A comparison of financially assisted and nonassisted students in selected Iowa area school career education programs

Carl Herman Rolf
Iowa State University

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A COMPARISON OF FINANCIALLY ASSISTED AND NONASSISTED STUDENTS IN SELECTED IOWA AREA SCHOOL CAREER EDUCATION PROGRAMS

Iowa State University

University Microfilms International

300 N. Zeeb Road, Ann Arbor, MI 48106
A comparison of financially assisted and nonassisted students in selected Iowa area school career education programs

by

Carl Herman Rolf

A Dissertation Submitted to the Graduate Faculty in Partial Fulfillment of the Requirements for the Degree of DOCTOR OF PHILOSOPHY

Department: Industrial Education
Major: Industrial Education (Industrial-Vocational Technical Education)

Approved:

Signature was redacted for privacy.

In Charge of Major Work

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For the Major Department

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For the Graduate College

Iowa State University
Ames, Iowa
1981
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CHAPTER I. INTRODUCTION

The desire to be successful in a chosen occupation has been a goal of many Americans. Formal education has been and continues to be recognized as the vehicle by which this has become a reality. Furthermore, education that will provide for "the good life" has been a common desire of individuals in this country.

Roe (1956) and Super (1957) were of the opinion that work and one's occupation have a great impact on the individual. It is suggested that in our American culture, social and economic status depend more upon the occupation than upon any other single variable. Human existence is dependent on work as a central activity for individuals in our society (Leach, 1979). Economic survival and self-fulfillment are two common reasons for working. Our society regards work as an essential element for living. The expectation that individuals will need to prepare themselves for work will probably continue to be eminent into the future. Perhaps it is such information that prompted the national Advisory Council on Vocational Education (1968) to state:

Changes in the way we live and how we make our living have caused vocational education to become central to the total process of public education. Both the nature of society and the characteristics of work have changed. In recent years, these changes have been rapid and have magnified the interdependency of work and education. There is no place in the world of work either for the uneducated person or for the educated person who has not learned how to work. (p. xix)

The structure of the labor force is constantly changing. The skills needed to perform in the labor market are becoming more sophisticated. Consequently, the need for the unskilled laborer is rapidly diminishing.
Vocational education is purported to provide individuals with marketable skills. This is supported by a study conducted by Eninger (1965) where findings indicated that vocational graduates secure employment approximately one month faster than academic graduates and vocational graduates have greater accumulated earnings over an eleven year period than do academic graduates. Those who agreed with Phelps (1976) maintained that, in its broadest context, vocational education performs an important role in the development of human resources. The combination of general education and specific occupational competencies can create an environment whereby individuals acquire productive, satisfying, and meaningful work roles in the socioeconomic system.

In twelve years, from 1963-1975, the United States Bureau of Occupational and Adult Education cited enrollment growth in postsecondary programs as increasing by thirteen fold. Wilson (Note 1) reported that community colleges are currently attracting 53 percent of students enrolling for the first time in higher education. Of this group, a substantial number are participating in career preparatory activities. Part of this increase can be attributed to enacted legislation which made provisions to create financial resources for those who could not otherwise attend postsecondary vocational programs.

The most recent legislation, "Educational Amendments of 1976," Public Law 94-482 and "Comprehensive Employment and Training Act Amendments of 1978," Public Law 95-524 have arrangements for student financial assistance. Public Law 95-524 has accommodations to meet the needs of those who lacked the background to pursue career preparatory education and training.
The open-door policy, provisions for financial assistance, low cost education, and close proximity to students' residence are factors that make the community college a desirable place to acquire the training and education necessary to enter the labor market. However, enrollment in community college career programs has not increased without some problems. Green (1977) and Pulliams (1976) discovered that some students have low general education abilities and low self-concepts that hamper the learning process. Other problems cited by Elterich, Gable and Kerr (1979) included high attrition, low motivation and poor basic education skills. Perhaps those individuals who are unemployed or those who are underemployed are the same ones that have problems in a formal training program. Nevertheless, the unemployed or underemployed consider the community college career programs as an avenue whereby skills can be learned.

While limited resources may be cited as a reason for the discontinuation of educational pursuit, financial assistance is available to qualifying students. Available financial assistance includes: Basic Educational Opportunity Grant (BEOG), Comprehensive Employment and Training Act (CETA), Work Incentive Program, Work Study Programs, Vocational Rehabilitation, and Veterans' Assistance.

Federal and state programs were initiated at various times to meet a specific need. Since the early 1970s, BEOG and CETA have been available to aid the economically disadvantaged students in postsecondary educational programs. At this point, a logical question seems to be: how effective have the financial assistance programs been in aiding individuals to succeed in chosen career programs?
Need for the Study

Community colleges have experienced a rapid growth since the enactment and implementation of provisions of the 1963 Vocational Education Act. The United States Department of Commerce (1977) reported beginning enrollment of 11,184,900 for the academic year 1975. This figure included full-time and part-time students but excluded students taking courses at home for credit, by mail, radio or television, and students in branches of United States institutions operated in foreign countries. In 1975, the enrollment in community/junior colleges offering degree credit programs and not being branch campuses of four-year colleges and universities was 2,508,000. The Iowa Department of Public Instruction (Note 2) published a report showing that in the Fall of 1979 there were 22,610 full-time students enrolled in area schools. Of that total, 14,612 were full-time career education students.

Perhaps the Kellogg Foundation's (Gordon, 1973) prediction about the impact of the community college is significant.

The development of the community college is hailed by educational leaders as the most important innovation in higher education in the twentieth century. (p. 1)

From the outset, the mission of the community college has been unique. Helgott (1978) contends that:

The mission of the community college in the 'real terms' is what we are doing on our campuses. The single, most important of these realities is that our institutions are community based. This implies an essential diversity... ranging from the urban inner city, to the affluent suburbs, to the rural areas of the state. District populations are likewise diverse in terms of education, income, age, and other demographic factors.
A second reality of the community college education... is that it is opportunity oriented. Admission is essentially nonselective or 'open door'. The goal is to get students in, help them find something they want and/or need to do, allow them to complete it, and send them on the way. If the door is indeed open, we must be prepared to deal with the educational, emotional, and intellectual disparity among students that open admission implies.

Third, community college education is goal-oriented. Students come to the community college seeking 'something', something as specific as training for a particular career... or something as evasive as 'what to do with my life' or 'what am I going to be'.

Fourth, community college education emphasizes the integration of learning and living... We recognize that many community college students have a utilitarian view of education. (p. 24)

Currently, the community colleges have students coming from a variety of life styles. Elterich et al. (1979) stated that the "community colleges attract diverse students whose needs and development levels are distinctly disparate," (p. 139) and Gleazer (1980) asserted that "the community college has a greater variety of participants than any other institution," (p. 9). It is not uncommon to find individuals who fit categories such as the displaced homemaker, the economically deficient, the recent high school graduate, the disadvantaged and/or handicapped, the individual who is planning to re-enter the labor market, the individual who is planning on changing careers, or the individual who is pursuing a career in a nontraditional role.

With such a diverse student population, the cadre of problems facing the community college in delivering quality education is significant. Davenport (Note 3) and Ginzberg (1976) pointed out that allowances must be made for individual differences and provisions for opportunities. Each
individual should be encouraged and assisted in developing to his or her full potential; in essence, to grow as much as their potential will allow.

The American people believe the key to social understanding, acceptance, and mobility—geographical and occupational—is employment. Dillon and Horner (1967) state:

The structure of the labor force is changing constantly. New occupations are being created as emerging technologies develop demands for new competencies and existing occupations become obsolete. Occupational mobility is constantly increasing, not only in terms of geographical mobility but vertically toward more demanding occupations in terms of skills and educational requirements. (p. 1)

Therefore, individuals enroll in community college career education programs with the hope, anticipation, or goal of developing the skills and knowledge to be competitive in the labor market.

Howlett (1977) cited that some colleges and universities have up to 30 percent of their students subsidized, either partially or completely, by federal monies. If that trend continues and expands, perhaps additional studies need to be conducted to determine the impact of that kind of spending. Howlett (1977) also cited:

Mangum, considered by many to be the foremost authority in the United States on manpower or human resources, stated in a personal interview that little or no research had been done in comparing funded students with nonfunded students in a standard school or college setting. . . . In as much as millions of dollars continue to be spent on these programs, it seems appropriate to compare achievement of funded students with the achievement of nonfunded students in regular technical college classrooms. (p. 26)

If the community college's role is to help individuals develop the skills necessary to function in today's society, then Gleazer (1980) appeared to be on target:
It would seem that it is time to affirm that a primary function of community colleges is to aid those who want to learn how to secure certain basic necessities. Among these are: . . . employment. . . rights and responsibilities. (p. 20)

Richards and Casey (1979) stated that the two-year college is an alternative to educational growth for a large segment of the population lacking access to four-year institutions. However, low scholastic ability and financial constraints may limit their success.

In summary, how well is the community college serving the needs of the community? With the diverse group of individuals to be served, the challenge is to assist those who have low ability, limited financial resources, and unique problems. For this reason, the problem of this study was developed.

Statement of the Problem

The problem of this study was to compare grade point average, program completion rate, and having secured employment related to training of selected financially assisted students with nonassisted students in three Iowa area school/community college career education programs. Throughout the study a 5 percent level of significance was used.

Research Questions and Null Hypotheses Tested

The following research questions have been developed and null hypotheses stated:

1. Is there a difference in the grade point average of the financially assisted and the nonassisted students?
Null Hypothesis I. It is hypothesized that there is no significant difference in the grade point average of the financially assisted students and the nonassisted students. This hypothesis was tested using the Student t-test:

\[
\text{GPA}_{\text{assisted}} = \text{GPA}_{\text{nonassisted}}.
\]

2. Is there a difference in the program completion rate of the financially assisted and the nonassisted students?

Null Hypothesis II. It is hypothesized that the frequency of program completion is independent of financial assistance or nonassistance. This hypothesis was tested using the contingency Chi-Square test of independence:

\[
\text{Frequency}_{\text{assisted}} = \text{Frequency}_{\text{nonassisted}}.
\]

3. Is there a difference in having secured employment related to training of the financially assisted and the nonassisted students?

Null Hypothesis III. It is hypothesized that no significant difference exists in the proportion of financially assisted students and the proportion of nonassisted students who secured employment related to training within sixty days of leaving or completing the program. This hypothesis was tested using the contingency Chi-Square test of independence:

\[
\text{Proportion}_{\text{assisted}} = \text{Proportion}_{\text{nonassisted}}.
\]

4. Is there a relationship between grade point average and program completion?

Null Hypothesis IV. It is hypothesized that no significant relationship exists between grade point average and program completion. This hypothesis was tested using the Pearson product-moment correlation with a test that \( r = 0 \) in the population sampled.

