs, and (c) relationship of gender, race, and outcomes to levels of preparation. Each section contains a display of data, and a narrative description of findings including a report of the statistical analysis. A summary of findings is also included in this chapter. Chapter five follows with summary, conclusions, and recommendations.

Completer Profile

Question number 1 -- "What are the characteristics of vocational education completers of community colleges and secondary schools in North Carolina?" -- was answered through construction of completer profiles. Completers' characteristics were determined by calculating frequencies and proportions for each classification of variables.

Profiles for both groups are presented as well as a summary of similarities and differences between characteristics of completers from both levels.

Community College Completer Profile

Several variables were examined to determine the characteristics of students who complete selected programs in the North Carolina community college system.

Demographic variables. Race, gender, age, and residential information were analyzed. Table 1 displays data related to race, sex and age of completer. Of the total community college completers in this study, whites represented the largest percentage (73) with blacks showing 21.7 percent. The percentages of black completers in welding and general office were higher than the total percentage (21.7) of black completers in the study. Hispanics represented only a small number of subjects. While only 4 percent of completers out of the entire sample were American Indians, 50 percent of those were found in cosmetology.

Of the total number of completers, 69.1 percent was female. Automotive and welding were both represented by over 90 percent males, while cosmetology, general office, accounting, and secretarial were primarily female typed programs. Of those programs which generally have high

Table 1

Race, Gender, and Age of Community College Completers

Category	Total		Automotive Mechanics		Cosmetology		Welding		General Office		Accounting		Secretarial	
	N	X	N	X	N	X	N	X	N	X	N	X	N	X
Race														
White	276	73.0	37	80.4	79	69.3	29	61.7	9	52.9	76	81.7	46	75.4
Black	82	21.7	8	17.4	24	21.1	17	36.2	8	47.1	13	14.0	12	19.7
Indian	15	4.0	-	-	8	7.0	1	2.1	-	-	3	3.2	3	4.9
Asian	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Hispanic	5	1.3	1	2.2	3	2.6	-	-	-	-	1	1.1	-	-
Total	378	100.0	46	100.0	114	100.0	47	100.0	17	100.0	93	100.0	61	100.0
Gender														
Male	117	30.7	43	93.5	8	7.0	45	95.7	1	5.9	19	20.4	1	1.6
Female	261	69.1	3	6.5	106	93.0	2	4.3	16	94.1	74	79.6	60	98.4
Total	378	100.0	46	100.0	114	100.0	47	100.0	17	100.0	93	100.0	61	100.0
Age														
18-25	165	43.7	29	63.0	49	43.0	19	40.4	9	52.9	26	28.0	33	54.1
26-35	121	32.0	13	28.3	33	28.9	19	40.4	4	23.5	38	40.9	14	23.0
36-45	63	16.7	2	4.4	22	19.3	6	12.8	-	-	22	23.7	11	18.0
46-55	23	6.1	2	4.3	7	6.1	3	6.4	3	17.6	5	5.4	3	4.9
56-65	6	1.5	-	-	3	2.6	-	-	1	5.9	2	2.1	-	-
Total	378	100.0	46	100.0	114	100.0	47	100.0	17	100.0	93	100.0	61	100.0

female populations, accounting had the highest male percentage.

Age range of completers is also displayed in this table. Approximately 44 percent of completers fell between 18-25, with 50 percent of automotive, general office, and secretarial completers falling in this range. Only 28 percent of accounting completers were aged 18-25. The next greatest percentage of completers 26-35, with welding and accounting having approximately 40 percent each in this category. Over 70 percent of all completers were between 18-35 years of age.

In the entire sample, approximately 98 percent of completers resided in North Carolina one year after completion. Residential data are displayed in Table 2. Of the six programs, all completers in automotive, welding, general office, and secretarial remained in North Carolina. The number of completers who remained in the service area (counties) of the community college is also shown in this table. Over 80 percent of completers remained in the county served by the community college which they attended.

Motivational variables. Those factors motivating community college completers were examined through completer reasons for entering and degree intentions before entering. Data displayed in Table 3 indicate the highest percentage of completers in all programs except cosmetology entered to

Table 2
State and County Residence as Reported by
Community College Completers

Residence	Total		Automotive				General Office				Accounting		Secretarial	
	N	X	Mechanics N	X	Cosmetology N	X	Welding N	X	Office N	X	N	X	N	X
North Carolina														
Remained After Completion	372	98.4	46	100.0	112	98.2	47	100.0	17	100.0	89	95.7	61	100.0
Left After Completion	6	1.5	-	-	2	1.8	-	-	-	-	4	4.3	-	-
Total	378	100.0	46	100.0	114	100.0	47	100.0	17	100.0	93	100.0	61	100.0
Service Area														
Caldwell														
CC & TI	14	3.7	2	2.3	7	6.1	-	-	-	-	-	-	5	8.2
Mayland														
Technical	8	2.1	-	-	3	2.6	-	-	1	5.9	3	3.2	1	1.6
Mitchell CC	20	5.3	4	8.7	6	5.3	-	-	2	11.8	5	5.4	3	4.9
Nash TC	19	5.0	-	-	1	1.9	10	21.3	4	23.5	4	4.3	-	-
Pitt CC	17	4.5	2	4.3	9	7.9	1	2.1	2	11.8	4	4.3	-	-
Robeson TC	44	11.6	3	6.5	19	16.7	4	8.5	6	35.3	4	4.3	8	13.1
Rockingham CC	10	2.6	1	2.2	4	3.5	4	8.5	-	-	-	-	1	1.6
Rowan TC	136	36.0	19	41.3	26	22.8	23	48.9	-	-	42	45.2	26	42.6
Southwestern CC	21	5.6	4	8.7	9	7.9	-	-	-	-	2	2.2	5	8.2
Vance-														
Granville CC	38	10.1	6	13.0	10	8.8	1	2.1	2	11.8	13	14.0	6	9.8
Wake TC	1	0.3	-	-	-	-	-	-	-	-	1	1.1	-	-
Moved	50	13.2	5	10.9	20	17.5	4	8.5	-	-	15	16.1	6	9.8
Total	378	100.0	46	100.0	114	100.0	47	100.0	17	100.0	93	100.0	61	100.0

Table 3

Reasons for Entering Programs as Reported by
Community College Completers

Reasons	Total		Automotive Mechanics		Cosmetology		Welding		General Office		Accounting		Secretarial	
	N	%	N	%	N	%	N	%	N	%	N	%	N	%
Required by my employer	3	0.8	-	-	-	-	-	-	1	2.1	2	2.2	-	-
Certification	96	25.9	10	22.2	49	43.0	6	12.8	3	17.6	16	17.2	12	19.7
Improve job skills	35	9.3	7	15.6	-	-	11	23.4	2	11.8	11	11.8	4	6.6
Learn new job skills	142	37.6	16	35.6	39	34.2	22	46.8	6	35.3	37	39.8	22	36.1
Continue education after high school	51	13.5	2	4.4	7	6.1	1	2.1	6	35.3	17	18.3	18	39.5
Parents/Family urged me	3	0.8	-	-	2	1.8	1	2.1	-	-	-	-	-	-
Credit for transfer	3	0.8	-	-	-	-	-	-	-	-	3	3.2	-	-

Table 3 (continued)
Reasons for Entering Programs as Reported
by Community College Completers

Reasons	Total		Automotive				Cosmetology		Welding		General		Accounting		Secretarial	
	N	X	N	X	N	X	N	X	N	X	N	X	N	X	N	X
Take courses of interest	32	8.5	9	20.2	12	10.5	2	4.3	-	-	5	5.4	4	6.6	-	-
Low cost	2	0.6	1	2.2	1	0.9	-	-	-	-	-	-	-	-	-	-
Financial aid	6	1.6	-	-	1	0.9	2	4.3	-	-	2	2.2	1	1.6	-	-
Be with friend	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Others	4	1.1	-	-	3	2.6	1	2.1	-	-	-	-	-	-	-	-
Total	378	100.0	45	100.0	114	100.0	47	100.0	17	100.0	93	100.0	61	100.0	61	100.0

learn new skills. While the second highest number of trades/industry completers entered to prepare for certification, the second highest entered business programs to continue education after high school. For the 25.9 percent completers who entered for certification, program completers ranged from 13 to 22 percent. For cosmetology, the only program in this study requiring state certification, only 43 percent of the completers entered to prepare for certification.

Business programs had the highest percentages of completers who entered with intentions of continuing education after high school. Business completers ranged from 18 to 40 percent of completers who intended to continue education, while trades/industry completers fell in a range of 2 to 6 percent. Automotive programs had the highest percentage of completers taking courses for a general interest, with other programs ranging from 4 to 11 percent. Completers of most programs entered college with the intention to graduate. Data related to intentions are displayed in Table 4. Although 92.8 percent entered with the intent to complete, 25.5 percent of welding completers entered with the intent of not completing, however these completers finished their programs.

Education variables. Variables characterizing completer involvement in the educational process were (a)

Table 4

Degree Intentions as Reported by Community College Completers

Intentions	Total N	%	Automotive		Cosmetology		Welding		General Office		Accounting		Secretarial	
			Mechanics N	%	N	%	N	%	N	%	N	%	N	%
Intended to complete all requirements for degree or diploma	348	92.8	43	95.6	113	99.1	35	74.5	16	94.1	85	92.4	56	93.3
Did not intend to complete requirements for degree	27	7.2	2	4.4	1	0.9	12	25.5	1	5.9	7	7.6	4	6.7
Total	375	100.0	45	100.0	114	100.0	47	100.0	17	100.0	92	100.0	60	100.0

day or evening attendance, and (b) number of community college courses taken prior to the current program. Table 5 displays completers by day or evening attendance. Completers attending day classes for cosmetology, automotive, accounting, and secretarial ranged from 60 percent to 72 percent, with general office having the highest percentage day attendance. Over half of welding completers attended evening programs.

Community college completers' involvement in previous courses is shown in Table 6. Few completers took developmental reading (5.5 percent), English (6.5 percent), math (5.5 percent), study skills (4.5 percent), or adult basic education (3.5 percent). Students in the general office programs were more likely to have taken these basic courses. For instance, 11.8 percent of the students in this area had taken at least one developmental English course. General interest courses were also taken by 24.5 percent of completers before entering the program of record in this study. The highest number of completers in programs took occupational courses before entering their program, except general office and secretarial completers, who took general interest courses.

Completer satisfaction variables. Characteristics which describe completer satisfaction were gleaned from information related to (a) satisfaction in meeting goals and

Table 5

Day and Evening Attendance of Community College Completers

	Total N	X	Automotive Mechanics		Cosmetology		Welding		General Office		Accounting		Secretarial	
			N	X	N	X	N	X	N	X	N	X	N	X
Day	242	64	30	65.2	82	71.9	16	34.0	16	94.1	56	60.2	42	68.9
Evening	136	36	16	34.8	32	28.1	31	66.0	1	5.9	37	39.8	19	31.1
Total	378	100	46	100.0	114	100.0	47	100.0	17	100.0	93	100.0	61	100.0

Table 6

Number of Community College Completers Who Had Taken Previous Courses

	Total		Automotive				General							
	N	%	Mechanics N	Mechanics %	Cosmetology N	Cosmetology %	Welding N	Welding %	Office N	Office %	Accounting N	Accounting %	Secretarial N	Secretarial %
Occupational Courses	68	33.8	10	21.7	13	11.4	10	21.3	3	17.6	25	26.9	7	11.5
General Interest	49	24.3	2	6.5	11	9.6	2	4.3	4	23.5	14	15.1	16	26.9
Developmental Reading	11	5.5	3	6.5	3	2.6	1	2.1	1	5.9	1	1.1	2	3.3
Developmental English	13	6.5	2	4.3	6	5.3	1	2.1	2	11.8	2	2.2	-	-
Developmental Math	11	5.5	3	6.5	3	2.6	1	2.1	1	5.9	2	2.2	1	1.6
Study skills	9	4.5	-	-	3	2.6	1	2.1	2	11.8	1	1.1	2	3.3
Adult Basic Education	7	3.5	1	2.2	5	4.4	-	-	-	-	-	-	1	1.6
GED Preparation	25	12.4	3	6.5	12	10.5	-	-	1	5.9	5	5.4	4	6.6

Table 6 (continued)

Number of Community College Completers Who Had Taken Previous Courses

	Total		Automotive		Cosmetology		Welding		General		Secretarial		
	N	%	N	%	N	%	N	%	N	%	N	%	
Human Resource Development	7	3.5	-	-	6	5.3	-	-	-	1	1.1	-	-
Government Job Training	1	0.4	-	-	1	-	-	-	-	-	-	1	1.6

Note. Completers were asked to choose as many as applied.

satisfaction with institutional services, and (b) completer's view of curriculum needs. Table 7 indicates completer satisfaction in meeting goals. Least satisfied completers were in the automotive program (45.7 percent); most satisfied were cosmetology completers (78.9 percent). Over 60 percent of all completers rated their feelings about meeting their goals as "satisfied."

Completer satisfaction with program quality was also assessed. Overall, welding completers tended to rate their program higher in most of the areas than did completers from the other five programs. Like students in most of the other programs, welders gave lower ratings to the support courses. Of the total number of completers, 58.4 percent rated their programs "excellent" in instructional quality. Of the completers who rated course content, 51.7 percent thought content of programs was adequate. General office and secretarial completers rated course content as adequate.

Scheduling of classes was rated "adequate" by 53.9 percent of the completers. Only 37.6 percent rated variety of courses "excellent." The largest number of completers rated their programs "excellent" in area of textbooks, materials and mix of class and laboratory. Support courses were rated by most completers lower than other elements, with 56.6 percent completers rating them "adequate."

Completer satisfaction was also assessed through

Table 7

Satisfaction with Quality of Programs as Reported by
Community College Completers

Rating	Total		Automotive Mechanics		Cosmetology		Welding		General Office		Accounting		Secretarial	
	N	X	N	X	N	X	N	X	N	X	N	X	N	X
Quality of Instruction														
Excellent	209	58.4	19	45.2	61	55.0	37	81.1	8	50.0	51	57.3	33	56.9
Adequate	132	36.9	21	50.0	44	39.6	5	11.9	8	50.0	35	39.3	19	32.8
Unsatis.	17	4.7	2	4.8	6	5.4	-	-	-	-	3	3.4	6	10.3
Total	358	100.0	42	100.0	111	100.0	42	100.0	16	100.0	89	100.0	58	100.0
Course Content														
Excellent	158	45.7	16	38.1	47	43.5	24	60.0	5	31.3	48	53.3	18	31.0
Adequate	179	51.7	22	52.4	51	54.6	14	35.0	11	68.8	41	45.6	40	69.0
Unsatis.	9	2.6	4	9.5	2	1.9	2	5.0	-	-	1	1.1	-	-
Total	346	100.0	42	100.0	100	100.0	40	100.0	16	100.0	90	100.0	58	100.0
Equipment and Facilities														
Excellent	173	48.7	13	31.0	46	41.8	28	71.8	5	31.3	51	56.7	30	51.7
Adequate	151	44.2	24	57.1	49	44.5	10	25.6	11	68.8	38	42.2	25	43.1
Unsatis.	25	7.0	5	11.9	15	13.6	1	2.6	-	-	1	1.1	3	5.2
Total	355	99.9	42	100.0	110	100.0	39	100.0	16	100.0	90	100.0	58	100.0

Table 7 (continued)
 Satisfaction with Quality of Programs as Reported by
 Community College Completers

Rating	Total		Automotive		Cosmetology		Welding		General		Accounting		Secretarial	
	N	%	N	%	N	%	N	%	N	%	N	%	N	%
Equipment and Facilities														
Excellent	173	48.7	13	31.0	46	41.8	28	71.8	5	31.3	51	56.7	30	51.7
Adequate	151	44.2	24	57.1	49	44.5	10	25.6	11	68.8	38	42.2	25	43.1
Unsatis.	25	7.0	5	11.9	15	13.6	1	2.6	-	-	1	1.1	3	5.2
Total	355	99.9	42	100.0	110	100.0	39	100.0	16	100.0	90	100.0	58	100.0
Scheduling of Classes														
Excellent	143	40.2	15	34.9	51	46.4	20	51.3	5	31.3	29	32.6	23	39.0
Adequate	192	53.9	26	60.5	54	49.1	17	43.6	10	62.5	52	58.4	33	55.6
Unsatis.	21	5.9	2	4.7	5	4.5	2	5.1	1	6.3	8	9.0	3	5.1
Total	356	100.0	43	100.0	110	100.0	39	100.0	16	100.0	89	100.0	59	100.0
Variety of Courses														
Excellent	131	37.6	13	31.7	35	33.3	23	59.5	6	37.5	29	32.6	25	42.4
Adequate	191	54.9	21	51.2	64	56.1	13	35.1	9	56.3	51	57.3	33	55.9
Unsatis.	26	7.5	7	17.1	6	5.3	2	5.4	1	6.3	9	10.1	1	1.7
Total	348	100.0	42	100.0	105	100.0	38	100.0	16	100.0	89	100.0	59	100.0

Table 7 (continued)
 Satisfaction with Quality of Programs as Reported by
 Community College Completers

Rating	Total		Automotive Mechanics		Cosmetology		Welding		General Office		Accounting		Secretarial	
	N	%	N	%	N	%	N	%	N	%	N	%	N	%
Instructor Interest and Availability														
Excellent	190	54.0	18	43.9	63	57.3	31	79.5	5	31.3	46	52.3	27	46.6
Adequate	135	38.4	19	46.3	33	30.0	7	17.9	11	68.8	40	45.5	25	43.1
Unsatis.	27	7.6	4	9.8	14	12.7	1	2.6	-	-	2	2.3	6	10.3
Total	352	100.0	41	100.0	110	100.0	39	100.0	16	100.0	88	100.0	58	100.0
Textbooks Materials														
Excellent	178	50.0	16	39.0	59	54.1	21	53.8	7	43.8	41	46.1	34	57.6
Adequate	161	46.0	23	56.1	45	41.3	18	46.2	9	56.3	42	47.2	24	40.7
Unsatis.	14	4.0	2	4.9	5	4.6	-	-	-	-	6	6.7	1	1.7
Total	353	100.0	41	100.0	109	100.0	39	100.0	16	100.0	89	100.0	59	100.0

Table 7 (continued)

Satisfaction with Quality of Programs as Reported by
Community College Completers

Rating	Total		Automotive Mechanics		Cosmetology		Welding		General Office		Accounting		Secretarial	
	N	X	N	X	N	X	N	X	N	X	N	X	N	X
Mix of On Hands Experience and Class														
Excellent	172	49.0	21	50.0	63	58.3	24	64.9	6	37.5	33	37.1	25	43.1
Adequate	153	43.0	15	35.7	43	39.8	13	35.1	10	62.5	44	49.4	28	48.3
Unsatis.	25	7.0	6	14.3	2	1.9	-	-	-	-	12	13.5	5	8.6
Total	350	99.0	42	100.0	108	100.0	37	100.0	16	100.0	89	100.0	58	100.0
Support Courses														
Excellent	118	36.1	10	24.4	32	33.7	12	38.7	6	37.5	32	36.8	26	45.6
Adequate	185	56.6	28	68.3	52	54.7	14	45.2	9	56.3	52	59.8	30	52.6
Unsatis.	24	7.3	3	7.3	11	11.6	5	16.1	1	6.3	3	3.4	1	1.8
Total	327	100.0	41	100.0	95	100.0	31	100.0	16	100.0	87	100.0	51	100.0
Meeting Completer Goals														
Satisfied	241	64.3	21	45.7	90	78.9	27	57.4	11	64.7	56	61.0	36	59.0
Not Satisfied	43	11.5	5	10.9	8	7.0	8	17.0	-	-	12	13.0	10	16.4
In Part	91	24.2	20	43.5	15	13.2	12	25.5	6	35.3	23	25.0	15	24.6
Total	375	100.0	46	100.0	113	100.0	47	100.0	17	100.0	91	100.0	61	100.0

information supplied by respondents related to their needs for support services. Job placement services received the highest rating as a need by completers in all programs. Financial aid and expanded course offerings represented the second greatest needs among community college completers.

Employment variables. The point at which completers started their jobs, employment status, and reasons not employed in field of training were analyzed to characterize completers' employment activities. Table 8 displays data related to job starting dates. Over 50 percent of completers began their current jobs after finishing courses, with cosmetology and general office completers having the highest percentages in this category. A range from 13 to 32 percent was shown for completers who started jobs before enrolling. A large number of automotive completers (41.2 percent) found jobs while in school.

The employment status of completers is displayed in Table 9. Over 80 percent were employed, with program percentages ranging from 80 to 94. The overall unemployment rate for the completers in this study was 16.4 percent. Secretarial completers reported the highest (15 percent) unemployment. One year after graduation 11.5 percent of completers were "unemployed looking." Unemployment, including those looking and those not looking for employment, among completers in programs ranged from 6.3 to

Table 8

Self Reported Starting Dates for Jobs as Reported by

Community College Completers

Status	Total		Automotive Mechanics		Cosmetology		Welding		General Office		Accounting		Secretarial	
	N	X	N	X	N	X	N	X	N	X	N	X	N	X
Before enrolling	73	24.0	8	23.5	13	13.7	11	30.6	4	25.0	24	32.4	13	26.3
While in School	61	20.1	14	41.2	8	8.4	10	27.8	1	6.3	17	23.0	11	22.4
After Completing Classes	170	55.9	12	35.3	74	77.9	15	41.7	11	68.8	33	44.6	25	51.0
Total	304	100.0	34	100.0	95	100.0	36	100.0	16	100.0	74	100.0	49	100.0

Table 9

Self Reported Employment Status of Community College Completers

Employment Status	Total		Automotive Mechanics		Cosmetology		Welding		General Office		Accounting		Secretarial	
	N	X	N	X	N	X	N	X	N	X	N	X	N	X
Training related employment	173	47.3	15	33.3	64	59.3	12	27.5	12	75.0	38	40.9	32	53.3
Job Not Related to Training	130	35.5	21	46.7	28	25.9	23	52.3	3	18.8	39	41.9	16	26.7
Full Time Military	3	0.8	1	2.2	-	-	2	4.5	-	-	-	-	-	-
Unemployed Looking	42	11.5	6	13.3	14	13.0	5	11.4	1	6.3	7	7.5	9	15.0
Unemployed Not Looking	18	4.9	2	4.3	2	1.9	2	4.5	-	-	9	9.7	3	5.0
Total	366	100.0	45	100.0	108	100.0	44	100.0	16	100.0	93	100.0	60	100.0

20 percent with general office completers reporting the lowest and secretarial completers the highest. Automotive, welding, and accounting had the highest rate of completers employed in jobs not related to training. Completers employed in jobs related to training ranged from 28 to 75 percent, with general office completers reporting the highest and welding the lowest percentage.

Completers' reports of reasons for employment in jobs unrelated to training are presented in Table 10. When completers were asked why they were not employed in their area of training, 26 percent to 38 percent of completers in programs, except cosmetology, reported they could not find jobs in field. Better paying jobs in other fields were reported by 33 percent of both cosmetology and general office completers. Of the completers who were not employed in jobs related to training, 31.9 percent said they were "not sufficiently qualified or prepared for jobs in their area of training." The 31.9 percent who said they were not qualified to work in their field was consistent with the results of the community college follow-up study which indicated 30.3 percent were not qualified.

The final variable analyzed to determine employment characteristics of completers was a rating of how completers view the usefulness of their training in the current job. Table 11 presents data regarding perceptions of usefulness

Table 10

Reasons Not Employed in Training Related Jobs as Reported by Community College Completers

Reasons	Total N	%	Automotive		Cosmetology N	%	Welding N	%	General Office		Accounting N	%	Secretarial N	%
			Mechanics N	%					N	%				
Could Not Find Job in Field	35	25.4	8	38.1	3	9.1	7	28.0	1	33.3	10	25.6	6	35.3
Found Better Paying Job in Another Field	29	21.0	3	14.3	11	33.3	7	28.0	1	33.3	4	10.3	3	17.6
Preferred Working in Another Field	17	12.3	2	9.5	9	27.3	3	12.0	-	-	2	5.1	1	5.9
Not Sufficiently Qualified or Prepared	44	31.9	4	19.0	10	30.3	3	12.0	-	-	21	53.8	6	35.3
Took Courses for General Interest	13	9.4	4	19.0	-	-	5	20.0	1	33.3	2	5.1	1	5.9
Total	138	100.0	21	100.0	33	100.0	25	100.0	3	100.0	39	100.0	17	100.0

Table 11

Ratings of Usefulness of Training in Current Job
as Reported by Community College Completers

Rating	Total		Automotive				General Office				Accounting		Secretarial	
	N	X	N	X	N	X	N	X	N	X	N	X	N	X
Very Good	81	45.5	9	56.3	36	56.3	9	56.3	6	46.2	16	40.0	5	17.2
Good	71	39.8	4	25.0	17	14.9	5	31.3	6	46.2	20	50.0	19	65.5
Average	23	13.0	2	12.5	11	9.6	2	12.5	1	7.7	3	7.5	4	18.8
Poor	3	1.7	1	6.3	-	-	-	-	-	-	1	2.5	1	3.4
Very Poor	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Total	178	100.0	16	100.0	64	100.0	16	100.0	13	100.0	40	100.0	29	100.0

of training. Of those responding over 85 percent rated their programs "very good" or "good" with respect to how useful the training was in their current jobs.

Secondary Schools Completers

Several variables were examined to determine the characteristics of students who completed selected programs in the secondary school system.

Demographic variables. Race and gender, employment in North Carolina, and distance of job to school were demographic variables analyzed. Table 12 displays data related to race and gender of secondary completers. Within secondary schools 74.6 percent of completers were white, while 20.2 percent were black. Black completers (26.9 percent) were predominant in welding, and least represented (11.8 percent) in cosmetology. Almost 5 percent of the sample was American Indian, most of whom (23 percent) were in welding. Hispanic and Asian representation was small.

Gender was also analyzed. An examination of the data indicate that programs are gender typed. Business and cosmetology program completers ranged from 75 to 100 percent female, while automotive and welding completers were 98 percent male. Females represented 60 percent of all secondary completers.

As shown in Table 13, whether secondary completers remained in North Carolina after completion was also

Table 12

Race and Gender of Secondary School Completers

Demographic Category	Total		Automotive		Cosmetology		Welding		General Office		Accounting		Secretarial	
	N	X	N	X	N	X	N	X	N	X	N	X	N	X
Race														
White	808	74.6	253	76.2	14	82.4	26	50.0	365	72.3	126	85.1	24	82.8
Black	219	20.2	64	19.3	2	11.8	14	26.9	114	22.6	20	13.5	5	17.2
American Indian	52	4.8	13	3.9	1	5.9	12	23.1	24	4.8	2	1.4	-	-
Hispanic	3	0.3	1	0.3	-	-	-	-	2	0.4	-	-	-	-
Asian	1	0.1	1	0.3	-	-	-	-	-	-	-	-	-	-
Total	1083	100.0	332	100.0	17	100.0	52	100.0	505	100.0	148	100.0	29	100.0
Gender														
Female	644	59.5	4	1.2	17	100.0	1	1.9	486	96.2	111	75.0	25	86.2
Male	438	40.5	327	98.8	-	-	51	98.1	19	3.8	37	25.0	4	13.8
Total	1082	100.0	331	100.0	17	100.0	52	100.0	505	100.0	148	100.0	29	100.0

Table 13

Work Location of Secondary School Completers

Location	Total		Automotive Mechanics		Cosmetology		Welding		General Office		Accounting		Secretarial	
	N	X	N	X	N	X	N	X	N	X	N	X	N	X
NC Employment														
Employed	490	96.0	153	93.3	9	90.0	21	80.8	255	99.2	40	95.2	12	100.0
Not Employed	21	4.0	11	6.7	1	10.0	5	19.2	2	0.8	2	4.8	-	-
Total	511	100.0	164	100.0	10	100.0	26	100.0	257	100.0	42	100.0	12	100.0
Distance from High School														
0-20	431	82.7	127	75.1	5	71.4	19	70.4	230	88.5	39	90.7	11	91.7
21-40	55	10.6	27	16.0	2	28.5	2	7.4	22	8.5	1	2.3	1	8.3
41-100	12	2.3	5	3.0	-	-	3	11.1	2	0.7	2	4.7	-	-
More than 100	29	4.4	10	5.9	-	-	3	11.1	6	2.3	4	2.3	-	-
Total	521	100.0	169	100.0	7	100.0	27	100.0	260	100.0	46	100.0	12	100.0

assessed. One year after graduation, 96 percent of completers were working in North Carolina. Of welding completers, 19.2 percent were working in other states; however, the total of all subjects working in other states was only 4 percent. In order to determine if completers remained within the community where the school was located, completers indicated an estimate of the distance jobs were from the high school. Of the completers working in North Carolina, 82.7 percent work within a 20 mile radius of the high school. More than 20 percent of welding completers worked in areas that were more than 41 miles from the high schools.

Motivational variables. The second class of variables analyzed for completers included (a) reasons for entering programs, (b) vocational education influence on completers remaining in programs, and (c) influence on jobs and postsecondary school decisions. Table 14 presents students' reported reasons for entering programs. Over 80 percent said programs were related to their career objectives. Another 12 percent indicated friends played a part in their decision to enter programs. Completers who were influenced by friends ranged from 9 percent in accounting to 37.3 percent in welding. Parents had little influence on secondary completer decisions as did the school's decision to place students in programs. Few completers indicated

Table 14

Reasons for Entering Programs as Reported by Secondary School Completers

Reasons	Total		Automotive		Cosmetology		Welding		General		Secretarial			
	N	X	N	X	N	X	N	X	N	X	N	X		
Related to Career														
Objective	842	81.4	256	80.5	13	76.5	28	54.9	406	84.2	121	87.1	18	64.3
Program Wanted Filled	3	0.3	2	0.6	-	-	-	-	1	0.2	-	-	-	-
Program Wanted Not Offered	19	1.8	4	1.3	-	-	2	3.9	8	1.7	2	1.4	3	10.7
Parents Advised	29	2.8	5	1.6	1	5.9	1	2.0	17	3.5	3	2.2	2	7.1
Friend Recommended	123	11.9	42	13.2	3	17.6	19	37.3	43	8.9	12	8.6	4	14.3
Assigned by School	19	1.8	9	2.8	-	-	1	2.0	7	1.5	1	0.7	1	3.6
Total	1035	100.0	318	100.0	17	100.0	51	100.0	482	100.0	139	100.0	28	100.0

"programs filled," "programs not offered" or "programs assigned by school," as reasons for entering.