5. Is there a relationship between grade point average and having secured employment related to training?

Null Hypothesis V. It is hypothesized that there is no significant relationship between grade point average and having secured employment related to training within sixty days of leaving or completing the program. The hypothesis was tested using the point-biserial correlation with a test that \( r = 0 \) in the population sampled.
6. Is having secured employment related to training independent of program completion?

**Null Hypothesis VI.** It is hypothesized that the frequency of having secured employment related to training within sixty days of leaving or completing the program is independent of program completion. This hypothesis was tested using the contingency Chi-Square test of independence.

7. What is the relative contribution of financial assistance, sex, and age to grade point average?

**Null Hypothesis VII.** It is hypothesized that financial assistance, sex, and age make no significant contribution to the prediction of grade point average. This hypothesis was tested by the F-statistic:

\[ F = \frac{R^2_{y.123} - R^2_{y.12}}{1 - R^2_{y.123}} \cdot \frac{df_2}{df_1} \]

and \( y = x_1 + x_2 + x_3 + x_1x_2 + x_1x_3 + x_2x_3 + x_1x_2x_3 \),

where \( y = \) achievement (GPA)

\( x_1 = \) age (in years)

\( x_2 = \) sex (0 = female, 1 = male)

\( x_3 = \) financial support (0 = none, 1 = some)

8. What is the relative contribution of financial assistance, sex, and age to having secured employment?

**Null Hypothesis VIII.** It is hypothesized that financial assistance, sex, and age make no significant contribution to the prediction of having secured employment related to training. This hypothesis was tested by the previous F-statistic:

and \( y = x_1 + x_2 + x_3 + x_1x_2 + x_1x_3 + x_2x_3 + x_1x_2x_3 \),

where \( y = \) having secured employment related to training

\( x_1 = \) age (in years)
\begin{align*}
x_2 &= \text{sex (0 = female, 1 = male)} \\
x_3 &= \text{financial support (0 = none, 1 = some)}
\end{align*}

Purpose of the Study

The purpose of this study was to:

1. Determine the difference between having financial assistance and not having financial assistance on grade point average, program completion, and securing employment related to training on post-secondary career education students from selected Iowa area schools and community colleges.

2. Provide information that could be helpful to area school/community college personnel and referral agencies in making decisions relative to meeting career education students' financial need.

Assumptions of the Study

For the purpose of this study, the following assumptions were made:

1. The population sampled was representative of career education programs in Iowa area schools.

2. Adequate sampling was available.

3. The data collected from the sample population were unbiased and representative of the group sampled.

4. The formal documents from which the data were collected accurately reflected the students' grade point average, completion rate, financial assistance, and employment related to training.

5. The survey instrument provided valid information.

6. The methodology used to gather data was not biased.

7. Individuals in the sample population would be located.

8. The instructional evaluation instruments and processes used accurately measured student achievement.
9. The grade point average for all students was based on the grade the student received in the program courses. The assumption must be that the instructors in all programs were consistent in their grading pattern.

10. The facilities, materials, supplies, equipment, instructor ability, and method of presentation were adequate for learning.

11. The survey instrument was completed by individuals in the sample of the population in a professional manner providing accurate and usable information.

Limitations of the Study

The study was conducted under the following limitations:

1. Only nine career education programs from three Iowa area schools were included in the study.

2. Only full-time students enrolled in the programs were included in the study.

3. Only those students who completed or exited their program in March, May or August, 1979, were included in the study.

4. Students receiving veteran's benefits or social security benefits were excluded from the study.

5. The assisted students were those who received financial assistance from the Comprehensive Employment and Training Act or the Basic Education Opportunity Grant.

6. Employment related to training must have occurred within sixty calendar days of program completion.

7. No attempt was made to determine student's goal for enrolling in the program, therefore, the attrition rate did not reflect those who left because their goal had been met.

8. No attempt was made to measure attitude or other social factors that may or may not have an impact on the variables of the study.

9. No attempt was made to measure the quality of instruction received by the student.

10. No attempt was made to measure the possible effects caused by the time of the day the classes were held or the time of the year that courses were taken.
11. No attempt was made to evaluate the students' aptitude for the career education program in which they had enrolled.

12. No attempt was made to measure the amount of knowledge or skill possessed when the student began the program.

Procedure of the Study

1. The review of literature was completed.

2. Career education programs in the three Iowa area schools were selected.

3. Full-time students enrolled in those programs were identified.

4. A questionnaire was prepared for mailing to individuals who did not have employment related to training at the time of leaving or completing the program.

5. Information was gathered from the students' permanent record, i.e., grade point average, age, sex, and number of quarters/semesters completed.

6. The names of those students who received CETA and/or BEOG financial assistance were obtained from the financial aids office.

7. The placement office supplied the names of those who had secured employment related to training at the time of program completion.

8. Placement data from program graduates were secured via the questionnaire when the placement office did not have the information.

9. Data for computer processing were coded and recorded.

10. The Statistical Analysis System (SAS) computer program at the Iowa State University Computational Center was used to perform the statistical analysis.

11. The data were analyzed.

12. A summary of findings was prepared.

13. Recommendations for future study were completed.
Definition of Terms

To assist in the reading of this study, the following terms are defined:

1. **Area schools.** For the purpose of this study, area schools shall mean community colleges and vocational technical schools.

2. **Financially assisted students.** Those individuals who are classified as full-time students attending the area school and receiving BEOG and/or CETA monies to help defray educational costs.

3. **Program completers.** Those students who have completed the career/vocational education program in which they enrolled.

4. **Career education.** For the purpose of this study career education shall mean vocational education.

5. **Community college.** A two-year community based postsecondary institution which has authority to award an associate degree, a diploma, and/or certificate of completion, and which offers comprehensive educational services to the community, and may include: occupational orientation programs, career preparatory programs, general education, preparation for transfer to a baccalaureate degree program at a four-year institution, continuing adult education, basic developmental education, and community services.

6. **Financial assistance.** Monies from BEOG and/or CETA for individuals enrolled in area school programs to help defray the cost of their education.

7. **Nonfinancially assisted students.** Those individuals who are classified as full-time students attending the area school but are receiving no funding from CETA or BEOG.

8. **Open-door policy.** Student admittance to the area school regardless of prior scholastic achievement.

9. **Support services.** For those students enrolled in the area school, the assistance needed in daily personal, educational, and/or occupational services, e.g., transportation, counseling, job placement, legal assistance, medical assistance, child care, etc.
10. **Training related employment.** Securing employment in a job that is either directly related or somewhat related to the area in which the individual learned specific job skills and knowledge. The employment must be for pay.

11. **Vocational education.** Organized educational programs designed to prepare individuals for gainful employment as semi-skilled or skilled workers or technicians in recognized occupations and in new and emerging occupations but excluding any program that prepare individuals for employment which require a baccalaureate or higher degree.
CHAPTER II. REVIEW OF LITERATURE

The review of literature was organized with three primary goals. The first was to discuss the influence of career education in today's society. Second, the literature was reviewed to find relevant information to this study concerning factors impacting career education. The third goal was to determine the performance of career education.

Career Education in Today's Society

Developing potential

Organized education is recognized as the vehicle for transmitting knowledge, skill, and culture to the masses. One common variable in achieving success for many individuals, rich or poor, has been their education. A basic underlying concept was stated by Fitch (1973).

As education in America has evolved, so has the philosophy that every individual in this country deserves the opportunity to pursue learning experiences, within organized education, that will enable him to earn a livelihood and live comfortably within modern society. (p. 331)

That prevailing philosophy has created the opportunity for individuals to advance in our society. President John F. Kennedy reinforced this belief in his address to the 1962 Congress with the following statement.

If this nation is to grow in wisdom and strength, then every able high school graduate should have the opportunity to develop his talents. (Public Papers of the Presidents of the U.S., John F. Kennedy, 1963, p. 9)

Wolansky (1973) promoted the hypothesis of planning and implementing career education strategies to help individuals develop their potential. Evans (1971) purported that one of the primary purposes of education and
especially career education is to allow the individual who has mastered certain skills to enter an occupation at a higher level and to progress up a career ladder.

Pincus (1980) described the advantages of career education in the following:

Supporters of vocational education see this process as beneficial to just about everyone. Corporations get the kind of worker they need; four-year colleges do not waste resources on students who will drop out; students get decent jobs; and the political dangers of an excess of college graduates are avoided. (p. 333)

Medsker and Tillery (1971) saw Americans as being pragmatic about education with most students describing their goals of education as essentially occupational. Keller (1980) claimed that four-year as well as two-year higher education graduates are demanding that educational pursuits provide the skills necessary to secure employment.

In addition to educational opportunities, a feature of education in this country is the freedom to choose a school, college, or university to develop unique talents. Keller (1980) affirmed that at least one distinguishing characteristic of past and present educational policies is the right to select a school and demonstrate personal talents to be successful in a chosen area. While this option is not available in most other countries, Super (1957), Roe (1956), Evans (1971) and Ginzberg (1976) advocated the individual right to proceed as far as talents and ambitions would allow.

In a message to Congress in 1965, President Lyndon B. Johnson identified a goal that our country ought to achieve:
Each individual must have a fair chance to develop his abilities and to engage in productive and rewarding activity. In the Great Society, all men will have the self-respect and economic security that flow from full use of their talent. (p. 253)

We must open opportunity, genuine opportunity for each of them—opportunity to learn and opportunity to earn in keeping with all their potential. (Public papers of the Presidents of the U.S., Lyndon B. Johnson, 1966, p. 260)

Mangum (1969) described freedom of choice this way:

The long term goal of the American society has been individual freedom . . . the extent of freedom has been measured operationally by the range of opportunities available to the individual and the relative absence of constraints upon his ability to choose. . . . (p. 2)

**Challenge of technology**

People who exercise the freedom to select an occupation and to become skillful in that profession or trade will most likely produce high quality goods or services. Technicians, professionals, and skilled workers play a significant role in current technology and standards of living. An assumption can be made that, in a postindustrial era, the work force will continue to change to meet advancing technology. In fact, present and future Americans will be required to make adjustments in their work and domestic life. In one area only, Cortes-Comerer (1980) wrote, "seventy-five percent of all information has been developed within the last twenty-five years, with the total amount to be doubled every ten years" (p. 17). Gleazer (1980) and Benson (1980) concurred that our society is changing so rapidly that what is known today will be forgotten tomorrow. It is inconceivable for modern man to comprehend the changes that will occur in the near future (Toffler, 1980). Faure, Herrera, Kaddoura, Lopes, Petrovsky, Rahnema, and Ward (1972) stated that education
is preparing people for a type of society which does not exist. The national Advisory Committee on Vocational Education (1968) advocated that career education needs to develop individual skills necessary to enter employment, and to provide opportunities to improve employment status and earnings to adapt to a changing economic environment.