Vocational education's influence on completers staying in school was also assessed. As shown in Table 15, a little under 50 percent of completers said that vocational education was the reason they stayed in school. Over half of automotive, welding, and cosmetology completers remained in school because of vocational education, whereas the business programs completers indicated vocational education to be a retention factor for less than 50 percent.

Shown in Table 16 are data related to the influencing factors on secondary completers' job and postsecondary decisions. Friends and relatives had the largest impact on job decisions; vocational education teachers had the greatest influence on postsecondary decisions. High school job placement services, counselors, and other teachers exhibited very little influence on completer job decisions.

Educational variables. Factors characterizing completer involvement in educational activities were determined through current educational status, and the relatedness of high school programs to postsecondary education. Table 17 displays data related to educational status at the time of the follow-up study. About one-half of secondary completers continued to postsecondary education. Of those continuing, most entered public

Table 15

Reasons for Remaining in School as Reported
by Secondary School Completers

Reasons	Total		Automotive		Cosmetology		Welding		General		Accounting		Secretarial	
	N	%	N	%	N	%	N	%	N	%	N	%	N	%
Vocational Education Main Reason	487	48.6	175	57.8	34	66.7	10	76.9	13	46.4	42	30.0	213	45.5
Vocational Education not Main Reason	516	51.4	128	42.2	17	33.3	3	23.1	15	55.6	98	70.0	255	54.5
Total	1003	100.0	303	100.0	51	100.0	13	100.0	28	100.0	140	100.0	468	100.0

Table 16
Sources of Influence in Job and Education
Decisions of Secondary Completers

Programs	Total		Friends or Relatives		Vocational Education Teacher		Counselor		Job Placement		Other Teacher	
	N	%	N	%	N	%	N	%	N	%	N	%
Influence on Job Decisions:												
Automotive	225	100.0	154	68.4	56	24.9	7	3.1	6	2.7	2	0.9
Cosmetology	14	100.0	7	50.0	7	50.0	-	-	-	-	-	-
Welding	29	100.0	15	51.7	11	37.9	2	6.9	-	-	1	3.4
General Office	292	100.0	154	52.7	113	38.7	15	5.1	6	2.1	4	1.4
Accounting	53	100.0	31	58.5	13	24.5	5	9.4	3	5.1	1	1.9
Secretarial	14	100.0	6	42.9	5	35.7	1	7.1	-	-	2	14.3
Total N	627		367		205		30		15		10	
Total %	100.0		58.3		32.7		4.8		2.4		1.6	
Influence on Postsecondary Decisions:												
Automotive	108	100.0	33	30.6	54	50.0	16	14.8	1	0.9	4	3.7
Cosmetology	3	100.0	3	100.0	-	-	-	-	-	-	-	-
Welding	16	100.0	7	43.8	8	50.0	-	-	-	-	1	6.2
General Office	260	100.0	80	30.8	134	51.5	38	14.6	1	0.4	7	2.7
Accounting	102	100.0	48	47.1	30	29.4	22	21.6	-	-	2	2.0
Secretarial	16	100.0	4	25.0	8	50.0	4	25.0	-	-	-	-
Total N	505		175		234		80		2		14	
Total %	100.0		34.7		46.3		15.8		0.4		2.8	

Table 17

Secondary School Completers by Current Educational Status

Educational Status	Total		Automotive Mechanics		Cosmetology		Welding		General Office		Accounting		Secretarial	
	N	%	N	%	N	%	N	%	N	%	N	%	N	%
Not in School	563	52.0	238	71.7	16	94.1	37	71.2	230	45.5	29	19.6	13	44.8
Public Two-year College	272	25.1	59	17.8	-	-	11	21.2	162	32.1	31	20.9	9	31.2
Private Trade or Business or Nursing	62	5.7	17	5.1	1	5.9	1	1.9	36	7.1	7	4.7	-	-
Private Junior College	21	1.9	4	1.2	-	-	-	-	11	2.2	5	3.4	1	3.4
University or 4-Year	165	15.2	14	4.2	-	-	3	5.8	66	13.1	76	51.4	6	20.7
Total	1083	100.0	332	100.0	17	100.0	52	100.0	505	100.0	148	100.0	29	100.0

community colleges, technical institutes, or technical colleges. A small percentage entered private trade or business schools.

Over 50 percent of business completers attended postsecondary school; 54.5 percent of general office, 80.4 percent of accounting, and 55.1 percent of secretarial completers went on to postsecondary school. Over one-half of the accounting completers who attended postsecondary school entered four-year colleges or university. Less than 30 percent of the trades/industry completers attended postsecondary. The relatedness of postsecondary courses to secondary programs was also analyzed. Of those who attended postsecondary school, over half in each program attend programs related to high school training.

Completer satisfaction variables. Completer satisfaction with training and completers' perception of program deficiencies were analyzed. Completers were asked to rate their satisfaction with training on a Likert Scale. As shown in Table 18, 95 percent were satisfied with their training. Table 19 displays data related to completers' perceptions of content needs one year after graduation. Of the total number completers who indicated areas of needs, 45.2 percent indicated basic skills as an area in which they needed more preparation in high school.

Table 18

Satisfaction with Training as Reported by Secondary School Completers

Rating	Total		Automotive		Cosmetology		Welding		General Office		Accounting		Secretarial	
	N	X	N	X	N	X	N	X	N	X	N	X	N	X
Very Satisfied	526	51.1	152	48.4	8	47.1	27	51.9	256	53.6	70	49.6	13	46.4
Satisfied	447	43.4	143	45.5	9	52.9	23	45.1	202	42.3	60	42.6	10	35.4
Neutral	44	4.3	16	5.1	-	-	1	2.0	17	3.6	10	7.1	-	-
Disappointed	9	0.9	2	0.6	-	-	-	-	2	0.4	-	-	5	17.2
Very Disappointed	3	0.3	1	0.3	-	-	-	-	1	0.2	1	0.7	-	-
Total	1029	100.0	314	100.0	17	100.0	51	100.0	478	100.0	141	100.0	28	100.0

Table 19

Secondary School Completers' Perceptions of Content Deficiencies

Deficiencies	Total		Automotive		Cosmetology		Welding		General Office		Accounting		Secretarial	
	N	%	N	%	N	%	N	%	N	%	N	%	N	%
Basic Skills (N=796):														
Math	269	15.3	103	31.0	1	5.9	24	46.2	103	20.4	33	22.3	5	17.2
Reading & Vocabulary	240	13.6	72	21.7	-	-	13	25.0	91	18.0	31	20.9	3	10.3
Spelling	113	6.4	37	11.1	-	-	7	13.5	58	11.5	10	6.8	1	3.4
Problem Solving	174	9.9	46	13.9	-	-	3	5.8	76	15.0	26	17.2	6	20.7
Employability Skills (N=451):														
Getting Along with Others	94	5.3	12	3.6	2	11.8	4	7.7	42	8.3	4	2.7	-	-
How to Look for Jobs	109	6.2	27	8.1	2	11.8	5	9.6	50	9.9	20	13.5	5	17.2
How to Interview	90	5.1	23	6.9	1	5.9	5	9.6	40	7.9	19	12.8	2	6.9
Leadership	158	9.0	33	9.9	3	17.6	6	11.5	81	16.0	27	18.2	8	27.6

Table 19 (continued)

Secondary School Completers' Perceptions of Content Deficiencies

Deficiencies	Total		Automotive		Cosmetology		Welding		General Office		Accounting		Secretarial	
	N	X	N	X	N	X	N	X	N	X	N	X	N	X
Exploration (N=282):														
Knowledge of A Wide Range of Jobs	174	9.9	43	13.0	2	11.8	2	3.8	95	18.8	27	18.2	5	17.2
Knowledge of Job Requirements	108	6.1	34	10.2	3	17.6	-	-	44	8.7	23	15.5	4	13.8
Occupational Specific Skills (N=230):														
Work with Equipment	133	6.4	73	22.0	-	-	13	25.0	33	6.5	13	8.8	1	3.4
Specific Skills	97	5.5	31	9.3	2	11.8	7	13.5	38	7.5	16	10.8	3	10.3

Note. Completers were asked to respond to all appropriate categories.

The next highest group of completers, 25.6 percent, expressed a need for more employability preparation in high school. "Leadership" was the employability skill selected by most completers as needed in the high school curriculum. Completers who wanted more exploration content, "a wide range of jobs" and "job requirements," represented 16 percent of the total. Only 11.9 percent of completers reported a need for more specific occupational skills in high school.

Employment variables. Employment characteristics were determined by analyzing employment variables: (a) completer employment status, (b) the degree of relatedness of preparation to employment, and (c) usefulness of preparation in current job. Data in Table 20 displays employment status of completers from all programs. The data indicate that at least 50 percent of completers in all programs were employed either full-time or part-time, except accounting and secretarial completers with 39.5 percent and 48.3 percent, respectively. Cosmetology completers reported the highest percentage of employment. Of the 21.5 percent of completers who were in the category of "not employed and not seeking jobs," accounting, secretarial, and general office completers ranged from 24 to 38 percent. Those program completers seeking employment one year after graduation ranged from 10 to 14 percent.

Table 20

Secondary School Completers by Employment Status

Status	Total		Automotive		Cosmetology		Welding		General Office		Accounting		Secretarial	
	N	%	N	%	N	%	N	%	N	%	N	%	N	%
Employed Full-Time	416	41.1	178	57.6	13	81.3	20	45.5	175	36.2	20	15.5	10	34.5
Employed Part-Time	211	20.9	46	14.9	2	17.5	7	15.9	121	25.0	31	24.0	4	13.8
Enlisted in Military	40	4.0	24	7.8	1	6.3	6	13.6	5	1.0	3	2.3	1	3.4
Not Employed-Seeking Part-Time	51	5.0	11	3.6	-	-	1	2.3	29	6.0	9	7.0	1	3.4
Not Employed-Seeking Full-Time	62	6.1	21	6.8	-	-	5	9.6	25	5.2	9	7.0	2	6.9
Full-time Homemaker	14	1.4	1	0.3	-	-	-	-	12	2.5	1	0.8	-	-
Not Employed, Not Seeking	217	21.5	28	9.1	-	-	5	11.4	117	24.2	56	37.8	11	37.9
Total	1011	100.0	309	100.0	16	100.0	44	100.0	484	100.0	129	100.0	29	100.0

Relatedness of current job to their vocational training was examined. Table 21 displays data indicating relatedness of vocational preparation to current job. Overall, about one-half of completers work in jobs related to secondary training. Accounting and secretarial have the highest percentage of completers who work in jobs not related to training, 60.3 percent and 63.2 percent respectively. Automotive and general office were the only programs with over 60 percent completers employed in related areas. Table 22 shows the perceptions of the usefulness of this preparation in the current job. Completers in all programs rated their programs highly in preparing for jobs: 78 percent rated their program "very good" or "good."

Comparison of Completer Characteristics. Table 23 displays the similarities and differences in community college and secondary completers' characteristics. Race was 100 percent similar in matched programs. The category white had the highest percentage of completers with both levels of general office and welding programs having the highest percentage of black completers. Programs on both levels are gender typed with females representing the highest number of completers. Age is different, with the largest percentage of community college completers between 18-25. Both completers groups remained in North Carolina and within the service areas of their schools.

Table 21

Training Related Employment as Reported by Secondary School Completers

Rating	Total		Automotive		Cosmetology		Welding		General Office		Accounting		Secretarial	
	N	%	N	%	N	%	N	%	N	%	N	%	N	%
Working in Area Related to Preparation	388	55.7	144	58.8	7	46.7	18	46.2	187	59.2	25	39.7	7	36.8
Working in Area Not Related to Preparation	309	44.3	101	41.2	8	53.3	21	53.8	129	40.8	38	60.3	12	63.2
Total	697	100.0	245	100.0	15	100.0	39	100.0	316	100.0	63	100.0	19	100.0

Table 22

Usefulness of Preparation in Jobs as Reported
by Secondary School Completers

Rating	Total N	%	Automotive		Cosmetology		Welding		General Office		Accounting		Secretarial	
			N	%	N	%	N	%	N	%	N	%	N	%
Very Good	307	44.9	101	40.7	8	57.1	15	44.1	159	50.0	19	32.8	5	41.7
Good	227	33.2	93	37.5	5	35.7	11	32.4	97	30.5	19	32.8	2	16.7
Average	123	18.0	44	17.7	1	7.1	6	17.0	52	16.4	16	27.6	4	33.3
Poor	19	2.7	7	2.8	-	-	2	5.9	7	2.2	2	3.4	1	8.3
Very Poor	8	1.2	3	1.2	-	-	-	-	3	0.9	2	3.4	-	-
Total	684	100.0	248	100.0	13	100.0	40	100.0	318	100.0	58	100.0	12	100.0

Table 23

Similarities and Differences in Characteristics of
Community College and Secondary Completers

Characteristics	Automotive		Cosmetology		Welding		General		Secretarial	
	Mechanics	Office	Office	Office	Accounting	Accounting	Secretarial	Secretarial	S	D
									N	N
Demographics:										
Race	S	S	S	S	S	S	S	S	6	-
Gender	S	S	S	S	S	S	S	S	6	-
Age	D	D	D	D	D	D	D	D	-	6
Work in N.C. Within school district	S	S	S	S	S	S	S	S	6	-
Motivational										
Factors:										
Reasons for entering	S	S	S	S	S	S	S	S	6	-
Influencing factors	D	D	D	D	D	D	D	D	-	6
Retention factors	S	S	S	S	S	S	S	S	3	3

Note. D - differences, S - similarities

Table 23 (continued)
 Similarities and Differences in Characteristics of
 Community College and Secondary Completers

Characteristics	Automotive					General					S	D	
	Mechanics	Cosmetology	Welding	Office	Accounting	Secretarial	N	N					
Educational Activities:													
Involved in other vocational courses	S	S	S	S	S	S	S	S	S	S	S	6	-
Day students	S	S	S	S	S	S	S	S	S	S	S	6	-
Completer Satisfaction:													
Satisfied in meeting goals	S	S	S	S	S	S	S	S	S	S	S	6	-
Satisfaction with program content	S	S	S	S	S	S	S	S	S	S	S	6	-
Employment:													
Work status	S	S	S	S	S	S	S	S	S	S	S	4	2
Employed in related areas	D	D	S	S	S	S	S	S	S	S	S	3	3

Note. D - differences, S - similarities

The highest percentage of completers from both groups entered programs for career-oriented reasons. Access issues have little influence on completers' decisions to enter programs. Parents exerted little influence on completers' decisions; however, friends and vocational teachers were influential in job and postsecondary decisions of secondary completers. Community college completers were influenced by the need to upgrade skills. The three trades/industry program completers were similar between levels in their intent to complete vocational programs, with over 50 percent remaining in school to complete vocational programs. Completers from the business programs were different between levels in their intent to complete program, with over 50 percent of secondary completers reporting that the vocational programs had no influence on decisions to stay in school, while over 90 percent community college business completers reported they intended to complete a degree. A high percentage of completers in all programs had taken other occupational courses before completing their current courses. Completer satisfaction with goals and program content is similar between levels. Both levels of completers reported satisfaction in training. Job placement services were seen as a deficient area at both levels.