Over the years the importance of work has changed. Smith (1979) described work, historically, as having different implications; however, the philosophy of work continues to influence work and leisure of modern Americans. "To a large extent," Evans stipulated (1971), "work determines how much money a worker receives, where he will live, what kind of recreation he will enjoy, who he will meet socially and those whom he will avoid meeting" (p. 128). In a publication by Volz (1979), the following was included. "Sigmund Freud explained that no other aspect of living ties the individual so firmly to the realities of life as does work, and through work the individual becomes an integral part of society" (p. 10). Furthermore, Wolansky (1973) was of the opinion that work would continue to be an important function in man's activities for years to come.

**Human resources**

Venn (1964) reported, "that technology has created a new relationship between man, his education, and his work in which education is placed squarely in between him and his work" (p. 1). The education and work relationship is desirable in that it has potential for human development. Most will agree with Westley and Westley (1971) that developing human resources is costly and complex. There is concurrence that skilled labor is needed and that investing in human resources will reap benefits
(Blocker, Plummer, and Richardson, 1965). However, human development must be more than specific skills to get a job. Knowledge, skills, and attitudes must be groomed to create a foundation whereby an individual will have the background to adjust to the changing society (Wolansky, 1973).

There are indications of industry recognizing the value of human development and being committed to the endeavor of human resource development; the more an employee learns and grows the better it is for both the company and the employee (Johnson, 1980). Perhaps it could also be said that the more an individual knows, or can perform, prior to accepting employment the better it is for both the company and the individual.

Skilled workers have acquired the needed expertise in a variety of ways. During the last fifteen years, a common method of developing the competencies demanded by the labor market was in some form of post-secondary education. According to the United States Department of Commerce (1977), postsecondary career oriented enrollment has increased thirteen fold—from approximately 144,000 in 1963, to nearly two million in 1975. Of equal significance are the continued growth of postsecondary career education in Iowa. Even in a period of declining enrollment, the Iowa Department of Public Instruction (1980c) recorded a 13 percent increase in career education over the two year period of 1976-1978.

**Expectations**

The Vocational Education Act of 1963, created provisions for funding new programs, vocational schools, technical colleges, and community colleges. The Vocational Amendments of 1968, the Higher Education Act of
1972 and the Vocational Amendments of 1976 have increased the opportunity by which technical skills and knowledge can be attained. In Iowa, Legislature, 65th, Senate File 550 (1965) was the enacted legislation that gave impetus to career education in area schools and community colleges. As would be expected, enrollment in these programs has steadily increased. Bushnell (1978) reported that "access has been provided for millions of students for which there had been little opportunity in the educational system, and skilled manpower pools for new jobs have been developed" (p. 3).

In a recent publication, Johnson (1980) wrote that Americans are changing their attitude about career education. Seventy-seven percent of the public favored more emphasis on career education in the schools. With that opinion, perhaps Ginzberg (1976) had a valid point when he took the following position:

> The ability of a society to survive and to prosper depends first on its having institutions in place to provide the members of each generation with the values, knowledge, and skills that will enable them to meet the challenges they will encounter as they grow up and assume their adult roles as workers, parents, and citizens. An individual will not be able to recognize, much less meet the challenge he will encounter unless he has been trained. (p. 63)

Career education is an investment that the public makes for future workers. Quantifiable benefits that can be measured from the investment in career education are: 1) gross earnings the student can expect, and 2) increased productivity the public can expect (Hatch, 1979). Hodgkinson (Note 4) claimed that 40 percent of the Gross National Product can be attributed to the educational system and educational level. Still another measure of return on the investment of career education is the amount of
taxes paid for the education versus the amount of taxes paid by the graduate from earnings in a higher paying position. The Des Moines Area Community College (Note 5) estimated that the taxes withheld from a graduate's earnings for one year exceeded by three hundred and ten dollars the amount required for one year of education.

The basic premise that career education has been essential to the development of this nation is held by many, including national leaders. Career options and the freedom to choose an occupation have been unique features that have enabled many Americans to become successful. Enacted legislation was the catalyst that spawned career education programs in area vocational/technical schools and community colleges. Consequently, many students have exercised the option to develop competencies necessary to enter and advance in the labor market.

Factors Impacting Career Education

With the expansion of postsecondary career education came many problems. These included more students than space and facilities could accommodate, demands for additional programs, employers wanting more trained personnel than could be provided, students with financial problems, student attrition, students with learning difficulties, and students who were at an age beyond the recent high school graduate. Among all students, a group referenced as "the nontraditional student" emerged as a part of the community college population.
Nontraditional students

Roueche and Mink (1976) included in the nontraditional student group those persons from low-income, minority backgrounds who had experienced little satisfaction and success in previous educational experiences. Cross (Note 6) identified this group as adult part-time learners for whom education was a secondary rather than a primary activity. Lenning and Hanson (1977) included in the nontraditional group the adult student returning to formal education. Even though reference was made to a group of individuals who have unique needs there was disagreement about who was to be included. The important feature was that community college career education programs were attempting to provide worthwhile experiences to a group who had characteristics different from the traditional postsecondary students.

Meonch (1978) reported that enrollment in postsecondary education institutions was leveling off because of declining birthrates and migration of population. However, the community college in an effort to retain a certain level of enrollment has intensified recruiting the nontraditional student. Lenning and Hanson (1977) predicted that because of the concern for maintaining enrollment, greater effort would be made to attract non-traditional students to the community college.

Community colleges offer opportunities to many students who otherwise may not have engaged in formal postsecondary educational activities. Medsker and Tillery (1971) expressed the opinion that convenience, low cost and an open-door admissions policy would make the community college attractive to greater numbers of individuals who would not have or could not have considered schooling beyond the twelfth grade.
Open-door policy

With the open-door policy, low cost schooling, and convenience, came a group of students who had experienced limited success in previous academic studies. Some had poor general education skills, others demonstrated poor attendance and work habits, and still others possessed low motivation. Medsker and Tillery (1971), "estimated that 30 to 50 percent of the students who enter the open-door colleges are in need of the basic skills required for college study" (p. 65). Roueche and Armes (1980) saw the student's lack of basic skills as a serious problem for the community colleges. Roueche and Mink (1976) found that some individuals who were pursuing postsecondary education were disadvantaged by lack of verbal skills and insufficient occupational abilities, both of which were needed for success in coping with our technological society.

A major study of adult literacy, conducted under a NIE Grant at the University of Texas, uncovered the distressing fact that public-school students are likely to be reading at a higher level of competence in grade nine than three years later when they are seniors. (Roueche, Note 7, p. 5)

Udell, Parker and Strang (1977) recorded in their summary of finding from Milwaukee employers the need of basic skills; i.e., reading, writing, mathematics and oral communication. Unfortunately, more students were entering college without rudimentary academic skills needed for success in the college environment.

A condition often found with poor academic performance was low self-esteem. Green (1977) and Roueche (1978) asserted that a high portion of community college students lack self-confidence in their ability to perform
academically. Sultan's (1979) study revealed that a self-defeating self-concept limited student success. Bonaparte (1971) concluded in his study that unsuccessful students had a lower self-concept than successful students and the low self-esteem was devastating to the learning process. Moore (1976) perceived this phenomenon a little differently: "Although there is some agreement that differences in self-concept do exist between achievers and nonachievers, such consensus does not confirm that the differences in self-concept are the cause of, or the result of, under-achievement" (p. 10).

While the public community college attracts students from almost all levels of academic ability, achievement, socio-economic background, and motivation, it must be recognized that the open-door policy has created some false illusions. Hopefully, the resources, facilities and professional staff can overcome the feeling of powerlessness, worthlessness and alienation felt by the socially and psychologically deprived (Pulliams, 1977; Roueche and Mink, 1976; and Johnston, 1978).

Assumptions have been made about the academic achievement and persistence in college programs. The poor academic performance may be attributable to other problems, including low motivation, poor work habits, and or poor attitudes. Matson (1965) and Aiken (1968) subscribed to the point of view that little difference existed between the persister and nonpersister. Roueche (Note 7) alleged that high school grade point averages are no longer valid indicators of postsecondary program success.
Attrition rate

A lack of academic ability and a poor self-concept were reasons given by students who leave the community college prior to completing a program of study. For an individual to continue, an environment must exist for progress toward the completion of the program or predetermined goals. Welker (1978) expressed the opinion that students leave school because of: 1) previous unsuccessful educational experiences, 2) teachers who were perceived to show little concern or no care for the student, 3) poor attendance habits, 4) poor attitudes, and 5) study habits. Sultan (1979) disclosed a stereotyping of CETA students by teachers and administrators and the inability of students to adjust to standards and conformity as reasons for students discontinuing a program of study. Roueche and Hudgens (1980) and Daly and Bateman (1978) indicated that attrition continues to grow in postsecondary education. Wilson (Note 1) claimed that the largest problem confronting the community college is student attrition. Roueche and Mink (1976) stated that national attrition rate for the non-traditional student and low-achieving student is alarmingly high. Even though community colleges have attrition problems, Cross (Note 6) stipulated that community colleges have received undue criticism for high dropout rates, partially attributable to special learning problems not encountered in other postsecondary institutions.

The socioeconomic status of the students' family background has potential implications for underlying assumptions about retention in school. Peng and Fetters (Note 8) revealed that students from lower socioeconomic status families had greater incidents of dropping out than students
from higher socioeconomic status families. "However, no significant relationship between financial stress and withdrawal was found in the analysis" (p. 11). Turner (1970) concluded that nonpersisters did not have characteristics that would distinguish the group in any meaningful way. Turner (1970) also suggested that the effects of parental expectations may have had a greater impact on withdrawal than did socioeconomic conditions. Sewell and Shah (1967) contended that low motivation and aspirations were a significant factor in college success that may correlate with the low socioeconomic status. Research conducted by Jackson (1978), on a group of financially assisted students, found graduates had higher educational aspirations than those who dropped out.

For many students leaving a career education program prior to graduation, the term dropout may be a misnomer. Individuals leaving before graduation or dropping out may not mean failure. Research conducted by Lawry (1973) showed "a significant number of students who did not continue their education cited full-time employment as their primary reason for not continuing" (p. 2336). A United States Department of Labor study (1975) cited that "dropping out proved to be the quickest way and efficient way of achieving success" (p. 3). Furthermore, "between one-third and one-half of the dropouts in all trades were working in an occupation related to their apprenticeship" (p. 6). Bottoms (1980) stated:

In fact, dropouts from vocational programs seem to have been helped rather than hurt. They showed greater mobility in their primary job than their general education counterparts. Also, they showed greater satisfaction in their jobs. (p. 9)

In opposition to Bottoms' statement, the Yearbook of Higher Education (1978) revealed:
While many students return to complete their education after dropping out of school, many do not. . . . Many studies have shown that students who dropout before completing their education are unlikely to receive as much benefit from their education as do those who complete a degree program. (p. 594)

The Tex-SIS Follow-up System (1977a) study suggested that some students were inappropriately labeled as dropouts. One group of students had enrolled with plans of leaving after completing the courses needed or wanted; they had no intention of completing the entire program. Another group of students left early, but planned to return; their schooling had merely been interrupted. Stafford's (1975) research concluded, "some students who were listed as dropouts were not true dropouts when viewed in the light of aims and objectives of the individuals and community college" (p. 746). Sultan (1979) contended that CETA students were interested in jobs and not classes; they were not motivated to complete a program. A statewide occupational student follow-up study conducted by the Illinois Community College Board (1978) showed that many students had completed their objectives after completing a few courses. Only a few students withdrew because of academic difficulty.

A report released by the Office of Student Life Assessment and Research (Note 9) revealed that 63 percent of the nonreturning students had job-related goals. Of this group, 21 percent had achieved their goal while another 48 percent said they had partially completed their goal. A ninety day follow-up of the nonreturning group showed 130 out of 200, or 65 percent, had employment. Noeth and Hanson (1976) found many non-completers of career programs employed in program related occupations.
Financial constraints

Even though students have expressed financial constraints as a reason for leaving college, not all research concurs. Lawry (1973) cited financial difficulty as the least frequent reason given for withdrawal. In a study conducted by the Office of Student Life Assessment and Research (Note 9) financial reasons were given most frequently for leaving formal education. Daly and Bateman (1978), Jackley and Henderson (1979) and Tex-SIS Follow-up System (1977a) cited financial problems as a reason for leaving formal education. This problem is not a recent development; Doermann (1971) contended that lack of sufficient financial support was a major barrier for students who could and should benefit from higher education in the United States. Students and potential students were diverted from educational pursuit because of a lack of money. Sultan's (1979) study of CETA funded students disclosed other barriers to career education programs which included a lack of transportation, entry level skills, and a lack of student motivation.

Financial assistance has been considered a catalyst in aiding economically disadvantaged students in formal learning. There is evidence that the amount of financial aid affects the decision to attend the community college, continue in college, on a full-time or part-time basis (Voda, 1974). A conclusion of Harris's (1976) investigation was that dropouts were in greater need of financial assistance than nondropouts. Research completed by Russ (1974) cited the amount of financial aid as the variable having the most impact on persistence in college.
"Data suggest that financial aid reduces college withdrawal, although its overall impact may be slight" (Yearbook of Higher Education, 1978, p. 594). Consequently, in recent years community colleges have experienced a large group of economically disadvantaged individuals who are enrolling in career education programs. Howlett (1977) stated that some colleges and universities have up to 30 percent of their students receiving federal funds and another 10 percent attending on state subsidies. Bottoms (1980) reported that, in 1978, approximately two million disadvantaged students experienced career education through an approximate 100 million dollar federal set-aside investment.

Enacted legislation

Two sources of financial aid that have had quite an impact on accessing individuals into career education programs are Basic Education Opportunity Grant (BEOG) and Comprehensive Employment and Training Act (CETA).

The first provision for what was to become the Basic Education Opportunity Grant was made in Public Law 89-329, Higher Education Act of 1965, as published in Title IV, Part A, Section 401(a):

It is the purpose of this part to provide, through institutions of higher education, educational opportunity grants to assist in making available the benefits of higher education to qualified high school graduates of exceptional financial need, who for the lack of financial means of their own or of their families would be unable to obtain such benefits without such aid. (p. 1232)

According to Glover and Chapman (1975), the federal monies for the Basic Education Opportunity Grant were available for the first time to eligible postsecondary students in 1973.

The Comprehensive Employment and Training Act, Public Law 95-524 made other provisions for educational activities; Title II, Part A, Section 201 stated:

It is the purpose of this title to establish programs to provide comprehensive employment and training service throughout the nation in order to ease barriers to labor force participation encountered by economically disadvantaged persons, to enable such persons to secure and retain employment. . . . Such programs shall include the development and creation of training, upgrading, retraining, education . . . at their maximum capacities so as to increase their earned income. (p. 1950)

Additional conditions are stipulated in Part B, Section 211:

Comprehensive employment and training services may include but need not be limited to the following: . . . (4) educational and institutional skill training to prepare persons to enter the labor market. . . . (13) payment of allowances to persons in training. . . . or other expenses incurred in training or employment. (p. 1954, 1955)

Socioeconomic status

Financial assistance, the open-door policy, accessible programs, and occupationally oriented programs have made community colleges attractive to a large number of individuals. These institutions were seen as a means of achieving success, improving socioeconomic status, raising a standard of living, and creating employment opportunities. With those opinions, there are findings that bear some interesting information. Peng (1977)
cited that given equal academic qualification, a person in the lower socio-economic quartile was less than half as likely to enter college as a person in the highest quartile. Furthermore, disregarding socioeconomic status, an individual in the lowest academic ability quartile had less than one-third as great a chance of entering college as one in the highest quartile. Peng's study also showed that despite all the attention given to family income in college participation the role of the social class had almost as much influence as ten years ago. Data from the National Longitudinal Study (Peng and Holt, 1977) revealed that 87 percent of high school graduates from families of high socioeconomic status attended college while only 45 percent of those from families of low socioeconomic status attended college. Karnes and Zehrbach (1975) also supported the idea that a strong, consistent relationship exists between socioeconomic status of parents and educational achievement of their children. Carey's (1977) research created a dichotomy with other research; socioeconomic characteristics were of little or no value in predicting academic performance of a group of community college career education students.

While research is inconclusive that social class and family income play an important role in college attendance there are, nevertheless, those from the lower quartile who want to pursue some form of postsecondary education. And, perhaps, without some form of financial assistance the barriers to participation would be insurmountable. An assumption can be made that career education is wanted.

Because financial assistance is available in a variety of forms and from many sources, it would be very difficult to identify the number of
students in community colleges receiving assistance. Whether community colleges are receiving an adequate share of the funds to finance the need is still another issue. Nelson (Note 10) reported:

Two year institutions, both private and public, receive less than 16 percent of the funds from United States Office of Education programs even though they enroll over 25 percent of all full-time and over 53 percent of all first-time, full-time freshmen from families with incomes of less than $10,000, they receive less than 16 percent of United States Office of Education student loan funds, and a similar percentage of Basic Educational Opportunity Grants. (p. 1)

Financial assistance

The impact of financial assistance on student performance was reported in several studies. Bergen and Zielke (1979) reported finding no significant difference between grade point average achieved by BEOG recipients and non-BEOG recipients. The number of BEOG graduates was not significantly higher than nongraduates. Research by Strong (1975) found no difference in academic performance of the assisted recipients and the nonassisted recipients. Rose and Nye (1978) discovered in their research that students were successful because of the financial assistance and service extended. Conclusions drawn by Davis (1978) indicated that "student financial aid recipients persisted in college at a level equal to and greater than non-financial aid recipients" (p. 2085). Howlett's (1977) comparison of funded students with nonfunded students enrolled in business courses showed no significant difference in final grade point average. No significant relationship was found between academic achievement and the amount of financial aid nor between academic achievement and the type of financial aid (Falk, 1978). A follow-up study by Pendergrass (Note 11) of funded and
nonfunded students who had completed a similar course of automotive training disclosed no significant difference.

Financial assistance has created a way for many students to attend the community college; students would not have received formal career education if financial assistance had not been available. Data were inconclusive as to whether students receiving financial assistance have greater personal problems and learning difficulties than those who do not. Perhaps the accessibility of the community college, its open-door policy, and the belief that success could be achieved encouraged a number of students with learning problems to attend. In any event, the community college is fulfilling one of its roles, that of providing career education experiences for residents in the college district.

Career Education's Performance

Today, America has more than enough work, but not enough jobs to go around. Everywhere one looks there is work to be done, buildings to maintain, transportation systems to be repaired, homes to be maintained, sick and elderly people to be cared for, the environment to be cleaned up and youth and adults to be educated. (Bottoms, 1979, p. 23)

Bottoms' statement has some interesting connotations. With the high rate of unemployment, escalating inflation, and labor turmoil, was the statement made in jest? Did a dichotomy exist that had no answer? What were logical and pragmatic solutions to the problem? Perhaps the American society needed to examine where it was and where it wanted to go.
Developing human resources

It is essential that our nation's most valuable resources--its citizens--be developed. Only through such endeavors can a "plenty of work, but not enough jobs" situation be turned around. Olson (1980) responded to this rather succinctly: "federal, state and local government must begin to allocate funds to this natural resource to a degree which indicates a recognition of the value of this natural resource to the future of the United States" (p. 56). Phillips (1978) addressed the same issue differently when career education was described as needing to accentuate people development rather than people maintenance.

A pragmatic approach to human development is capitalizing on the capacity of people to change, to learn new skills and knowledge, and to develop additional and creative methods to solve problems and meet unknown challenges. Future Shock and The Third Wave are examples of writings that discussed adjustments Americans can anticipate in the coming years (Toffler 1970 and 1980). Calhoun and Finch (1976) emphasized career education's potential for meeting societal and individual needs. Bottoms (1980) supported that position because career education is more than job preparation; included are skills and knowledge that stress leadership development, work discipline and ethics, attitudes and values, human relations, decision making and problem solving techniques.