Of the completers who were employed, those from automotive, cosmetology, welding and general office had

similar employment rates between levels. Accounting, and secretarial had different employment rates between levels. Automotive program completers between levels had different employment rates in training related jobs; secondary automotive had over 50 percent employment in related jobs, whereas community college had under 50 percent. Cosmetology and secretarial at the community college had over 50 percent related employment and both had under 50 percent at secondary level. Both levels of welding and accounting programs had under 50 percent related employment, whereas both levels of general office program completers reported over 50 percent employment in related areas.

Program Similarities and Differences

Research question 2, "What are the similarities and differences in selected vocational programs offered by North Carolina community colleges and secondary schools?" was answered through a document analysis of state curriculum guides and policy manuals. The document analysis was based on skills identified in Cox et al.'s (1986) category of skills taught in systems delivering vocational education in North Carolina. The time involved in completing programs, certification or licensure, jobs which students are being prepared, overall aim of the system, and general aims of each program were analyzed for selected vocational programs.

Documents used to analyze curriculum content, program purposes and aims, and instructional time were Vocational Education Programs of Studies, The Curriculum Standards for Vocational-Technical Curriculum Teachers, Handbook Business and Office Education, The Teacher Handbook Trade and Industrial Handbook, Automotive Mechanics Competencies, Accounting Curriculum Manual, Secretarial Curriculum Manual, Welding Competency Based Curriculum Guide, Cosmetology Curriculum Manual, North Carolina's Student Course of Study and Instruction to the Competency-based Curriculum, Competency Goals and Performance Indicators.

The federal classification of instructional program codes was used to construct a crosswalk between the jobs for which each system was preparing its completers. A Classification of Instructional Programs (CIP), and Vocational Preparation and Occupations, and Standard Occupational Classification Manual were used to develop this crosswalk.

Automotive mechanics programs. Table 24 displays the comparison of secondary and community college automotive mechanics programs. Automotive mechanics in secondary schools is offered in three courses. Automotive I, the first course, is designed as an introductory course familiarizing students with several automotive mechanics jobs through occupational area preparation skills.

Table 24

Comparison of Community College and Secondary School Automotive Programs

Variable	Community College	Secondary Schools
Program Name	Automotive Mechanic	Automotive Mechanic
Degree	Diploma	High school diploma
Completion Time	1 Year	2 or 3 Years
Instructional Hours	1045	900 (3 years)
Program Aims	Job Preparation	Job Preparation
System Aims	Employment	Employment Postsecondary education Consumer skills
Learning Experiences	Laboratory experience Work experience Work Experience Major courses - occupationally specific Related courses - employability skills	Automotive I, introductory course Automotive II & III, skills development course Vocational clubs Laboratory experience On-the-Job training Cooperative training

Table 24 (continued)

Comparison of Community College and Secondary School Automotive Programs

Variable	Community College	Secondary Schools
Major Competencies	Ignition system Electrical system Fuel system Servicing Brake and cooling system Power train Diagnosing problem	Work habits & leadership Shop practices Automotive maintenance Engine and cooling system Air conditioning system Fuel systems Electrical systems Ignition systems Exhaust & emission control Brake system Steering & suspension Clutch & transmission Differential & rear axle
Jobs	General mechanic Brake specialist Tune-up mechanic Front-end specialist Automatic transmission specialist	General mechanic Brake repair Tune-up mechanic Front-end mechanic Transmission mechanic Brake adjuster

Note. For definition of instructional hours, major courses, and related courses refer to page 10

Automotive II and III are skills development courses and are designed to train the student in the occupational specific areas. After completing either course, the student is considered employable. The community college program courses, however, are occupationally specific in nature with employability skills taught in those courses used to build foundations for major courses. Secondary completers must invest two or three years in preparation for automotive entry level jobs, whereas community college students invest only one year. Instructional hours, as indicated for the community college and three years of secondary schooling are similar. The aim of both programs was to prepare the student for employment and completers from both programs were prepared for the same type positions. The overall aims were different: community college prepares for employment; the secondary system prepares students for employment, postsecondary education, and to develop consumer skills.

Cosmetology programs. Table 25 displays data comparing cosmetology programs. The completers from these programs are prepared to take the North Carolina State Board licensure examination. The crosswalk of jobs for these two programs showed that students are being prepared for the same jobs. Like automotive mechanics the major difference between the two programs was the time required of completers

Table 25

Comparison of Community College and Secondary School Cosmetology Programs

Variable	Community College	Secondary Schools
Program Name	Cosmetology	Cosmetology
Degree	Associate degree	High school diploma
Completion Time	1 Year	2 or 3 Years
Instructional Hours	1331	1100 (3 years)
Preparation for Certification or Licensure	State Board Exam	State Board Exam
Program Aims	Employment	Employment
System Aims	Employment	Employment Postsecondary education Consumer skills
Learning Experiences	Introduction to Cosmetology Manicure practices Cosmetology Theory I, II, III Cosmetology Skills I, II, III Clinical practice	Cosmetology I introductory course Cosmetology II & III skills development course Vocational clubs Laboratory experiences Clinical experiences

Table 25 (continued)

Comparison of Community College and Secondary School Cosmetology Programs

Variable	Community College	Secondary Schools
Major Competencies	Manicuring Shampooing Permanent weaving Facials Massages Scalp treatments Hair cutting and styling Wig services State Laws	Work habits Terminology, organization and technical knowledge State laws and regulations Scalp and hair care Hair styling Facial shapes and profile Hair cutting and shaping Wiggery Waving, coloring Manicuring pedicuring Salon planning and management Leadership
Jobs	Cosmetologist Hair Stylist Scalp treatment Sales representative Beauty operator Equipment and supplies Wig dresser Supply clerk Owner or Manager	Cosmetologist Cosmetologist apprentice Wig dresser Supply clerk Scalp treatment operator Hair dresser Make-up artist Manager or salesperson Electrologist

Note. For definition of instructional hours, major courses, and related courses refer to page 10

to finish. Instructional time is the same for one year at the community college and three years at secondary.

Welding programs. The document analysis of the welding programs yield several similar elements. These data are displayed on Table 26. The major competencies taught in these programs were the same, although the community college includes certification processes as one of its major competencies. The crosswalk shows both are preparing for same jobs. Instructional time for three years of secondary is comparable to one year at the community college.

General office programs. Table 27 displays the comparison data for general office programs. A crosswalk was conducted between the jobs which community college students were prepared for Occupational Crosswalks to determine likeness. Jobs were not listed for the general office programs, however, when jobs which the community college completers were preparing for were crosswalked with CIP programs, jobs were identified under programs other than general office. At the secondary level the general occupations program pulls together several major competencies from other programs. The major competencies for program levels are the same.

Accounting programs. Data related to the document analysis for accounting, displayed in Table 28, shows both levels are preparing for the same jobs. The secondary

Table 26

Comparison of Community College and Secondary School Welding Programs

Variable	Community College	Secondary Schools
Program Name	Welding	Welding
Degree	Diploma	Diploma
Completion Time	1 Year	2 or 3 Years
Instructional Hours	924	900 (3 years)
Preparation for Certification or Licensure	Certificate	-
Program Aims	Employment	Employment
System Aims	Employment	Employment Postsecondary education Consumer skills
Learning Experiences	Laboratory Hands on experience	Laboratory Hands on experience

Table 26 (continued)

Comparison of Community College and Secondary School Welding Programs

Variable	Community College	Secondary Schools
Major Competencies	Oxy-fuel & ARC Blueprint reading Shielded metal ARC Inert gas welding	Safety Oxyacetylene processes Metal ARC welding Weld testing Gas tungsten ARC Shop mathematics Codes & specifications
Jobs Preparation	ARC welder ARC welding-machine operator Gas welding-machine operator Gas welder Welder-assembler Combination welder Welder-assembler	ARC welder Gas welder ARC Welding machine operator Gas welding machine operator Welder - assembler

Note. For definition of instructional hours, major courses, and related courses refer to page 10

Table 27

Comparison of Community College and Secondary School General Office Programs

Variable	Community College	Secondary Schools
Program Name	General Office	Office Occupations
Degree	Associate degree	High school diploma
Completion Time	2 Years	3 Years
Instructional Hours	1200	840 (3 years)
Program Aims	Employment	Employment Postsecondary education Consumer skills
System Aims	Employment	Employment Postsecondary education Consumer skills Computer literacy
Learning Experiences	Laboratory Cooperative On-Job-Training	Laboratory Cooperative on-job-training

Table 27 (continued)

Comparison of Community College and Secondary School General Office Programs

Variable	Community College	Secondary Schools
Major Competencies	<p>Typewriting & keyboarding Filing Accounting procedures Business machines Development of personal competencies Keyboarding Management function</p>	<p>Office orientation Oral communication - information processing Records management Reprographics Skills for office employment Business systems & machines Personal taxes Meetings and conferences Keyboarding Inventory, purchasing, & receivables accounts Personal competencies</p>
Jobs	<p>File, typist, posting clerk Data & billing typist Accounting clerk Correspondence clerk Business machines operator Typist Payroll & general office clerk Appointment & personnel clerk Receptionist Transcribing machines Duplicating machine operator III Automatic typewriter operator Administrative clerk</p>	<p>None listed in documents</p>

Note. For definition of instructional hours, major courses, and related courses refer to page 10

Table 28

Comparison of Community College and Secondary School Accounting Programs

Variable	Community College	Secondary Schools
Program Name	Accounting	Accounting
Degree	Associate degree	High School diploma
Completion Time	2 Years	3 Years
Instructional Hours	924	740
Program Aims	Employment	Employment Postsecondary education Consumer skills Computer literacy
System Aims	Employment	Employment Postsecondary education Consumer skills
Learning Experiences	Lab	Lab

Table 28 (continued)

Comparison of Community College and Secondary School Accounting Programs

Variable	Community College	Secondary Schools
Major Competencies	Accounting Systems Payroll and Income Tax Systems Cost Accounting	Simple accounting cycle Accounting cycle with combination journal and subsidiary Ledgers Payroll systems and personal income tax Introduction to data processing Accounting transactions Accounting for different types of ownership Corporation Accounting Automated system Cost accounting and management of accounting data
Jobs	Accountant Estimator Bookkeeping Machine Operator I Accounting Clerk I	Accountant Budget accountant Cost accountant Accountant, property Accountant, system Accountant, clerk Estimator

Note. For definition of instructional hours, major courses, and related courses refer to page 10

school is preparing students for some positions which community college considers to be advanced level rather than entry level, such as budget accountant, cost accountant, and property accountant. Instructional times are similar.

Secretarial programs. Secretarial program comparisons are displayed in Table 29. Programs at the community college level takes two years for completion whereas secondary takes three years. Instructional time between the two levels are different. Secretarial programs at the secondary level prepares students for both secretarial and word processing occupations, whereas, word processing is only a component of secretarial at the community college level. The job crosswalk was conducted using both secretarial and word processing Class: Fication of Instructors Programs (CIP) codes. Job preparation for secretarial positions at the secondary level were an aggregate of competencies from instructional programs listed under several codes.

Program skills. All programs at both levels offer employability and occupational specific preparation skills. Table 30 displays data related to skills. Trades/industry programs in secondary schools offer an introduction to several jobs through occupational area preparation. General education is offered in community college programs and basic skills in secondary. Cooperative training is

Table 29

Comparison of Community College and Secondary School Secretarial Programs

Variable	Community College	Secondary Schools
Program Name	Secretarial	Secretarial/Word processing occupations
Degree	Associate degree	High school diploma
Completion Time	2 Years	3 Years
Instructional Hours	1331	900
Program Aims	Employment	Employment Further study Computer Literacy Consumer skills
System Aims	Employment	Employment Postsecondary education Consumer skills
Learning Experiences	Laboratory Cooperative training	Cooperative training On-the-job training

Table 29 (continued)
 Comparison of Community College and Secondary School Secretarial Programs

Variable	Community College	Secondary Schools
Major Competencies	Typewriting Shorthand Transcription Business machines	Development of communication Correspondence skills Diction-recording skills Correspondence production and distribution, Interpersonal and employment skills
Jobs	Secretary Stenographer Data typist Typist Office clerk Word processing - correspondence specialist Word processing typist Word processing administrator Receptionist Administrative secretary Transcribing operator supervisor Word processing supervisor	Terminal systems operator Magnet-tape operator Composer-operator Terminal make-up operator Supervisor-transcribing operators *No documentation of secretarial positions in secretarial CIP codes

Note. For definition of instructional hours, major courses, and related courses refer to page 10

Table 30

Comparison of Content Skills in the

Six Community Colleges and Secondary Schools Programs

Content Skill	Automotive		Cosmetology		Welding		General Office		Accounting		Secretarial	
	CC	SS	CC	SS	CC	SS	CC	SS	CC	SS	CC	SS
Occupational Area Preparation	--	X	--	X	--	X	--	--	--	--	--	--
Pre-vocational Education	--	--	--	--	--	--	--	--	--	--	--	--
Employability Skills Development	X	X	X	X	X	X	X	X	X	X	X	X
Job Specific Preparation	--	--	--	--	--	--	--	--	--	--	--	--
Work Experience	X	--	--	--	X	--	X	--	--	--	--	--

Table 30 (continued)

Comparison of Content Skills in the

Six Community Colleges and Secondary Schools Programs

Content Skill	Automotive		Cosmetology		Welding		General Office		Accounting		Secretarial	
	CC	SS	CC	SS	CC	SS	CC	SS	CC	SS	CC	SS
Occupational Specific Preparation	X	X	X	X	X	X	X	X	X	X	X	X
Cooperative Program	--	X	--	--	--	--	X	X	--	--	X	X
Basic Skills	--	X	--	X	--	X	--	X	--	X	--	X
General Education	X	--	X	--	X	--	X	--	X	--	X	--

Note: CC = Community College; SS = Secondary School

Note: Definitions of skills are found in definition section page 10.

X = Skills taught in program

-- = Skills not taught in program

offered in general office and secretarial programs of both systems.

Summary of similarities and differences of programs.