For years it has been the belief that education has the capacity for assisting in developing human resources to resolve problems, advance technology or promote our culture. With this attitude and philosophy, society has perpetuated and promoted options in making career decisions.
Evans (1971) asserted that students' options are increased with the availability of career education. He cited a Project Talent study which "showed clearly that general curriculum, which many educational philosophers claim offers the greatest number of options to students, really offers the least" (p. 29). A United States Department of Labor (1979) publication stated that individuals currently employed gained from education beyond high school; career education helped, but manpower programs of the 1960s did not. Halasz-Salster (1980) asserted that education instills values of our society and performs an important role in developing students' knowledge and skills for the world of work.

At a time when the work values of today's youth are questioned, it is reassuring to see the Gallup Poll reported by Elam (1979) revealing that America's young people are work-oriented and that they believe the United States continues to be a land of opportunity. "Research tells us that the work attitude of youth is formed more by their socio-economic background than by school" (Halasz-Salster, 1980, p. 10). However, other influencing variables may be: 1) freedom of choosing or selecting a career, 2) potential of earning a good living wage, 3) job satisfaction from working in a highly technical society, 4) human growth potential, 5) variety of careers from which to choose, or 6) sheer desire to function in a meaningful capacity. Nevertheless, career education contributes to the overall goal as pointed out by Walsh and Reynolds (1977); career education "is not an end in itself, but a means to the end of employment" (p. 48).

Data reported by Martin (1979) from a Census Bureau survey of income and education identified nearly 24 million persons in the United States who
could be termed poor. Over three million of them, or 13 percent, were in the 16 to 21 age group. Perhaps, as suggested by Carson (1979) and Peng (1977), career education could benefit women, minorities and low income persons returning to school.

Data supported Evans' (1971) statement that one of the primary functions of career education is to aid individuals in securing employment. The community college has been vital in providing individuals with saleable skills to meet labor market need. Iowa Department of Job Service (1980) published the following statement:

Iowa's fifteen area community colleges and area vocational-technical schools play an important part in providing skilled workers to meet the changing needs of our times. Based on the 'education for all' concept, the schools offer 420 full-time programs to prepare Iowans for 97 different jobs. Practically everyone seeking retraining or upgrading of his or her vocation will benefit from the wide curriculum. (p. 1)

The Iowa Department of Job Service (1980) explained in greater detail the impact of specialized training needed in manufacturing, construction, agricultural, health occupations, and service oriented jobs. While some of the jobs in each occupational area demand a baccalaureate degree and others require no special proficiencies, many jobs require skills that can be mastered and knowledge learned in community college preparatory career education programs.

Sixty-seven percent of the full-time students enrolled in the Fall of 1979 indicated "vocational technical goals" as the reason for attending a community college (Halstead, Note 12). Tex-SIS Follow-up Systems (1977b) identified 77 percent of those receiving an Associate of Applied Science
degree as having a goal to acquire skills needed for securing employment or improving existing job skills.

Follow-up studies

An accountability report by the Iowa State Department of Public Instruction (1980a) stated, "student readiness for entering employment is related directly to completion of the vocational program and to employment in the occupation for which trained" (p. V-18). Follow-up studies indicate a high placement rate for graduates of career education programs. Iowa State Department of Public Instruction (1980a) reported that of the 1979 career education preparatory graduates available for placement 11,841 persons, or 96 percent, were employed. Two follow-up studies completed by the Iowa State Department of Public Instruction (1978, 1979) one year after graduation show that 81.3 percent and 85.8 percent, respectively, of the graduates from career education programs were employed in a related occupation.

The Minnesota Vocational Follow-up Systems (1978) published a one-year follow-up summary showing that 87.7 percent of their vocational technical graduates were employed. Wetzel (1977) indicated that 82.6 percent of the graduates from a Pennsylvania community college were employed in fields related to their program area. Stover (1976) asserted that 9 out of 10 trade and industrial graduates from a South Dakota public vocational technical school were employed in their field of training or in a related field. Oklahoma State Department of Vocational and Technical Education (1978) cited 80.3 percent of the postsecondary graduates from vocational-technical programs as being employed full-time. The University of Hawaii
reported that 70 percent of the graduates from career, academic and general programs had employment in a related or somewhat related area. A one-year follow-up of occupational/technical graduates by Tex-SIS Follow-up Systems (1977c) disclosed that 71 percent of the graduates were employed full-time in their field of training or in a related field. Illinois Community College Board (1978) showed a large majority, 83.5 percent, of former students had obtained employment.

Disputing the common notion that career education is of benefit, Wilms (1980) completed a study contending that career education makes little or no difference in the kinds of jobs that economically disadvantaged individuals secure. He also reported that minority students and those from low income groups were more inclined to drop out of school. Pincus (1980) surmised that career graduates are less likely to be unemployed than those who graduate from high school, but more likely to be unemployed than college graduates.

Job placement and program completion rates are accountability measures that the general public, legislators, and school officials have constantly observed. Another measure that can be monitored is the performance of the graduates. However, the American Vocational Association (1980) contended that "more information is needed about program leavers and employer evaluations of workers from vocational programs" (p. 3). Adjusting to the work environment and job demands are aspects that employers seriously consider when assessing the performance of a recently employed person.
Job performance

Summaries of career education graduates were provided in annual follow-up studies conducted by the Des Moines Area Community College Employer Relations Office. In a recent survey, Vandivier (Note 13) discovered that career education graduates were rated as possessing good or very good technical knowledge on 87.6 percent of the responses from employer follow-up. Over-all ratings as they relate to the requirements of the job received good or very good marks on 88 percent of the responses from the employer follow-up survey. Eighty-eight percent of the responses indicated that employers believed that career education contributed to the graduates' potential for job placement and advancement. Tex-SIS Follow-up System (1977b) showed that employers believed that the training received helped the individual get the job, perform on the job or advance in the job.

An Iowa State Department of Public Instruction (1980a) accountability report stated:

In terms of vocational training evaluation each of three factors were rated in addition to computing an overall rating. For technical knowledge 77.20% of the responses indicated a very good or good rating while poor and very poor made up .6% of the responses. Almost 76% (75.9) of the responses categorized work attitudes as very good or good compared with 7.0% rating work attitudes as poor or very poor. Work quality was viewed as good to very good according to 75.7% of the responses compared to 5.4% responses indicating poor to very poor. Overall, 76.1% of the responses evaluated training of workers at good compared with 5.0% responses rating overall training at poor to very poor. (p. V-32)

In the category "current performance relative to actual job requirements" 92.2 percent of the responses on quality of work, 91.2 percent of
the responses on job skills, and 89.4 percent of the responses on willingness to accept responsibility indicated that employers believed that career trained students meet or exceed job requirements (Iowa State Department of Public Instruction, 1980b). Tex-SIS Follow-up System (1978) reported that employers gave an overall rating of the graduates' training as it related to the requirements of the job as good or very good on 84 percent of the responses.

Career education continues to play a key role in our society. Technological advancement requires individuals with skills and knowledge unsurpassed in our history. Current economic conditions prompt individuals to become as skillful as possible to compete in the labor market.

Unfortunately, not all Americans have the resources and capacity to attend and compete in career education or academic pursuits that will enable them to develop their potential or grow with technology and the economy.

Summary

In the educational setting, perhaps the most significant event in the last three decades is the growth of postsecondary career education. Historically, career education has played a valuable role in meeting the needs of society and the economic needs of the nation. However, prior to World War II, the preponderence of postsecondary career training occurred via an apprenticeship, in private trade and technical schools, hospitals, or technical institutes.
The impetus that shifted responsibility from the private to the public sector has been the enactment and implementation of federal legislation. Legislative support has increased the number of schools, programs, and career education student enrollments. As Winton (1980) quoted from Bottoms' testimony before legislative hearings, "the federal government has come to rely increasingly on vocational education to help solve national problems" (p. 1).

Influencing variables that have contributed to postsecondary career education growth are recognized by Bushnell (1978) as "technological changes in job requirements; demand for equal access to educational opportunities; expanded federal and state support for new vocational education programs; and a surge in the number of those seeking entry or re-entry into the work force through additional education" (p. 3). Emphasis on career education is likely to remain high. A recent Gallup Poll cited career education as an area where the additional emphasis should be placed ("Attention," 1980). Hula (1980) quoted Stuart Eizenstat, President Carter's Chief Domestic Policy Adviser, as saying "the administration recognizes that vocational education has a major role to play in preparing workers for jobs that require increasingly greater technical skills" (p. 1).

With emphasis on career education and the public opinion that career education is an avenue to employment, a heterogeneous group of students have pursued technical training. Characteristics possessed by this group include varying levels of ability, motivation, and aptitude; differing interests, goals, learning styles and rates; and varying ability to pay for the education received. Subsequently, high attrition, academic failure
and strained financial conditions continue to be experienced.

Over the last several years, studies have been conducted to determine cause and effect of many variables. There are those who purport family background as the major difference in occupational status and that class, race, and sex, not ability or education determine adult employment success.

Even though financial constraints are given by students as reasons for not enrolling in postsecondary institutions or for not continuing in the program of study, there are those who believe that there are other underlying causes; such as, low motivation, poor work habits, low basic skills, and poor attitudes. In an effort to counteract the financial concern of the economically deprived, various programs have been established to create resources for postsecondary education.

Perhaps, it is time that an extensive study be conducted to assess the impact of student financial assistance on those enrolling in and completing programs and securing employment after completing the program.
CHAPTER III. METHODOLOGY

This chapter outlines (1) the procedures used for identifying participants, programs, and schools included in the study; (2) participant demographics; (3) the procedures used for developing and distributing the survey instrument; (4) the procedures used for collecting and recording the data; and (5) methods of analyzing the data.

Sample

The sample included those who graduated or should have graduated in calendar year 1979. Students were enrolled in agri-business, auto mechanics, bookkeeping, building trades, conditioned air, licensed practical nursing, retail marketing, secretarial, and welding programs at Northeast Iowa Technical Institute (Area I), North Iowa Area Community College (Area II), and Des Moines Area Community College (Area XI). Because of varying program length, all students did not begin at the same time nor were they scheduled to graduate at the same time. Some programs began in September, 1977, and completed in May, 1979; others began in September, 1978, and finished in August, 1979; and still other classes started in September, 1978, and completed in March, 1979. While other variations existed the reader can glean an understanding of the program diversity.

The exact name of programs may vary from school to school; no attempt was made to identify each school's program by its specific name. Emphasis was placed on having each program embody similar content and length.
Program content was identified by referencing the Office of Education taxonomy number on file with the Iowa State Department of Public Instruction. Program length differed slightly because of variations between quarters and semesters. Listed in Table 3.1 are the programs by area school and length of each offering.