Welding, automotive, and cosmetology have more similar components than business programs. Data related to similarities are displayed in Table 31. General office and secretarial shows 36 percent similarities and accounting, 46 percent. Four out of six of the programs operate under the same name at each level. All programs are different between levels in degrees granted. Instructional hours for trades/industry and accounting programs were similar for one year of community college and three years of secondary, while general office and secretarial programs are different. The program aims for the three trades/industry programs at both levels were to prepare for employment. Program aims for business programs at the community college level was to prepare completers for employment, whereas the secondary aims were to prepare completers for employment, postsecondary, and computer literacy. For all six programs there is 100 percent similarities in skills preparation at each level. Jobs for which students are being prepared are the same for four out of six programs.

Table 31
Summary of Program Similarities and Differences in All Six Programs

Programs	PN	D	CT	IH	CL	PA	SA	MC	LE	SP	J	S	D
												%	%
Automotive (N=11)	S	D	D	S	S	S	D	S	S	S	S	72	28
Cosmetology (N=11)	S	D	D	S	S	S	D	S	S	S	S	72	28
Welding (N=11)	S	D	D	S	D	S	D	S	S	S	S	63	37
General Office (N=11)	D	D	D	D	S	D	D	S	S	S	D	36	64
Accounting (N=11)	S	D	D	S	S	D	D	S	S	S	S	54	46
Secretarial (N=11)	D	D	D	D	S	D	D	S	S	S	D	46	54

Note. D - differences, S - similarities

Code:	PN - Program Name	PA - Program Aims
	D - Degree	SA - System Aims
	CT - Completion Time	MC - Major Competencies
	IH - Instructional Hours	LE - Learning Experiences
	CL - Certification or Licensure	SP - Skills Preparation
		J - Jobs

Relationship of Levels to Race, Gender, and Selected Outcomes

The association of variables with program levels was analyzed by using chi-square procedures. A significant chi-square indicated an association between the variables and levels. In order to determine the magnitude of the relationship, a contingency or phi coefficient was calculated and the resultant coefficient compared to Hinkle's (1979) rule for interpreting size of correlation coefficient. The following questions were answered through analysis of outcome variables and selected demographics:

1. "What is the relationship between levels (secondary school and community college) of vocational educational completer reasons for entering programs"
2. "What is the relationship between the levels (secondary school and community college) of vocational education and employment status (employed or unemployed)?"
3. "What is the relationship between levels (secondary school and community college) of vocational education and graduate employment in fields related to their preparation?"
4. "What is the relationship between levels (secondary school and community college) of vocational education and graduate rating of the usefulness of the training in their current jobs?"

5. "What is the relationship between levels (secondary school and community college) of vocational education and graduate satisfaction with programs?"
6. "What is the relationship between levels (secondary school and community college) of training and race distribution for completers of vocational education programs?"
7. "What is the relationship between levels (secondary school and community college) of vocational education and gender distribution of completers of vocational programs?"

Relationships of variables to levels of preparation.

Table 32 displays data related to the relationship between variables and levels. No significant relationship was found between race and levels. However, gender was significantly related to levels of preparation (chi-square=10.39, N=1460, df=1, $p < .05$). The phi coefficient of .25 indicated a weak relationship between gender and levels. Females represented 62 percent of completers with the highest proportion in community colleges. Reasons for entering vocational programs were examined and a significant relationship was found between levels of preparation and reasons for entering (chi-square=28.68, N=1408, df=2, $p < .05$). In order to determine the magnitude of this significant relationship, a contingency coefficient was

Table 32

Relationship Between Variables and Levels of Preparation of
Community College and Secondary School Programs

Variable	Total N	%	Community Colleges N	%	Secondary Schools N	%	χ^2
Race (N=1461)							
White	1084	74.2	276	73.0	808	74.6	
Black	301	20.6	82	21.7	219	20.2	
Others	76	5.2	20	5.3	56	5.2	0.39
Gender (N=1460)							
Female	905	62.0	261	69.0	644	59.5	
Male	555	38.0	117	31.0	438	40.5	*10.39
Reasons for Entering (N=1408)							
Career							
Objectives	1115	79.2	273	73.2	842	81.4	
External	209	14.8	57	15.3	152	14.7	
Influence	84	6.0	43	11.5	41	4.0	*28.68
Access							
Employment (N=1321)							
Employed	930	70.5	303	83.5	627	65.4	
Unemployed	155	11.7	42	11.6	113	11.8	
Looking							
Unemployed							
Not Looking	236	17.9	18	5.0	218	22.8	*58.82

Table 32 (continued)

Relationship Between Variables and Levels of Preparation of
Community College and Secondary School Programs

Variable	Total N	Total %	Community Colleges N	Community Colleges %	Secondary Schools N	Secondary Schools %	χ^2
Relatedness (N=1000)							
Related	561	56.1	173	57.1	388	55.7	
Not Related	439	43.9	130	42.9	309	44.3	0.12
Usefulness (N=862)							
Good	686	79.6	152	85.4	534	78.1	
Average	146	16.9	23	12.9	123	18.0	
Poor	30	3.5	3	1.7	27	3.9	5.19
Satisfaction (N=1404)							
Satisfied	1214	86.5	241	64.3	973	94.6	
Neutral	140	10.0	91	24.3	49	4.8	
Not Satisfied	50	3.6	43	11.5	7	.7	*223.81

*p<.05

computed. The coefficient 0.14, compared to its maximum value, .707, constituted a weak relationship in completer reasons for entering and levels of preparation.

Employment status was found to be significantly related to levels of preparation (chi-square=73.53, N=1321, df=2, $p < .05$). A higher proportion of community college completers were employed than were secondary. Although a relationship was found the contingency coefficient, .22, compared to the maximum value, .707, indicated levels of preparation had little association with employment status. No significant relationship was found between levels and training related employment of completers. Likewise usefulness of training in the job and levels were not significantly related. In considering both levels, secondary completers were more satisfied with programs than community college completers, and a significant relationship between level and satisfaction was found (chi-square=223.81, N=1404, df=2, $p < .05$). A contingency coefficient was computed, resulting in a coefficient of 0.37. Comparing this value with the maximum of .707, the satisfaction and levels of preparation were moderately associated.

Reasons for enrolling in programs. Chi-square procedures were used to test the relationship of reasons completers entered programs to program levels. Table 33 displays reasons why completers enter programs at the

Table 33

Relationship Between Reasons for Entering and Levels of Preparation of

Community College and Secondary School Completers

Program	Total		Career Objectives		External Influences		Access		χ^2
	N	%	N	%	N	%	N	%	
Automotive (CC)	45	99.9	33	73.3	2	4.4	10	22.2	
Automotive (SS)	318	99.9	56	80.4	47	14.8	15	4.7	*20.91
Cosmetology (CC)	111	100.0	88	79.3	9	8.1	14	12.6	
Cosmetology (SS)	17	100.0	13	76.5	4	23.5	-	-	5.61
Welding (CC)	46	100.0	39	84.8	2	4.3	5	16.9	
Welding (SS)	51	100.0	28	54.9	20	39.2	3	5.9	*16.82
General Office (CC)	17	100.0	11	64.7	6	35.3	-	-	
General Office (SS)	482	99.9	406	84.2	60	12.4	16	3.3	7.74
Accounting (CC)	93	100.0	64	68.2	20	21.5	9	9.7	
Accounting (SS)	139	100.0	121	87.1	15	10.8	3	2.2	*12.65
Secretarial (CC)	61	100.0	38	62.3	18	29.5	5	8.2	
Secretarial (SS)	28	100.0	18	64.3	6	21.4	4	14.3	1.18
Total	1408		1115		209		84		

*p<.05

Note. CC = Community College; SS = Secondary School

community college and secondary levels. Most completers entered programs at both levels for career objective reasons. External influence constituted the second highest reason. Community college automotive, cosmetology, welding, and secretarial ranged from 13 to 22 percent of completers who entered because of access reasons. A significant relationship in reasons completers entered and program levels was found for automotive completers (chi-square=20.91, N=363, df=2, $p<.05$). The contingency coefficient, .23, compared with .707 as the maximum value, indicated the level of preparation had a weak association with reasons for entering. For welding completers a significant relationship between levels and reasons for entering was also found (chi-square=16.82, N=97, df=2, $p<.05$). A contingency coefficient was computed resulting in a coefficient of .11. A high proportion of community college completers entered welding for career reasons.

Because cosmetology completers had minimum cell frequencies, the results were uninterpretable. The third option, "access" was dropped and the relationship tested between goals and levels of preparation with no significance. Accounting showed a significant relationship in reasons for entering and program levels (chi-square=12.65, N=132, df=2, $p<.05$); however, the contingency coefficient indicated a weak, .22, relationship between

levels and reasons completers entered. General office results were uninterpretable due to the low cell frequencies. The "access" option was dropped and difference tested between levels and reasons. A significant relationship was found (chi-square=5.21, N=499, df=1, $p<.05$). The phi coefficient, 0.29 indicated a weak relationship existed between reasons for entering for general office completers and levels of preparation.

Employment status. Table 34 displays data related to completers' employment status. Cosmetology programs had the highest percentage of employment with no significant relationship between employment and program levels. The relationship between levels of preparation, and welding and automotive completer employment status was not significant.

A significant relationship between levels of training and employment status was found in secretarial programs (chi-square=16.80, N=483, df=2, $p<.05$). The contingency coefficient, .40 indicated a moderate association between program levels and employment. Between secretarial completers at both levels, more than three-fourths of community college completers compared to less than one-half secondary were employed. A significant relationship in employment and levels of preparation was also found in accounting programs (chi-square=40.27, N=218, df=2, $p<.05$).

Table 34
Relationship Between Employment Status and Levels of Preparation of
Community College and Secondary School Completers

Program	Total		Employed		Unemployed Looking		Unemployed Not Looking		χ^2
	N	%	N	%	N	%	N	%	
Automotive (CC)	44	100.0	36	81.8	6	13.6	2	4.5	
Automotive (SS)	284	100.0	224	78.9	32	11.3	28	9.9	1.40
Cosmetology (CC)	108	100.0	92	85.2	14	13.0	2	1.9	
Cosmetology (SS)	16	100.0	15	93.8	-	-	1	6.3	3.30
Welding (CC)	42	100.0	35	83.3	5	11.9	2	4.8	
Welding (SS)	38	100.0	27	71.1	6	15.8	5	13.2	*2.21
General Office (CC)	16	100.0	15	93.8	1	6.3	-	-	
General Office (SS)	467	100.0	296	63.4	54	11.6	117	25.1	6.60
Accounting (CC)	93	100.0	77	82.8	7	7.5	9	9.7	
Accounting (SS)	125	100.0	51	40.8	18	14.4	56	44.8	*40.27
Secretarial (CC)	60	100.0	48	80.0	9	15.0	3	5.0	
Secretarial (SS)	28	100.0	14	50.0	3	10.7	11	39.3	*16.80
Total	1321		930		155		236		

*p<.05

Note. CC = Community College; SS = Secondary School

The computed contingency coefficient was .39, which indicated a moderate relationship between levels and employment. Community college had the highest percentage of accounting completers employed. Due to low cell counts the data for general office was uninterpretable.

Training related employment. Table 35 displays information on training related employment. No significant relationship between trade/industry program levels and work related to training were found. A high number of total completers are employed in work related to training, proportionately however, most programs have slightly less than 50 percent completers in training related employment. Secretarial was the only program with a significant relationship between levels and employment related training (chi-square=3.82, N=67, df=1, $p < .05$). The phi coefficient, .23 indicated a weak relationship. Approximately 68 percent of community college secretarial completers were employed in work-related to training, while 63 percent of secondary school completers were employed in jobs not related to training.

Usefulness of preparation in job. The relationship between program levels and usefulness of preparation was tested. Table 36 displays this data. No significant relationship was found in trade/industry programs. Most completers in both levels rated their program as useful.

Table 35

Relationship of Training Related Employment and

Levels of Preparation of

Community College and Secondary School Completers

Program	Total		Related		Nonrelated		χ^2
	N	%	N	%	N	%	
Automotive (CC)	36	100.0	15	41.7	21	58.3	
Automotive (SS)	245	100.0	144	58.8	101	41.2	3.73
Cosmetology (CC)	92	100.0	64	69.6	28	30.4	
Cosmetology (SS)	15	100.0	7	46.7	8	53.3	0.14
Welding (CC)	35	100.0	12	34.3	23	65.7	
Welding (SS)	39	100.0	18	46.2	21	53.8	0.64
General Office (CC)	15	100.0	12	80.0	3	20.0	
General Office (SS)	316	100.0	187	58.2	129	40.8	1.79
Accounting (CC)	77	100.0	38	49.4	39	50.6	
Accounting (SS)	65	100.0	25	39.7	38	60.3	0.94
Secretarial (CC)	48	100.0	32	67.7	16	33.3	
Secretarial (SS)	19	100.0	7	36.8	12	63.2	*3.82
Total	1000		561		439		

*p<.05

Note. CC = Community College; SS = Secondary School

Table 36

Relationship Between Usefulness and Levels of Preparation of
Community College and Secondary School Completers

Program	Total		Good		Average		Poor		χ^2
	N	%	N	%	N	%	N	%	
Automotive (CC)	16	100.0	13	81.3	2	12.5	1	6.3	
Automotive (SS)	248	100.0	194	78.2	44	17.7	10	4.0	0.43
Cosmetology (CC)	64	100.0	53	82.3	11	17.2	-	-	
Cosmetology (SS)	14	100.0	13	92.9	1	7.1	-	-	0.28
Welding (CC)	16	100.0	14	87.5	2	12.5	-	-	
Welding (SS)	34	100.0	26	76.5	6	17.6	2	5.9	1.28
General Office (CC)	13	100.0	12	92.3	1	7.7	-	-	
General Office (SS)	318	100.0	256	80.5	52	16.4	10	3.1	1.20
Accounting (CC)	40	100.0	36	90.0	3	7.5	1	2.5	
Accounting (SS)	58	100.0	38	65.5	16	27.6	4	6.9	*7.20
Secretarial (CC)	29	100.0	24	82.8	4	13.8	1	3.4	
Secretarial (SS)	12	100.0	7	58.3	4	33.3	1	8.3	2.74
Total	862		686		146		30		

*p<.05

Note. CC = Community College; SS = Secondary School

Since results for the cosmetology and welding programs were uninterpretable due to low cell frequencies, the category "poor" was dropped and chi-square computed. Still no significance was found for either program.

For accounting completers, usefulness of preparation in jobs was found to be significantly related to program levels (chi-square=7.70, N=98, df=2, $p < .05$). The coefficient, .26, indicated a weak association. The general office data was uninterpretable due to low cell frequencies. The category "poor" was dropped and chi-square computed using the remaining cells with still no significant difference.