Table 3.1. Program length in weeks by area school

<table>
<thead>
<tr>
<th>Program</th>
<th>Area I (NITI)</th>
<th>Area II (NIACC)</th>
<th>Area XI (DMACC)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Agri business</td>
<td>84</td>
<td>80</td>
<td>84</td>
</tr>
<tr>
<td>Auto mechanics</td>
<td>72</td>
<td>72</td>
<td>84</td>
</tr>
<tr>
<td>Bookkeeping</td>
<td>36</td>
<td>36</td>
<td>36</td>
</tr>
<tr>
<td>Building trades</td>
<td>48</td>
<td>44</td>
<td>48</td>
</tr>
<tr>
<td>Conditioned air</td>
<td>48</td>
<td>44</td>
<td>48</td>
</tr>
<tr>
<td>Licensed practical nursing</td>
<td>48</td>
<td>44</td>
<td>48</td>
</tr>
<tr>
<td>Retail marketing</td>
<td>84</td>
<td>80</td>
<td>84</td>
</tr>
<tr>
<td>Secretarial</td>
<td>36</td>
<td>36</td>
<td>48</td>
</tr>
<tr>
<td>Welding</td>
<td>36</td>
<td>24</td>
<td>24</td>
</tr>
</tbody>
</table>

The area schools/community colleges included in this study were selected because (1) they represented a cross-section of Iowa area school/community college career education students, (2) programs had similar content and length that provided an adequate sample, and (3) these three area schools/community colleges granted the researcher permission to study their former students.
There was a total of 598 full-time students included in this study: 221, or 37 percent, from Northeast Iowa Technical Institute; 185, or 30.9 percent, from North Iowa Area Community College; and 192, or 32.1 percent, from Des Moines Area Community College. Refer to Figure 3.1 for a summary of the number of participants by area school.

A summary of the number of students by program included in the study is shown in Figure 3.2. Licensed practical nursing had the greatest number of students with 104, or 17.4 percent, of the total; bookkeeping and building trades were the next most populous with 87, or 14.5 percent. Retail marketing was the smallest program with 41 students or 6.9 percent of the total.

Figure 3.1. Participants by area school
Figure 3.2. Number of participants by program.
Demographics

Prior to collecting student-related data, the Human Subjects Research form was completed and submitted to the committee at Iowa State University. Complying with Iowa State University policies relative to information on students and the Buckley Amendments, precautions were taken to protect the students' right to privacy. Data were collected from two sources: (1) questionnaires sent to former students and (2) from the official school records on file at the respective schools. Information found on all 598 students included age, sex, grade point average, financial assistance, program completion, and length of time in the program. Data related to employment were obtained from school records and a questionnaire sent to former students to collect other related information; i.e., full-time employment, training related employment, and length of time to secure employment. Information pertaining to employment was secured on 485 students or 81.1 percent of the total sample. Of the 114 students for which employment information was not collected, 40 students could not be located and 74 did not respond. An interesting observation was that 75 of the 444 nonfinancially assisted students, or 16.9 percent, could not be located or did not respond to the mailed survey while 39 of 154, or 25.3 percent, of the financially assisted student group could not be located or failed to respond to the questionnaire.

The financially assisted students included only those who had received the Basic Education Opportunity Grant (BEOG) and/or Comprehensive Employment and Training Act (CETA) funds. Basically, this group was identified as economically deprived to the extent that each student
qualified for BEOG and/or CETA. Individuals who were attending the area school/community college on veteran's benefits, vocational rehabilitation funds, or social security benefits were excluded from the study. The study was not designed to investigate the amount of financial assistance received; therefore, no attempt was made to assess the impact of the amount of financial assistance. The nonfinancially assisted group was all remaining students. Of the students in the study, 154, or 25.8 percent, were receiving BEOG and/or CETA financial assistance and 444, or 74.2 percent, were classified as nonfinancially assisted (Figure 3.3).
At the time of enrollment, the age ranged from 17 through 52 years for the nonfinancially assisted student group. The financially assisted student group's age range was 17 through 48 years. The average age of the entire sample was 20.8 years; the nonfinancially assisted student group average age was 20.6 years and the financially assisted group had a 21.3 average age (Figure 3.4). The median age of the sample was 18.6 years. The median age for the nonfinancially assisted and financially assisted student group was 18.5 and 19.2, respectively. Of the 444 nonfinancially assisted students, 215 were 18 years old; of the 154 financially assisted, 50 students were 18 years old.

Figure 3.4. Age summary
Sexual characteristics of the group were 283 males, or 47.3 percent, and 315 females, or 52.7 percent. In the nonfinancially assisted group, there were 194 males, or 43.7 percent, and 250 females, or 56.3 percent. The financially assisted student sex characteristics were 89 males, or 57.8 percent, and 65 females, or 42.2 percent (Figure 3.5).

<table>
<thead>
<tr>
<th></th>
<th>Male</th>
<th>Female</th>
<th>Total Population</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>283</td>
<td></td>
<td>315</td>
</tr>
<tr>
<td></td>
<td>47.3%</td>
<td></td>
<td>52.7%</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th></th>
<th>Male</th>
<th>Female</th>
<th>Nonfinancially Assisted Students</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>194</td>
<td></td>
<td>89</td>
</tr>
<tr>
<td></td>
<td>43.7%</td>
<td></td>
<td>57.8%</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th></th>
<th>Male</th>
<th>Female</th>
<th>Financially Assisted Students</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>65</td>
<td></td>
<td>65</td>
</tr>
<tr>
<td></td>
<td>42.2%</td>
<td></td>
<td>42.2%</td>
</tr>
</tbody>
</table>

Figure 3.5. Sex distribution
Survey Instrument

From the outset, it was known that a short and simple survey instrument could be used to gather the needed data. The design of the dissertation problem recognized the need for the collection of student information from the permanent files of the participating area schools in addition to the questionnaire source.

The information to be gathered via a survey instrument was reviewed by two Iowa State University professors who have expertise in follow-up and research procedures. Two individuals with research experience from a community college were also contacted to assist with the instrument design.

A questionnaire was developed and the same Iowa State University professors and community college faculty reviewed the document to assess its potential for acquiring the desired information. It was decided that two questionnaires were needed; one for program completers and one for noncompleters. Other than minor changes in wording, both questionnaires were similar. A light blue colored paper was used for the questionnaire sent to noncompleting students and the other questionnaire was printed on light green colored paper and sent to the students completing the program. Each questionnaire was given a code number for recordkeeping purposes and for follow-up on those persons who failed to return the questionnaire in a reasonable period of time. A copy of each questionnaire is included in Appendix A.

A cover letter was drafted to accompany the questionnaire. The letter, even though a form letter, was personalized by typing individual salutations and was personally signed by this writer. An incentive was
included with the first mailing. Twenty-five (25¢) cents was taped to the bottom of each letter with a postscript expressing appreciation for assistance in completing and returning the questionnaire. The first questionnaire mailing was sent to 322 individuals, 172 were sent to program completers, and 150 were sent to noncompleters. Two weeks later the second mailing was made to nonrespondents. The cover letter with the follow-up questionnaire was also individually signed by this writer and the student's name was typed in the salutation. Each mailing included a self-addressed, stamped envelope for the reply. The cover letters are included in Appendix B.

As each response was received, the information was recorded on a data collection form.

Data Collection

The majority of the data needed in the study was collected from each student's permanent record. An on-site visitation was made to acquire this information. Permanent records yielded the names of the individuals who initially enrolled in each program. The student's name, address, and telephone number were recorded for follow-up activities. By area school and program, each student's age, sex, grade point average, the length of time spent in the program, financial assistance or nonfinancial assistance status were recorded. Placement information available from the area school was also recorded. Included within placement was: date when employment was obtained, full-time employment, and employment related or unrelated to training. Because a considerable amount of employment information was acquired from the school's records, 322 questionnaires had to be mailed.
The student information was key punched so that statistical tests could be performed by the computer at Iowa State University. To enable the computer to process the data, information was coded in the following manner:

**Schools:** DMACC = 1, NIACC = 2, NITI = 3

**Programs:** agri-business = 1, auto mechanics = 2, bookkeeping = 3, building trades = 4, conditioned air = 5, licensed practical nursing = 6, retail marketing = 7, secretarial = 8, welding = 9

Age at beginning of program = xx to xx

Sex: female = 1, male = 2

Percentage of program completed: 00 to 1.00

Cumulative grade point average: xxx

Financial assistance: none = 1, some = 2

Employment within sixty days: none = 1, some or full = 2

Number of weeks delay in getting employment:
- at graduation or when leaving the program = 0,
- one week = 1, two weeks = 2, three weeks = 3, four weeks = 4,
- five weeks = 5, six weeks = 6, seven weeks = 7, eight weeks = 8,
- nine weeks or more = 9

Employment related to training: no = 1, yes = 2

Responses: returned undelivered = 1, refused to reply = 2, answered = 3

Initials of student: xxx.
Data Analysis

The following procedures were used to answer the research questions in this study:

1. The null hypotheses were written
2. The statistical tests were determined
3. The significance levels for rejecting the null hypotheses were determined
4. The statistical test was identified for each hypothesis
5. The hypotheses were either rejected or failed to be rejected based on the probability level supported by the statistical test.

Since the null hypotheses and the statistical test for data analysis were stated in Chapter 1, that information will not be repeated in this chapter.

Statistical tests used in analyzing the data were: Student "t", contingency Chi-Square, correlation, and multiple regression. Initially, it was concluded that two different correlation tests would be needed because data were presented in parametric and nonparametric form. However, when reviewing the various computer programs it was discovered that the statistical analysis package chosen (Statistical Analysis Systems, SAS) would process the data to analyze Pearson product-moment correlations and point-biserial correlations. With the assistance of a graduate committee member, an expert in SAS, it was possible to get the necessary results from the computer.
Throughout the study, a 5 percent level of significance was used. The symbols (*) and (**) were used in tables in Chapter IV to designate statistical findings that were significant at the .05 level and .01, respectively. The double asterisk indicates highly significant statistical findings.
CHAPTER IV. FINDINGS

The data presented in this chapter were analyzed in relation to the research questions. To aid the reader, findings were described and summarized in context with the research questions and null hypotheses. Graphs or tables and written narrative were developed to respond to each of the research questions. Throughout the research, a 5 percent level of significance was applied.

Research Questions and Null Hypotheses

Research question #1

Is there a difference in the grade point average of the financially assisted and the nonassisted student?

Null Hypothesis I. It is hypothesized that there is no significant difference in the grade point average of the financially assisted students and the non-assisted students. The Student t-test was applied.

The grade point average was acquired for all full-time postsecondary students included in the study. Of the 598 students, 444, or 74.2 percent, were categorized as receiving no financial assistance and 154, or 25.8 percent, were categorized as recipients of financial assistance. Each student's grade point average was recorded for the amount of the program completed. The mean of the grade point average for the nonfinancially assisted students was 2.60 and the mean of the grade point average for the financially assisted students was 2.41 as indicated in Table 4.1. At the 5 percent level of significance, the statistical analysis failed to reject the null hypothesis. Therefore, it was concluded that the test applied
Table 4.1. Grade point average of financially or nonfinancially assisted students

<table>
<thead>
<tr>
<th>Student variables</th>
<th>Number</th>
<th>Mean</th>
<th>&quot;t&quot; probability^a</th>
</tr>
</thead>
<tbody>
<tr>
<td>Nonfinancially assisted</td>
<td>444</td>
<td>2.595</td>
<td></td>
</tr>
<tr>
<td>Financially assisted</td>
<td>154</td>
<td>2.414</td>
<td>.0595</td>
</tr>
</tbody>
</table>

^p > .05.

did not substantiate a significant difference in the grade point average of the two groups. Findings of this study concur with the results of research cited in the review of the literature (Falk, 1978; Hewlett, 1977; Strong, 1975).

The data showed that female students, regardless of financial assistance, earned nearly the same grade point average. The financially assisted female student had a grade point average of 2.56 while the nonfinancially assisted female student had a 2.59 grade point average (Table 4.2). Nonfinancially assisted male student grade point average was 2.61 compared with the financially assisted male student grade point average of 2.31.

An interesting observation of the data revealed that those who had a lower grade point average did not respond to the mailed questionnaire to the same extent as their counterparts with a higher grade point average. The grade point average of the financially assisted students (115 of 154 or 74.7 percent) responding to the mailed questionnaire was 2.67 while the grade point average of those not responding (39 of 154) was 1.63. In comparison, the nonfinancially assisted group had 369 of 444, or 83.1
percent, responding to the same mailed questionnaire. This group had a grade point average of 2.74. The nonfinancially assisted students (75 of 444) who did not answer the mailed questionnaire had a 1.83 grade point average (Table 4.3). Additional research needs to be conducted to ascertain the validity of this phenomenon. Perhaps the values and self-concepts of the nonresponding group differ from those responding to the mailed questionnaire.

Table 4.3. Comparison of student groups’ grade point average by those responding to a mailed questionnaire

<table>
<thead>
<tr>
<th>Group</th>
<th>Responding</th>
<th>GPA</th>
<th>Nonresponding</th>
<th>GPA</th>
</tr>
</thead>
<tbody>
<tr>
<td>Financially assisted</td>
<td>115</td>
<td>2.67</td>
<td>39</td>
<td>1.63</td>
</tr>
<tr>
<td>Nonfinancially assisted</td>
<td>369</td>
<td>2.74</td>
<td>75</td>
<td>1.83</td>
</tr>
</tbody>
</table>
Research question #2

Is there a difference in the program completion rate of the financially assisted and the nonassisted students?

Null Hypothesis II. It is hypothesized that the frequency of program completion is independent of financial assistance or nonassistance. The contingency Chi-Square test of independence was used.

In total 431 of 598 students, or 72.1 percent, completed their program of study; 167 of 598, or 27.9 percent, did not complete their program of study. A completion rate of 71.4 percent, or 110 of 154, was found for the financially assisted student group. The nonfinancially assisted student group had a 72.3 percent, or 321 of 444, completion rate (Table 4.4).

Table 4.4. Chi-Square table of financial assistance by program completion

<table>
<thead>
<tr>
<th>Frequency</th>
<th>Program completion</th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Noncompleters</td>
<td>Completers</td>
<td>Total</td>
</tr>
<tr>
<td>Nonfinancially assisted</td>
<td>123</td>
<td>321</td>
<td>444</td>
</tr>
<tr>
<td></td>
<td>27.7</td>
<td>72.3</td>
<td>73.7</td>
</tr>
<tr>
<td></td>
<td>73.7</td>
<td>74.5</td>
<td>74.5</td>
</tr>
<tr>
<td>Financially assisted</td>
<td>44</td>
<td>110</td>
<td>154</td>
</tr>
<tr>
<td></td>
<td>28.6</td>
<td>71.4</td>
<td>25.5</td>
</tr>
<tr>
<td>Total</td>
<td>167</td>
<td>431</td>
<td>598</td>
</tr>
</tbody>
</table>

$\chi^2 = .043$

$.95 \chi^2_1 = 3.84$

$p > .05$
Analysis of the data failed to reject the null hypothesis. At one degree of freedom, Chi-Square yielded a value of .043. Therefore, it was concluded that the frequency of program completion was independent of financial assistance or nonfinancial assistance.

The data revealed that the sex distribution of the noncompleting student group was almost even. Of the 167, 85 or 50.9 percent, were male students and 82, or 49.1 percent, were female students (Figure 4.1). Students completing the program had a composite of 198 males (45.9 percent) and 233 females (54.1 percent).

![Figure 4.1. Program completion rate by sex](image-url)
As illustrated in Figure 4.2, a greater proportion of the population was female (315 or 598). A greater number of male students (89) received financial assistance than did female students (65). Of the financially assisted students, 52 of 65, or 80 percent, of the females and 58 of 89, or 65.2 percent, of the males completed the program. In the nonfinancially assisted group 181 of 250, or 72.4 percent, of the female students and 140 of 194, or 72.2 percent, of the male students completed the program.

Before the reader assumes that schools, programs, or individuals discriminated against females, it should be noted that the eligibility for receiving BEOG or CETA financial assistance was not the responsibility of the school but an outside funding or referring agency. Perhaps additional research is needed to determine if the findings of this study are representative of funding elsewhere.

The data were summarized according to those responding to a mailed questionnaire. One hundred fifteen (115) of 154 financially assisted students answered the survey. Ninety-nine (99) of 115, or 86.1 percent, were program completers as shown in Figure 4.3. Of the financially assisted students not responding to the questionnaire 11 of 39, or 28.2 percent, were program completers. The program completion rate for the nonfinancially assisted students responding to the mailed questionnaire was 290 of 369, or 78.6 percent. Of the nonfinancially assisted students not responding to the questionnaire 31 of 75, or 41.3 percent, were program completers. An interesting observation was the variation in the nonresponse rate by program completers of the financially assisted and the nonfinancially assisted groups (28.2 percent versus 41.3 percent,
Figure 4.2. Student characteristics by sex with rate of program completion in financial assisted or nonfinancial assisted categories.
Figure 4.3. Program completion rate of those responding to a mailed questionnaire.
respectively) to the mailed questionnaire. Additional investigation of this area could reveal significant conclusions regarding student values and characteristics.

Research question #3

Is there a difference in having secured employment related to training of the financially assisted and the nonassisted students?

Null Hypothesis III. It is hypothesized that no significant difference exists in the proportion of financially assisted students and the proportion of nonassisted students who secured employment related to training within sixty days of leaving or completing the program. This hypothesis was tested using the contingency Chi-Square test of independence.

Of the individuals securing employment 372 of 443, or 84.0 percent, were employed in occupations related to training. One hundred eighty-three (183) of 372, or 49.2 percent, were male and 189, or 50.8 percent, were female (Figure 4.4). Analysis of the data showed that males had a higher rate of employment related to training than did the females (Table 4.5). Financially assisted males, 58 of 63 or 92.1 percent, and nonfinancially assisted males, 125 of 144 or 86.8 percent, reported having secured employment related to training. The number of females reported having secured employment related to training was 37 of 46, or 80.4 percent, in the financially assisted group; and 152 of 190, or 80.0 percent, in the nonfinancially assisted group.

Of the 443 students reporting having secured employment 209, or 47.2 percent, had employment when they left the program. Only 61 students, or 13.8 percent, secured employment nine or more weeks after completing or
Figure 4.4. Employment related to training by sex

Table 4.5. Employment related to training by sex and financial assistance

<table>
<thead>
<tr>
<th></th>
<th>%</th>
<th>Number</th>
</tr>
</thead>
<tbody>
<tr>
<td>Financially assisted males</td>
<td>92.1</td>
<td>58 of 63</td>
</tr>
<tr>
<td>Nonfinancially assisted males</td>
<td>86.6</td>
<td>125 of 144</td>
</tr>
<tr>
<td>Financially assisted females</td>
<td>80.4</td>
<td>37 of 46</td>
</tr>
<tr>
<td>Nonfinancially assisted females</td>
<td>80.0</td>
<td>152 of 190</td>
</tr>
</tbody>
</table>
leaving the program. A comparison of the nonfinancially assisted group with the financially assisted group shows that 167 of 334, or 50 percent, and 42 of 109, or 38.5 percent, respectively, had employment when they left the program. Comparing these two groups 51 of 334, or 15.3 percent, of the nonfinancially assisted students secured employment nine or more weeks after leaving or completing the program; 10 of 109, or 9.2 percent, of the financially assisted students secured employment nine or more weeks after leaving or completing the program. Table 4.6 provides a summary of the number of weeks delay in securing employment by the nonfinancially assisted group and the financially assisted group.