Satisfaction with preparation. Table 37 displays data reflecting the relationship of completer satisfaction and levels of training. A significant association between levels and completer satisfaction was found in automotive programs (chi-square=87.51, N=360, df=2, $p < .05$). Between the two levels, 93.9 percent secondary completers were satisfied compared to 45.7 percent of community college completers. The computed contingency coefficient was .44, indicating a moderate relationship between levels and satisfaction. Cosmetology and welding had uninterpretable results. Accounting was the only business program with a significant relationship between levels and completer satisfaction (chi-square=34.70, N=232, df=2, $p < .05$). The contingency coefficient .52, indicated a strong association

Table 37

Relationship Between Completer Satisfaction and Levels of Preparation of
Community College and Secondary School Completers

Program	Total		Satisfied		Neutral		Not Satisfied		χ^2
	N	%	N	%	N	%	N	%	
Automotive (CC)	46	100.0	21	45.7	20	43.5	5	10.9	
Automotive (SS)	314	100.0	295	93.9	16	5.1	3	1.0	*87.51
Cosmetology (CC)	17	100.0	17	-	-	-	-	-	
Cosmetology (SS)	113	100.0	90	79.6	15	13.3	8	7.1	4.20
Welding (CC)	47	100.0	27	57.4	12	25.5	8	17.0	
Welding (SS)	51	100.0	50	98.0	1	2.0	-	-	24.05
General Office (CC)	17	100.0	11	64.7	6	35.3	-	-	
General Office (SS)	478	100.0	458	95.8	17	3.6	3	0.6	37.37
Accounting (CC)	91	100.0	56	61.5	23	25.3	12	13.2	
Accounting (SS)	141	100.0	130	92.2	10	7.1	1	0.7	*34.70
Secretarial (CC)	61	100.0	36	59.0	15	24.6	10	16.4	
Secretarial (SS)	28	100.0	23	82.1	5	7.9	-	-	6.52
Total	1404		1214		140		50		

*p<.05

Note. CC = Community College; SS = Secondary School

with 92 percent secondary completers rating "satisfied" compared to 61 percent community college. Since secretarial and general office had low cell frequencies for "not satisfied," this category was dropped and chi-square computed for the remaining cells. General office resulted in a significant relationship between levels and satisfaction when only "satisfied" and "neutral" were computed (chi-square=30.27, N=492, df=1, $p < .05$). The chi-square value was tested for the strength of the relationship resulting in a coefficient of .23, indicating a weak relationship between program levels and satisfaction.

Race. The relationship of race to the program levels of preparation was examined and data is displayed in Table 38. The majority of both community college and secondary completers were white. Welding was the only program with a significant relationship between program levels and race (chi-square=9.53, N=99, df=2, $p < .05$). The contingency coefficient, 0.29, indicated a weak relationship between welding program levels and race.

No significant relationship was found between program levels and race for business programs. For general office and secretarial programs, the relationship of race to levels was uninterpretable due to low cell frequencies. The categories of other and black were combined for both programs, still no significance was found.

Table 38

Relationship Between Race and Levels of Preparation of
Community College and Secondary School Completers

Program	Total		White		Black		Other		χ^2
	N	%	N	%	N	%	N	%	
Automotive (CC)	46	100.0	37	80.4	8	17.4	1	2.2	
Automotive (SS)	332	100.0	253	64.0	64	19.3	15	4.5	0.69
Cosmetology (CC)	114	100.0	79	69.3	24	21.1	11	9.6	
Cosmetology (SS)	17	100.0	14	82.4	2	11.8	1	5.9	1.22
Welding (CC)	47	100.0	29	61.7	17	36.2	1	2.1	
Welding (SS)	52	100.0	26	50.0	14	29.9	12	23.1	*9.53
General Office (CC)	17	100.0	9	52.9	8	47.1	-	-	
General Office (SS)	505	100.0	365	72.3	114	22.6	26	5.1	5.95
Accounting (CC)	93	100.0	76	81.7	13	14.0	4	4.3	
Accounting (SS)	148	100.0	126	85.1	20	13.5	2	1.4	2.03
Secretarial (CC)	61	100.0	46	75.4	12	19.7	3	4.9	
Secretarial (SS)	29	100.0	24	82.8	5	17.2	-	-	1.62
Total	1461		1084		301		76		

*p<.05

Note. CC = Community College; SS = Secondary School

Gender. Table 39 displays the relationship between gender and program levels. Automotive is the only trade/industry program with a significant relationship between gender and program levels of preparation (chi-squared=3.68, N=377, df=1, $p < .05$). The phi coefficient of .09 indicated a weak relationship. Trade/industry program followed along traditional gender lines. All completers in cosmetology were females, while the highest percentage of both automotive and welding were male. Business programs followed traditional gender lines. No significant relationship was found between levels and gender in business programs.

Summary of Findings

The purpose of this study was to analyze, present and interpret data that has implications for policy making in the evaluation of vocational education in North Carolina. As a means of accomplishing this, three areas were investigated (a) characteristics of students in community college and secondary programs, (b) similarities and differences in selected programs, and (c) relationship of race, gender, and outcomes to preparation levels. The findings within the three areas are outlined below.

Table 39

Relationship of Gender to Levels of Preparation of
Community College and Secondary School Completers

Program	Total		Female		Male		χ^2
	N	%	N	%	N	%	
Automotive (CC)	46	100.0	3	6.5	43	93.5	
Automotive (SS)	331	100.0	4	1.2	327	98.5	*3.68
Cosmetology (CC)	114	100.0	106	93.0	8	7.0	
Cosmetology (SS)	17	100.0	17	100.0	-	-	3.40
Welding (CC)	47	100.0	2	4.3	45	95.7	
Welding (SS)	52	100.0	1	1.9	51	95.7	0.07
General Office (CC)	17	100.0	16	94.1	1	5.9	
General Office (SS)	505	100.0	486	96.2	19	3.8	0.00
Accounting (CC)	93	100.0	74	79.6	19	20.4	
Accounting (SS)	148	100.0	111	75.0	37	25.0	3.40
Secretarial (CC)	61	100.0	60	98.4	1	1.6	
Secretarial (SS)	29	100.0	25	86.2	4	13.8	0.43
Total	1460		905		555		

*p<.05

Note. CC = Community College; SS = Secondary School

Summary of Completer Profile - Community College

1. Seventy-three percent of community college completers in all programs were white, about 21 percent black. Welding and general office had the highest percentage of blacks among programs. A total of 27 percent of the completers across all programs were minorities.
2. Females represented the highest percentage of completers in the entire sample, and programs were gender typed. The welding and automotive programs served males; secretarial, general office, accounting and cosmetology programs served females.
3. The highest percentage of completers (50 percent) were between the ages of 18 to 25.
4. Over 90 percent of completers remained in North Carolina; over 80 percent remained in the service areas of their colleges.
5. Over 50 percent of the completers from trades/industry programs entered their programs to learn new skills or obtain skills for certification. However, over 50 percent of completers from business program entered programs to learn new skills or continue education after high school.

6. Over 90 percent who completed degree requirements in all six programs entered with intentions of completing.
7. Most completers tend to enroll in day rather than evening classes.
8. The majority of community college completers took courses in other community college programs, usually before entering the program of record in this study, with the highest number taking occupational courses.
9. Over 50 percent of community college completers were satisfied with how programs met their individual goals.
10. The majority of completers from all programs reported needing better job placement services.
11. Over 80 percent of community college completers were employed and 55 percent obtained jobs after completing programs.
12. Of the community college completers who were employed, 43 percent worked in non-related areas.
13. Over 50 percent of cosmetology, general office, and secretarial program completers were employed in jobs related to their training.

14. Over half of the employed completers in the automotive, accounting, and welding programs are employed in fields other than their major areas.
15. Automotive completers not employed in training related jobs reported they could not find jobs in their area.
16. Over 50 percent of welding completers who were employed in jobs not related to training reported jobs were not available or other fields offered better paying jobs.
17. Over 50 percent of accounting completers not employed in their training area said they were not qualified or sufficiently prepared.
18. Overall, 32 percent of completers not employed in training-related work reported they were not qualified to work in jobs in their training area as the reason for non-related employment.
19. Over 80 percent of completers found their training useful in their current jobs.

Summary of Completer Profile - Secondary Schools

1. The sample was predominantly made up of white completers with 20 percent black completers and a total of 25 percent minorities.

2. Programs were female or male typed, with over 50 percent of completers being female.
3. Over 80 percent of secondary school completers worked in North Carolina after completing high school within a 20-mile radius of the high schools which they attended.
4. Completers from automotive, welding, and cosmetology reported they remained in school in order to complete their vocational education programs.
5. Over 80 percent of secondary completers enter programs because of the program's relationship to career objectives.
6. Parents had very little reported influence on secondary completers' program decisions, but friends were reported as having a strong influence.
7. Friends and relatives played the greatest role in completers' obtaining jobs.
8. High school placement services had little influence in completers job decision.
9. Approximately one-half of secondary completers continued to postsecondary school. High school vocational teachers influenced automotive,

welding, general office, and secretarial completers to attend postsecondary school.

10. Most secondary completers who continued their education after high school attended public community college or technical colleges.
11. The majority, 80 percent, of accounting completers who attended postsecondary school, attended four-year universities or colleges.
12. Over half of the completers from business programs attended postsecondary schools, whereas under 30 percent from trades/industry attended postsecondary school.
13. Over half of the secondary school completers who attended postsecondary schools, enrolled in programs related to their high school programs.
14. Over 90 percent of completers in all programs indicated satisfaction with preparation.
15. Secondary completers indicated a need for more basic skills and employability skills in their programs.
16. At least 50 percent of all completers were employed. Accounting showed the lowest employment rate and high percentage of employment in non-related jobs.

17. Less than 50 percent of Secretarial completers were employed and 63 percent of those were in non-related employment.
18. Over 60 percent of the automotive completers were employed and primarily in jobs related to training.
19. Over 90 percent of completers in all program rated their programs positively in preparing them for jobs.

Similarities and Differences In Programs

1. Trades/industry programs were more similar between levels than business programs.
2. All programs offered the same major competencies at each level and job preparation was the same between levels except general office and secretarial.
3. Students were taught employability skills and occupational specific preparation in all programs in both levels.
4. Completion times for programs had the greatest discrepancies between levels, while instructional hours for four programs were similar between levels.

5. Program aims were the same for both levels in trade/industry programs; they were however, different in business programs.
6. System aims were different between levels.

Relationship of Levels to Race, Gender, and Outcomes

1. A significant relationship was found between gender and levels. Secondary schools have a higher proportion of male completers than the community colleges.
2. The reasons completers enter their programs and levels of preparation were associated, although the relationship was weak. A higher proportion of secondary completers enter for career reasons.
3. A significant relationship between employment status and levels was found although the association is weak. A higher proportion of community college completers than secondary were employed, however over 50 percent of secondary completers attended postsecondary school.
4. Although there was no significant relationship between levels and usefulness of programs in jobs, there was a significant relationship between degree of satisfaction with programs and levels of preparation. A higher percentage of secondary

completers rated their feelings as "satisfied" than community college.

5. A weak significant relationship between levels and reasons completer entered was found in automotive programs. The proportion of those entering because of career objectives was higher for secondary than those at the community college level.
6. The reasons welding completers enter their programs was significantly related to levels of preparation. A higher proportion of community college completers entered welding for career reasons than secondary.
7. A weak significant relationship between reasons for entering and levels of preparation was found for accounting completers. A higher proportion of secondary completers entered for career reasons.
8. An association between program levels and employment of accounting completers was found. A higher percentage of community college completers were employed.
9. Employment status and program levels in secretarial were associated. A higher proportion of community college completers were employed than secondary completers.

10. Usefulness of training was found to be significantly related to levels of preparation in accounting. A higher proportion of community college completers found their program to be useful than secondary completers.
11. The relationship between accounting completer satisfaction and levels indicated a strong positive relationship. A higher proportion of secondary completers reported satisfaction than community college completers.
12. Race was related significantly to levels of preparation in the welding programs. The relationship was moderately associated. A higher number of minorities were found in secondary programs.

Since the subjects in this study and the matched programs were similar, the findings were considered from a programmatic point of view. Automotive mechanics programs at the community college and secondary levels were more similar than different. The programs were offered to produce employable completers, with 81.8 percent of community college and 72.7 percent of secondary completers employed one year after graduation but with a high proportion in jobs not related to training. These

completers were mostly white males, who entered the automotive program for career reasons. Both levels of completers remained in North Carolina and within the service areas of their colleges. Of secondary completers, 28.3 percent attended postsecondary education with little over one-half in public two-year colleges. Automotive completers at both levels were taught the same major competencies and skills preparation. Secondary completers expressed a need for more basic skills such as math, reading and vocabulary, spelling and problem solving.

Cosmetology, the only program in this study requiring completers to demonstrate competence on a state board examination, also was more similar between levels than different. Cosmetology students completed their programs with similar competencies, taught through similar learning experiences, and obtained the same employability skills and occupational specific skills. The major program aim was employment: 85 percent community college completers and 93 percent secondary were employed. Over 60 percent community college completers were employed in jobs related to training and over 50 percent secondary were employed in non-related jobs. The majority of both completers remained in North Carolina within their service areas. Gender and race were similar across levels with most completers white and female.

Completers who finished the welding programs from both levels entered for career reasons. Both programs prepared students to enter jobs within the surrounding communities, and most completers at each level remained in the service community. The majority of welding completers were male and white. However a higher percentage of black and Indian males are found in welding than in other programs. Both groups have high percentages of employment in areas of non-related training. One year after completion, 11.4 percent of secondary welding completers were "unemployed not looking." Of those secondary welding completers who continued their education, 21 percent went to a two-year college, over half were enrolled in programs related to their secondary programs.

In this study the three business programs demonstrated fewer similarities than the trades/industry programs. However, completers of business programs had many similarities in characteristics. Although the two general office programs offered the same major competencies through the same learning experiences the programs were not preparing students for the same jobs. Completers entered general office for career reasons, and 93 percent at the community college level and 62 percent at the secondary level were employed one year after graduation. Of those employed, 80 percent of community college completers were

employed in training related work, while 41 percent secondary completers were not. Both secondary and community college general office completers remained within the service areas of their schools. Of total general office completers from secondary, 54.5 percent attended postsecondary school (32.1 percent in two year public college and 79 percent in courses related to secondary programs). General office completers were typically white females. The highest percentages of black females were found in general office programs.

Secretarial programs were similar in major competencies, skills preparation, and learning experiences; however, job preparation at the secondary level occurred in an aggregate of several secretarial related programs. Employment status was associated with levels of preparation of secretarial programs. Eighty percent of community college completers were employed and 48 percent of secondary level completers were employed. Training-related employment was also associated with secretarial programs, with 68 percent of community college completers employed in jobs related to training, and 63 percent of secondary completers in jobs not related to training. Secondary and community college completers who were employed remained in the school's service areas. These completers typically continued in postsecondary programs, with 31.2 percent in

public two-year schools and 20.7 percent in four-year schools.

Accounting programs were more similar between levels than the other business programs. Students were prepared for the same jobs using the same major competencies and the same skills preparation. Only 39.5 percent of secondary accounting completers were employed (31 percent part-time and 56 percent "not employed and not seeking"). However, 83 percent of community college completers were employed. Only 41 percent of community college completers and 40 percent of secondary completers were employed in training-related areas. Secondary accounting programs had the highest percentage of completers who attend postsecondary schools with a total of 80.4 percent in postsecondary schools and 51.4 in 4 year colleges and universities. A high proportion were enrolled in programs related to secondary education. Accounting completers were typically white females who entered programs for career reasons.

Similarities between programs in community colleges and secondary schools in North Carolina exist. Trades/industry programs exhibit more similarities than business programs. The most striking difference was age of completer and degree to which programs were terminal or transferable in nature.

CHAPTER V

SUMMARY, CONCLUSIONS, AND RECOMMENDATIONS

Introduction

Vocational education has for many years served to prepare individuals for employment. It has been thought of as a means to provide access and comprehension in curriculum offerings and to insure development of individual potential and a productive workforce. In recent years, questions have been raised regarding vocational education's fit within the educational system and the duplication of services among agencies responsible for delivering vocational education. Although the question of duplication by administrators, educators, and political concerns have been examined and innovations implemented, few research attempts have been made to compare systems in their efforts to deliver vocational education. This study sought to (a) characterize the completers of community colleges and secondary school vocational programs, (b) determine the differences and similarities in matched programs, and (c) determine relationships of outcomes as well as completer demographics to levels of preparation.

Summary of Findings

Findings are directly related to the three major areas of study including (a) completer characteristics, (b)

similarities and differences in programs, and (c) relationship of levels to race, gender, and selected outcomes.

Completer Characteristics

Completers from both levels exhibited similar characteristics. Within North Carolina over 70 percent of vocational education completers were white females, a fact consistent with the vocational student population in North Carolina and nationally. Both systems are successful in preparing students for local labor markets. Over 80 percent of completers remained in the service areas of the schools or colleges from which they graduated. Since community colleges engage in preparing adults and secondary high school age students, age, not surprisingly, was the most striking difference in demographics.

Vocational education served as a retention factor for completers in the three trade/industry programs. Decisions of completers to enter programs at both levels tended to be based on career objectives of the students more than other factors. A high proportion of secondary completers who were not influenced by career objectives tended to be influenced by friends or peers, while vocational teachers and relatives influenced job and postsecondary decisions. Job placement and counseling services had little reported influence on completers at both levels.

Economic factors affecting access to college exhibited little influence on the subjects in this study. Low tuition and financial aid benefits were not reported as having a bearing on the community college completers decisions to enter. Likewise, those factors influencing secondary students' access to programs, such as placement of students by schools or unavailability of programs to students, were not factors in secondary students' decisions to enter programs.

Vocational completers from community colleges attended mostly day programs and had taken other vocational occupation courses before enrolling in the program. Surprisingly, most community college completers did not take developmental courses before entering the program of record in this study. One half of the high schools completers attended postsecondary education in two year public schools in programs related to the high school vocational program. The secondary system prepared students for employment and for continuing postsecondary education.

Most completers from the community colleges and secondary schools were satisfied with their programs. Program completers at both levels reported their programs failed to meet needs in several areas. To the community college completer, student personnel services such as job placement, financial aid, and personal counseling were

expressed needs. Completers from all programs reported they wanted more academic services, such as tutoring and instructor help outside classroom. Expanded course offerings with more night and weekend courses, and courses offered closer to the job were also concerns. One year after completion, secondary completers found that basic skills such as, reading, communication, problem-solving and reasoning skills were important in their jobs and that they needed more focus on these skills in their high school curriculum.

Unemployment among secondary completers was higher than community college completers. However, unemployment among those seeking employment one year after graduation was higher for community college completers. The percentage of completers employed in jobs related to training from each level was just over 50 percent. Employment status and training-related employment between levels within programs tended to indicate important differences.

Similarities and Differences in Programs

Among the six program areas, trade/industry programs share of the most similarities between levels. Students were taught the same major competencies through the same learning experiences with the aim of being employed in the same job positions. The greatest differences between levels

in the automotive, cosmetology and welding program was degrees granted, though both systems granted diplomas. Community college completers were considered employable after one year whereas secondary programs were two or three years in length.

Business programs are more different between levels than trade/industry programs. Between the three programs studied, there was duplication in major competencies in which students were prepared, however secretarial and general office program levels did not prepare completers for the same occupational positions. Occupational specific preparation and employability skills were major skills taught in both programs levels.

Relationship of Levels to Race, Gender, and Selected Outcomes

The association of variables to levels of preparation was examined. Associations, between levels and gender, reasons for entering, employment status and completer satisfaction were found, although all variables except satisfaction were weakly associated. Perhaps the most important association of levels was found within programs.

The reasons completers entered programs were associated with levels in automotive, welding, and accounting programs. Secondary completers were likely to report that career

objectives were influential in their decision to enter these programs. Though the automotive programs was expected to appear more in line with general interest courses, high school completers found automotive programs to be related to career objectives.

Employment status and levels of preparation were found to be associated for accounting, secretarial and general office programs. Accounting and secretarial students are more likely to be employed after completing a community college program than not unemployed. The percentage of completers from secretarial and accounting secondary programs who were not employed and not seeking employment likely were part of the secondary group who attend postsecondary education.

Training related employment was associated with levels of secretarial programs while no association was found in other programs. While secretarial completers at the community college level were likely to be employed in related work, secondary secretarial completers were not. Accounting program levels were related to how useful completers found their training in their current jobs. Automotive and accounting program levels are moderately related to satisfaction of completers, with secondary completers indicating greater satisfaction than community college.

In the present study most completers were white. Levels of preparation in welding programs and race was found to be associated. Blacks made up about one-third of completers at both levels. Blacks and "other" including Indians, Hispanics and Asians were under represented in all the programs. While males made up about 33 percent of the entire sample, programs tended to be gender typed. The automotive programs showed the only significant though weak relationship between gender and levels of preparation.

Conclusions

Conclusions reached from this study are related to the research questions. A synopsis of related research is also presented. Research question one--"What are the characteristics of vocational education completers of community colleges and public schools in North Carolina?" was analyzed and conclusions were reached from the findings. The North Carolina community college system prepares primarily adults for employment, whereas the secondary system prepares high school students for employment and postsecondary education (North Carolina Administrative Codes, undated). Approximately one-half of secondary completers attend postsecondary programs (Division of Vocational Education, North Carolina Department of Public Instruction, 1982). Approximately one-half of secondary

completers in this study attended the postsecondary schools. Business program completers represented a high percentage of these completers, ranging from 51 to 80 percent.

Data used to characterize completers from both levels indicated similar characteristics. Completers in the North Carolina vocational systems were mostly white females, a finding supported in related literature (Bottoms & Copa, 1983). Both levels of general office and welding were the programs with the highest minority enrollment. Completers from both levels remained in North Carolina within the schools' service areas and worked mostly in non-related jobs.

Data indicated that completers persistence at both levels was related to vocational education except in secondary business programs. Vocational education may have served as a factor in retention. Students at both levels entered programs for career objective reasons, indicating that students at both levels tended to make independent decisions about their programs. On the contrary, research suggests that external influences are more important in the student's decision to enter programs (Copa, 1986; Plihal et al., 1986). Access issues such as financial aid and low cost had little influence in this study on community college completers. Likewise, access issues such as school placement at the high school exhibited little influence.

Literature suggests that access issues, especially school regulations, play a major role in students' decisions to enter vocational programs (Copa, 1986; Grubb & Jaussaud, 1985).

Completers in this study tended to be satisfied with programs and found them useful in preparation for work. Other studies support these results (Campbell, 1982; Copa et al., 1986). Community college completers were employed at a higher rate than secondary completers; however, both showed low placement rates in employment related to major area of study. Business programs in this study have the lowest employment rates. These findings are also supported by prior research conducted by Catterral and Stern (1986) and Desy et al. (1984). The following are study conclusions related to student characteristics:

- Other than age differences, community college and secondary completers share similar characteristics in terms of motivation to enter programs, how they feel about their programs, where they work, and their employment statuses.
- Community college and secondary completers compete for jobs within the service areas of their schools, which may be a contributing factor resulting in high rates of employment in non-related jobs.

- Decisions to enter programs are related to career objectives and influenced from reasons other than access issues. However, minorities tend to concentrate non-proportionally in welding and general office programs.
- Secondary program completers found after one year of employment that employability and basic skills were lacking in their preparation. Both levels of completers found job placement services important in job search, but lacking in their programs.
- Business programs in secondary schools serve more of a preparatory function for college than employment.
- A high percentage of welding program completers from both levels remain within the service areas of the schools and work in jobs not related to training.
- Cosmetology completers from both levels obtain employment within the service areas of their schools. However community college completers were employed in their areas of training and secondary completers tend to be employed in non-related areas.
- Automotive completers remain in the service areas with over half secondary completers obtaining employment in jobs related to training, while over half of community college completers work in jobs not related.

Research question two--"What are the similarities and differences in selected vocational programs offered by the North Carolina community colleges and secondary schools?" was analyzed. This study is one of the few to conduct a document analysis of vocational programs between community colleges and secondary schools. The trade/industry programs show more overlap between levels than business programs. Both levels offer occupational specific skills as well as employability skills. These findings are supported by Pratzner and Russell (1984), and Starr et al. (1983). Four out of six programs in this study prepared students for the same occupational positions. However, completion time for this preparation is different between levels, while instructional time for some programs are similar. A central conclusion was drawn related to program similarities and differences:

- There was duplication of programs between the two levels; trade/industry demonstrated more duplication than business programs.

Research question three--"What is the relationship between levels (secondary school and community college) of vocational education and completers' reasons for entering programs?" was analyzed. According to results, 1.9 percent of the variance in reasons completers entered programs is due to the level of preparation. Both levels of completers

entered for career reasons with secondary reporting higher percentages entering because of career reasons. Upon examining individual programs, 5.9 percent of the variance in automotive completer reasons, 1.2 percent in welding completer reasons, and 4.8 percent of the variance in accounting completer reasons was associated with levels of preparation. The findings on the relationship of reasons to program levels support the following conclusions:

- Vocational completers at both levels seek vocational education in preparation for careers.
- Automotive, welding, and accounting completers' reasons for entering are associated with levels of preparation, whereas cosmetology, secretarial, and general office completers reasons for entering were not related to levels.

Research question four--"What is the relationship of vocational education levels (secondary school and community college) to employment status (employed or unemployed)" was answered through analysis of employment status of completers. A relationship between employment status and programs levels of preparation was found with 4.8 percent of the variance in employment status related to program levels of preparation. Community college completers had higher reported employment than secondary completers. Research has shown that preparation of students for employment has been

the goal of vocational education (Miller, 1985) and that as levels of vocational education increase, unemployment decreases (Desy et al., 1984; Lewis & Mertens, 1981; Mertens et al., 1980).

Individual programs were examined to determine the relationship of program levels to employment status. The three trade/industry programs' completers employment status was not related to levels of preparation. The majority of completers from both levels in programs were employed. Within the three business programs, levels of preparation were related to employment status for accounting and secretarial completers. Program levels of preparation accounted for 16 percent of the variance in secretarial and 15 percent in accounting completers' employment status. High percentages of completers in business program areas were unemployed while high percentages continued to postsecondary. Conclusions related to the findings are:

- Employment rates increase as levels of preparation increase.
- The employment status of business completers is associated with levels. Generally, community college business completers obtain employment after graduation while secondary completers continue to postsecondary schools and exhibit low employment rates.

Research question five--"What is the relationship of vocational education and completer employment in fields related to their preparation?" was answered. The findings of this study indicated that relatedness of training to job had no relationship to levels of preparation. Slightly under 50 percent of the completers from both programs were employed in jobs related to training. Research has shown that training-related placement is affected by several variables (Campbell et al., 1981; Campbell, Gordon & Seitz, 1982b). But little has been noted in research literature regarding the effects of levels of preparation on placement. When individual program data were examined, levels accounted for 5.29 percent of the variance associated with training-related employment in secretarial programs. The following conclusion was drawn:

- Though most completers from both levels had a high rate of employment in non-related jobs, levels of preparation are not associated with training related employment except in secretarial program. Community college secretarial completers obtain jobs in related areas.

The research question six--"What is the relationship between levels (secondary school and community college) of vocational education and graduate satisfaction with programs?" was examined in an attempt to assess levels of

training as a possible source for satisfaction. Research has been conducted to determine how graduates feel about their programs (Campbell, 1982; Desy et al., 1984). However, until now little research has been conducted to determine the source of completer satisfaction.

Levels of preparation accounted for 13 percent of the variance in completer satisfaction with more secondary completers rating their program satisfactory than community college. Levels of preparation of automotive programs accounted 19 percent of the variance in completer satisfaction; while 27 percent of the variance in accounting completer satisfaction was associated with levels. A higher percentage of secondary completers are more satisfied with their training than community college. The conclusion related to the findings was:

- Level of preparation plays a role in how completers feel about their programs. Completers from secondary automotive and accounting programs were more satisfied with training than community college welding and automotive completers.

Research question seven--"What is the relationship between levels of vocational education and graduate rating of the usefulness of the training in their current jobs?" was answered. Research indicates that most graduates find their programs useful in their jobs (Copa et al., 1986).

Accounting program levels are associated with usefulness of training in jobs with 6.7 percent of the variance in usefulness being attributable to levels. Community college completers indicated program training was more useful in jobs than secondary completers. The conclusion related to findings was:

- Program levels are not associated with usefulness of preparation in jobs except in accounting programs. Community college completers find their accounting training more useful in jobs than secondary completers.
- Research question eight--"What is the relationship between levels (secondary school and community college) of vocational education and gender distribution of completers of vocational programs?" was answered through statistical analysis. Findings from study suggest a weak association between gender and levels. Only 6.2 percent of the variance in the gender of students entering programs was associated with levels. Over 60 percent of completers were female in both settings. When each individual program was examined for its relationship with gender, automotive was the only program showing a significant association between gender and levels. Only .8 percent of that variance was associated with level. The gender composition of automotive completers was consistent with Bottoms and Copa's (1983) findings. Findings resulted in the following conclusion:

- Although programs tend to be gender typed, levels of preparation had little relationship with gender.

Research question nine--"What is the relationship between levels (secondary school and community college) of training and race distribution for completers for vocational education programs?" was answered from related findings. The results of the analysis indicated no statistically significant relationship between community college and secondary completer levels, and race. However when individual programs were examined, the race of welding completers was related to levels. The coefficient of determination showed that 8.4 percent of the variance in racial distribution of welding completers was associated with level of preparation. Over 50 percent of secondary welding completers were minority group members. Prior research has found that minorities make-up 24 percent of vocational students (Campbell, 1986), though research related to association of race and program is scarce. The following conclusion was related to the findings:

- Levels of preparation have little association with racial make-up of completers except in welding programs which have a high concentration of minorities.

Recommendations

Many conclusions were drawn related to the three areas in this study including (a) completers characteristics, (b) similarities and differences of programs, and (c) relationship of outcomes, race, and gender to levels. The recommendations which follow are based on the conclusions from these three sections.

North Carolina community college and the secondary school system vocational programs share many similarities. Students are often prepared for the same jobs using the same content skills. High proportions of completers of both levels obtained employment in work not related to training and within the schools' geographical areas. Females are dominant in several programs and minorities are non-proportionately represented in programs. The trades/industry programs are more similar across levels than are the business programs. The following recommendations are made based on conclusions drawn from this study.

1. Articulation policies between the community college and secondary school systems within the state should be reevaluated in order to minimize unnecessary duplication in preparing students for employment. A system based on secondary schools offering pre-vocational, career exploration skills, as well as employability skills and occupational area preparation, while community colleges

concentrate on occupationally specific skills may be more beneficial. An evaluation of the true purpose of business programs at the secondary, particularly accounting is warranted.

2. Both systems should establish better efforts to inform students of vocational opportunities. An evaluation of the reasons minorities enter welding and general office more than other programs may be beneficial in counseling those students. Access issues played a small role in decisions to enter program. However, overall evidence points to the need for more vocational counseling as well as other support services for both levels.

3. Since the system aims of secondary schools are employment, postsecondary education, and development of consumer skills, continuous evaluation of these aims at the program level is important to determine how programs are in fact meeting these goals. A higher percentage of trade/industry completers from both levels were employed, while a higher percentage of business completers from community colleges were employed and a high percent of secondary completers continue to post-secondary education. Perhaps a stronger emphasis in preparation for employment is warranted in trades/industry, while a stronger emphasis on postsecondary education is justified in business.

4. Both levels are preparing completers for jobs within the community, because of the large proportion of completers in nonrelated jobs, both systems should communicate better with employers within the area to evaluate labor market needs. Both systems may be offering courses which have become obsolete or which are not meeting local employment needs.

Recommendations for Future Research

The purpose of this study was to provide data related to completer characteristics, program similarities and relationships of levels of preparation to outcomes and demographic data which may be used in the evaluation of vocational education policies in North Carolina. As this study progressed several questions were raised which need future investigation. A comparison of systems in their efforts to deliver education on a national basis will yield more generalizable data. Content analysis of other programs offered across systems will possibly demonstrate other areas of duplication.

Follow-up studies conducted by vocational systems can be used in research to yield pertinent data for decision-making related to vocational education. Educational systems should be more cognizant of this fact and design instruments

which will yield data for their purposes as well as data which can be used in research.

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Appendix A
Listing of Counties and Units Served by
Secondary Schools and Community Colleges
Included in this Study

Community Colleges Represented in the 1985-86 Survey
and Counties Served by Each Institution

<u>College</u>	<u>*County</u>
Caldwell Community College and TI	Caldwell, Watauga
Mayland Technical	Avery, Yancey, Mitchell
Mitchell Community College	Iredell County
Nash Technical College	Nash County
Pitt Community College	Pitt County
Robeson Technical College	Robeson County
Rockingham Community College	Rockingham County
Rowan-Cabarrus Technical College (completers only)	Rowan, Cabarrus
Southwestern Community College	Jackson, Macon, Swain
Vance-Granville Community College	Vance, Granville, Franklin, Warren
Wake Technical College	Wake County
Southeastern (leavers only)	Columbus County

*North Carolina Community College System - 1982-83 Annual Report.

Secondary Units Matched with
Community College

<u>Community College</u>	<u>County</u>	<u>Units</u>
Caldwell C.C. and T.I.	Caldwell	140
	Watauga	950
Mayland Technical	Avery	060
	Yancey	995
	Mitchell	610
Mitchell Comm. College	Iredell	490
	Mooresville	491
	Statesville	492
Nash Technical College	Nash	640
	Rocky Mount	641
Pitt Comm. College	Pitt	740
Robeson Technical	Robeson	780
	Lumberton	782
	Red Springs	784
	St Pauls City	785
	Fairmont	781
Rockingham Comm. College	Rockingham	790
	Eden	791
	W. Rockingham	792
	Reidsville	793
Rowan-Cabarrus Technical Coll.	Rowan	800
	Salisbury	801
	Cabarrus	130
Southwestern Tech. College	Jackson	500
	Macon	560
	Swain	870
Vance-Granville Comm. College	Vance	910
	Granville	390
	Franklin	350
	Warren	930
Wake Technical College	Wake	920
Southeastern C.C. (Leaver)	Columbus	240

Appendix B

Survey Instruments Used in Follow-up Studies

NORTH CAROLINA DEPARTMENT OF PUBLIC INSTRUCTION
SECONDARY VOCATIONAL EDUCATION
COMPLETER FOLLOW-UP
1985-86 VEIS-4

PLACE STUDENT LABEL

IN THIS SPACE

Will you help us? We need your answers to the following questions concerning the vocational program you took in high school. Your answers will help evaluate and improve the program in which you participated.

High school vocational education programs are Agriculture, Business and Office, Health Occupations, Occupational Home Economics, Marketing, Trade and Industrial, Special Programs, and Principles of Technology.

ALL REPLIES ARE CONFIDENTIAL. No student name is printed on any report containing the results of the responses to any question.

Please answer all the following questions by circling the number for the statement you choose.

A. WHAT IS YOUR EDUCATION STATUS AT PRESENT? CIRCLE ONE.

- 1 Not in school now
- 2 I am still in high school
- 3 Public community college, technical institute or technical college
- 4 Private trade, business or nursing school
- 5 Private junior college
- 6 University or four-year college

D. I ENROLLED IN MY VOCATIONAL PROGRAM BECAUSE (CIRCLE THE ONE WHICH BEST APPLIES):

- 1 The program was related to my career objective
- 2 The program I wanted the most already had a maximum number of students enrolled
- 3 The program I wanted the most was not offered
- 4 My parents advised me to be in the program
- 5 A friend recommended the program
- 6 I was assigned to the program by the school

B. CIRCLE ONE OR MORE BELOW FOR THE ITEMS WHICH YOU WISH YOU HAD LEARNED MORE ABOUT IN HIGH SCHOOL.

- 1 Math skills I need for work
- 2 Reading and vocabulary skills
- 3 Spelling skills I need for work
- 4 Skills I need for working with equipment and tools
- 5 Knowledge about job requirements
- 6 General knowledge about a wide range of jobs
- 7 Problem solving skills
- 8 Skills in getting along with others at work
- 9 How to look for a job
- 10 How to interview for a job
- 11 Specific skills for my job
- 12 Leadership skills

E. WHICH STATEMENT BEST DESCRIBES YOUR FEELING ABOUT YOUR VOCATIONAL EDUCATION EXPERIENCE IN HIGH SCHOOL?

- | | |
|------------------|---------------------|
| 1 Very satisfied | 4 Disappointed |
| 2 Satisfied | 5 Very disappointed |
| 3 Neutral | |

F. WHICH STATEMENT BEST DESCRIBES YOUR FEELING ABOUT YOUR EDUCATION EXPERIENCES OTHER THAN VOCATIONAL EDUCATION IN HIGH SCHOOL? CIRCLE ONE.

- | | |
|------------------|---------------------|
| 1 Very satisfied | 4 Disappointed |
| 2 Satisfied | 5 Very disappointed |
| 3 Neutral | |

G. IN WHICH OF THE STUDENT ORGANIZATIONS LISTED BELOW ARE/WERE YOU A MEMBER?

- | | |
|------------|--------------------|
| 1 DECA | 5 BOSA |
| 2 FBLA | 6 AIASA |
| 3 FFA | 7 VICA |
| 4 FFA/HERO | 8 Was not a member |

C. WAS VOCATIONAL EDUCATION A MAIN REASON YOU STAYED IN SCHOOL?

- | | |
|-------|------|
| 1 Yes | 2 No |
|-------|------|

Continue on page 2 if you have finished high school.

1986 STUDENT FOLLOW-UP AND ASSESSMENT SURVEY

DIRECTIONS: Circle the number(s) indicating the most appropriate answer or fill in the blank.

- A. Which of the following best describes your MAIN REASON for enrolling in the instructional program listed above? (Please select only ONE answer.)

- 1 Required by my employer
- 2 Obtain certification for this occupational field
- 3 Improve existing job skills in this field
- 4 Learn or develop new job skills
- 5 Continue my education after high school
- 6 Parents/family urged me to attend college
- 7 Obtain credit for transfer to another college
- 8 Take course(s) of interest to me
- 9 Low cost
- 10 Take advantage of financial benefits available from the Veterans Administration, Social Security, JTPA or other sources
- 11 Be with friends or meet people
- 12 Other (specify) _____

- B. Were you able to achieve this goal to your satisfaction?

1 Yes 2 No 3 In Part

- C. How many OCCUPATIONAL/MAJOR COURSES did you complete? (Don't count general requirements such as English or math)

1 Two or Less 3 Six to eight
2 Three to five 4 More than eight

- D. Please indicate ANY OTHER COURSES OR PROGRAMS you took at this college PRIOR to enrolling in this curriculum program.

- 1 Occupational courses in other employment fields
- 2 General interest courses
- 3 Developmental reading
- 4 Developmental English
- 5 Developmental math
- 6 Study skills
- 7 Adult Basic Education
- 8 GED preparation
- 9 Human Resources Development
- 10 Government-sponsored job training

- E. When you enrolled in this instructional program, did you intend to complete all the requirements for a degree, certificate, or diploma?

1 Yes
2 No

F. Which ONE of the following best explains why you were not enrolled in courses in this instructional area this year?

- 1 Already completed all requirements for a degree, certificate, or diploma
- 2 Completed all the courses I was interested in
- 3 Changed my field of study or interest
- 4 Moved out of area
- 5 Continued my studies at another college
- 6 Accepted a job related to my training
- 7 Accepted a job NOT related to my training
- 8 Dissatisfied with program
- 9 Dissatisfied with other aspects of this college
- 10 Taking a temporary break in my studies
- 11 Other circumstances kept me from taking courses
- 12 Do not wish to attend college any more

G. Would you have taken one or more courses this year if we had done any of the following BETTER or DIFFERENTLY? (Please mark ANY that would have made a SIGNIFICANT difference to you.)

- 1 Provide help in getting a job
- 2 Provide help in obtaining financial aid
- 3 Provide child care
- 4 Provide tutoring
- 5 Provide personal counseling
- 6 Provide academic counseling
- 7 Provide vocational counseling
- 8 Provide help with reading, writing, math or study skills
- 9 Provide information about housing or transportation
- 10 Provide places to study
- 11 Expand course offerings
- 12 Offer night courses
- 13 Offer weekend courses
- 14 Offer courses in locations closer to my home or job
- 15 Special help from instructors outside of class
- 16 Improve quality of instruction
- 17 Improve registration process
- 18 Improve orientation process
- 19 Increase publicity about course offerings
- 20 Make credits transferable
- 21 Other (specify) _____

H. Of the above, which SINGLE service would have helped you the most? Please write the number of the MOST appropriate answer from 1 to 21 here. _____

I. What is your current employment status?

- 1 Employed in a job related to my major (Go to page 3, item K)
- 2 Employed in a job NOT related to this major (Go to page 3, item J)
- 3 Full-time military (Go to page 3, item N)
- 4 Unemployed and looking for work (Go to page 3, item N)
- 5 Unemployed and not looking for work (Go to page 3, item N)

J. What is the primary reason you are working in a job that is NOT related to your major?

- 1 Could not find a job in my field of preparation
- 2 Found a better paying job in another field
- 3 Preferred working in another field
- 4 Not sufficiently qualified or prepared for a job in that field
- 5 Took courses for general interest, not to prepare for a job

Skip to Item M.

K. Periodically we ask employers of former students to help us evaluate the programs we offer. If you are willing to have your employer contacted, please provide the following information on your present job.

Supervisor's Name _____ Phone Number _____

Name of Company or Firm (if self-employed, write SELF) _____

Employer's mailing address _____

City _____ State _____ Zip Code _____

L. How would you rate the occupational training you received in terms of its usefulness in preparing you for your job?

- 1 Very good
- 2 Good
- 3 Average
- 4 Poor
- 5 Very poor

M. When did you start this job?

- 1 Before I enrolled in this instructional program
- 2 While I was in school
- 3 After I stopped attending classes

N. Please rate the program/courses in which you were enrolled according to HOW WELL THEY FULFILLED YOUR NEEDS.

	Excellent	Adequate	Unsatisfactory
a Quality of instruction	1	2	3
b Course content	1	2	3
c Equipment and facilities	1	2	3
d Scheduling of classes	1	2	3
e Variety of courses	1	2	3
f Instructor interest and availability	1	2	3
g Textbooks and materials	1	2	3
h Mix of hands-on experience and classroom work	1	2	3
i Support courses such as English or math	1	2	3

Any other comments? _____

O. Please rate the quality of services offered at this college according to HOW WELL THEY FULFILLED YOUR NEEDS.

		Not Aware Service Existed	Did Not Use Service	Used but Dissatisfied with Service	Used and Satisfied with Service
a	Financial Aid	1	2	3	4
b	Tutoring	1	2	3	4
c	Child care	1	2	3	4
d	Personal counseling	1	2	3	4
e	Vocational counseling	1	2	3	4
f	Job search assistance	1	2	3	4
g	Academic advisement	1	2	3	4
h	Learning resource center	1	2	3	4
i	Library	1	2	3	4
j	Student activities	1	2	3	4
k	Reading, writing, math, or study skills improvement	1	2	3	4

Any other comments? _____

P. Would you recommend THIS INSTRUCTIONAL PROGRAM to a friend?

- 1 Would recommend
- 2 Would recommend but would point out some shortcomings
- 3 Would NOT recommend

Q. Would you recommend THIS COLLEGE to a friend?

- 1 Would recommend
- 2 Would recommend but would point out some shortcomings
- 3 Would NOT recommend

R. Do you plan to take any additional courses at this or another North Carolina community college/technical institute in the future?

- 1 Yes, probably within the next year
- 2 Yes, but not sure when
- 3 No
- 4 Undecided

Please use this space to add any comments you feel would help improve our educational services.

THANK YOU FOR YOUR HELP. PLEASE MAIL TO MDC, RIGHT AWAY!

Post Office Box 2226
Chapel Hill, NC

Appendix C
Variable Specifications

Variable Specifications

<u>Characteristics Variables</u>		<u>Method of Analysis</u>
Demographics		Frequencies and Proportions
	Race	
	Gender	
	Residence in state	
	Residence in county	
Motivational Activities		Frequencies and Proportions
	Reasons for entering	
	Intent to complete programs	
	Reasons for remaining in school	
	Influences on job and postsecondary decision	
Educational Activities		Frequencies and Proportions
	Day and evening attendance	
	Prior courses in other areas or occupational areas	
	Current educational status	
	Relatedness of secondary to postsecondary	
Completer Satisfaction		Frequencies and Proportions
	Quality of support service	
	Employment preparation	
	Needs related to program content	
Employment Data		Frequencies and Proportions
	Employment status	
	Employment data	
	Non-related employment	
	Reasons for non-related employment	
<u>Relationship Variables</u>	<u>Options</u>	<u>Method of Analysis</u>
Reasons for entering	Career objectives	Chi-square
	External influences	Contingency
	Access	Coefficient

Employment Status	Employed full-time or part-time Unemployed looking for work Unemployed not looking	Chi-square Contingency Coefficient
Training Related employment	Yes No	Chi-square Phi Coefficient
Satisfaction with program	Satisfied Neutral Not Satisfied	Chi-square Contingency Coefficient
Usefulness of training in current job	Good Average Poor	Chi-square Contingency Coefficient
Race	White Black Other	Chi-square Contingency Coefficient
Gender	Female Male	Chi-square Phi Coefficient

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