Table 4.6. Number of weeks delay in securing employment

<table>
<thead>
<tr>
<th>Number of weeks</th>
<th>0</th>
<th>1</th>
<th>2</th>
<th>3</th>
<th>4</th>
<th>5</th>
<th>6</th>
<th>7</th>
<th>8</th>
<th>9</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>Nonfinancially assisted</td>
<td>167</td>
<td>46</td>
<td>10</td>
<td>36</td>
<td>9</td>
<td>4</td>
<td>9</td>
<td>1</td>
<td>1</td>
<td>51</td>
<td>334</td>
</tr>
<tr>
<td>Financially assisted</td>
<td>42</td>
<td>19</td>
<td>12</td>
<td>15</td>
<td>3</td>
<td>2</td>
<td>3</td>
<td>2</td>
<td>1</td>
<td>10</td>
<td>109</td>
</tr>
<tr>
<td>Total</td>
<td>209</td>
<td>65</td>
<td>22</td>
<td>51</td>
<td>12</td>
<td>6</td>
<td>12</td>
<td>3</td>
<td>2</td>
<td>61</td>
<td>443</td>
</tr>
</tbody>
</table>

The number of students having secured employment related to training was 95 of 109, or 87.2 percent, for the financially assisted group and 277 of 334, or 82.9 percent, for the nonfinancially assisted group (Table 4.7). A comparison of having secured employment within sixty days of leaving or completing the program showed that the financially assisted and the
Table 4.7. Comparing financially assisted students with nonfinancially assisted students in securing employment related to training within sixty days

<table>
<thead>
<tr>
<th>Number</th>
<th>Less than 60 days</th>
<th>60 days or more</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>Nonfinancially assisted, employment unrelated to training</td>
<td>45</td>
<td>12</td>
<td>57</td>
</tr>
<tr>
<td></td>
<td>78.9</td>
<td>21.1</td>
<td></td>
</tr>
<tr>
<td></td>
<td>11.8</td>
<td>19.7</td>
<td></td>
</tr>
<tr>
<td>Nonfinancially assisted, employment related to training</td>
<td>238</td>
<td>39</td>
<td>277</td>
</tr>
<tr>
<td></td>
<td>85.9</td>
<td>14.1</td>
<td></td>
</tr>
<tr>
<td></td>
<td>62.3</td>
<td>39.7</td>
<td></td>
</tr>
<tr>
<td>Financially assisted, employment unrelated to training</td>
<td>12</td>
<td>2</td>
<td>14</td>
</tr>
<tr>
<td></td>
<td>85.7</td>
<td>14.3</td>
<td></td>
</tr>
<tr>
<td></td>
<td>03.1</td>
<td>03.3</td>
<td></td>
</tr>
<tr>
<td>Financially assisted, employment related to training</td>
<td>87</td>
<td>8</td>
<td>95</td>
</tr>
<tr>
<td></td>
<td>91.6</td>
<td>08.4</td>
<td></td>
</tr>
<tr>
<td></td>
<td>22.8</td>
<td>13.1</td>
<td></td>
</tr>
<tr>
<td>Total</td>
<td>382</td>
<td>61</td>
<td>443</td>
</tr>
</tbody>
</table>

\[ \chi^2 = 4.85 \]

\[ .95 \chi_3^2 = 7.815 \]

\[ p > .05 \]

nonfinancially assisted student rates were 87 of 95, or 91.6 percent, and 238 of 277, or 85.9 percent, respectively.

Analysis of the data failed to reject the null hypothesis. The contingency Chi-Square test of independence table at the .05 level with three degrees of freedom shows a value of 7.815 (.95 \( \chi_3^2 = 7.815 \)). The Chi-Square test applied yielded a value of 4.85. Insufficient evidence was available
to substantiate the proposition that a significant difference existed in the proportion of financially assisted and nonfinancially assisted students having secured employment related to training within sixty days of leaving or completing the program. Hence, it was concluded that, for all practical purposes, the same proportion of financially assisted and nonfinancially assisted students secured employment related to training within sixty days of completing or leaving the program.

Research question #4

Is there a relationship between grade point average and program completion?

Null Hypothesis IV. It is hypothesized that no significant relationship exists between grade point average and program completion. This hypothesis was tested using the Pearson product-moment correlation.

Analysis disclosed that the relationship between grade point average and program completion was statistically significant. The r value of 0.635 was significant beyond the .01 level. Therefore, the null hypothesis that no significant relationship exists between grade point average and program completion was rejected. The information analyzed and the statistical test used supported the conclusion that a highly significant correlation between the grade point average earned and completion of the program did exist.

Notable observations of the data were the number of individuals above and below the overall grade point average (Table 4.8). The mean of the grade point average for all students was 2.54. Seventy-one and seven tenths (71.7) percent, or 309 of 431, of the program completers had a
Table 4.8. Number of students above and below the $\bar{x}$ grade point average

<table>
<thead>
<tr>
<th>Number</th>
<th>Grade point average</th>
<th>2.54 or less</th>
<th>2.55 or more</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>Row percent</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Column percent</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Nonfinancially assisted</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>program completers</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>80</td>
<td>241</td>
<td>321</td>
<td></td>
<td></td>
</tr>
<tr>
<td>24.9</td>
<td>75.1</td>
<td>67.9</td>
<td></td>
<td></td>
</tr>
<tr>
<td>32.9</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Nonfinancially assisted</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>noncompleters</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>86</td>
<td>37</td>
<td>123</td>
<td></td>
<td></td>
</tr>
<tr>
<td>69.9</td>
<td>30.1</td>
<td>10.4</td>
<td></td>
<td></td>
</tr>
<tr>
<td>35.4</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Financially assisted</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>program completers</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>42</td>
<td>68</td>
<td>110</td>
<td></td>
<td></td>
</tr>
<tr>
<td>38.2</td>
<td>61.8</td>
<td>19.2</td>
<td></td>
<td></td>
</tr>
<tr>
<td>17.3</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Financially assisted</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>noncompleters</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>35</td>
<td>9</td>
<td>44</td>
<td></td>
<td></td>
</tr>
<tr>
<td>79.5</td>
<td>20.5</td>
<td>02.5</td>
<td></td>
<td></td>
</tr>
<tr>
<td>14.4</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Total</td>
<td>243</td>
<td>355</td>
<td>598</td>
<td></td>
</tr>
</tbody>
</table>

grade point average above the mean where only 27.5 percent, or 46 of 167, of the program noncompleters had a grade point average above the mean. Of the financially assisted group 77 of 154, or 50 percent, were above the mean and 50 percent were below the mean. The nonfinancially assisted group had 166 of 444, or 37.4 percent, below the mean and 278, or 62.6 percent, above the mean.

A greater proportion of the nonfinancially assisted program completers, 241 of 321 or 75.1 percent, had a grade point average above the mean than did the financially assisted program completers, 68 of 110 or 61.8 percent.
Conversely, there were a greater proportion of students in the financially assisted noncompleting group, 35 of 44 or 79.5 percent, compared with the nonfinancially assisted noncompleting group, 86 of 123 or 69.9 percent, who had a grade point average below the mean.

Research question #5

Is there a relationship between grade point average and having secured employment related to training?

Null Hypothesis V. It is hypothesized that there is no significant relationship between grade point average and having secured employment related to training within sixty days of leaving or completing the program. This hypothesis was tested using the point-biserial correlation.

Analysis of the data revealed a correlation between grade point average and having secured employment in occupations related to training. The correlation \( r = 0.260 \) was significant beyond the .01 level. The null hypothesis that no significant relationship existed between grade point average and having secured employment related to training was rejected. Therefore, it was concluded that a significant relationship did exist between grade point average and having secured employment related to training.

Data were collected on 443 students. Narrative in previous sections of this chapter reported that 372 of 443, or 84 percent, had secured employment related to training. The other 71, or 16 percent, were employed, but in occupations that were not related to their postsecondary program of study. Table 4.9 discloses additional information.
Table 4.9. Grade point average and having secured employment related to training

<table>
<thead>
<tr>
<th>Number</th>
<th>Less than ( \bar{x} ) GPA</th>
<th>More than ( \bar{x} ) GPA</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>Row percent</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Column percent</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Unrelated training</td>
<td>26</td>
<td>31</td>
<td>57</td>
</tr>
<tr>
<td>Employment in less than sixty days</td>
<td>45.6</td>
<td>54.4</td>
<td></td>
</tr>
<tr>
<td>Related training</td>
<td>96</td>
<td>229</td>
<td>325</td>
</tr>
<tr>
<td>Employment in less than sixty days</td>
<td>29.5</td>
<td>70.5</td>
<td></td>
</tr>
<tr>
<td>Unrelated training</td>
<td>7</td>
<td>7</td>
<td>14</td>
</tr>
<tr>
<td>Employment in more than sixty days</td>
<td>50</td>
<td>50</td>
<td></td>
</tr>
<tr>
<td>Related training</td>
<td>18</td>
<td>29</td>
<td>47</td>
</tr>
<tr>
<td>Employment in more than sixty days</td>
<td>38.3</td>
<td>61.7</td>
<td></td>
</tr>
<tr>
<td>Total</td>
<td>147</td>
<td>296</td>
<td>443</td>
</tr>
</tbody>
</table>

The majority of those having secured employment had a grade point average above the mean. There were 296 of 443, or 66.8 percent, achieving a grade point average above the mean compared with 147 of 443, or 33.2 percent, achieving a grade point average below the mean. A greater difference occurred when only employment related to training was considered. Of the total number of students having secured employment related to training 258 of 372, or 69.4 percent, had a grade point average above the mean.

Employment related to training in less than sixty days was obtained by 325 of 443, or 73.4 percent, of the students. Of those in this group
229, or 70.5 percent, had a grade point average above the mean while 96, or 29.5 percent, had a grade point average below the mean.

Students whose earned grade point average was below the mean reported having secured employment less frequently (147 of 243, or 60.5 percent) than those whose grade point average was above mean (296 or 355, or 83.4 percent).

Research question #6

Is having secured employment related to training independent of program completion?

Null Hypothesis VI. It is hypothesized that the frequency of having secured employment related to training within sixty days of leaving or completing the program is independent of program completion. This hypothesis was tested using the contingency Chi-Square test of independence.

Of the 431 students completing the program 317, or 73.5 percent, had secured employment related to training; 44, or 10.2 percent, had completed the program but were employed in an occupation unrelated to training; and 70, or 16.3 percent, had completed the program but information was unavailable that would indicate whether training related employment had been secured (Figure 4.5).

The data revealed (Table 4.10) that 55 of 82, or 67.1 percent, of those who did not complete their program of study had secured employment related to training; another 27, or 32.9 percent, were employed in occupations unrelated to training.

Of the students completing their program of study 361 of 443, or 81.5 percent, were employed; 314 of 361, or 86.9 percent, were employed
in less than sixty days. Program completing students employed in a training related occupation within sixty days of program completion numbered 278 of 361, or 77 percent.

Information was obtained on 82 students, or 18.5 percent, who did not complete the program. Sixty-eight (68), or 82.9 percent, had secured employment in less than sixty days. It should be noted that 47 of 68, or 69.1 percent, program noncompleters were employed in a training related occupation.
Table 4.10. Comparison of program completion with securing employment related to training within sixty days

<table>
<thead>
<tr>
<th>Number</th>
<th>Less than sixty days</th>
<th>Sixty days or more</th>
<th>Sub total</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Row percent</td>
<td>Column percent</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Program noncompleters</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Employment unrelated to training</td>
<td>21</td>
<td>6</td>
<td>27</td>
<td>82</td>
</tr>
<tr>
<td>Employment related to training</td>
<td>47</td>
<td>8</td>
<td>55</td>
<td>18.5</td>
</tr>
<tr>
<td>Program completers</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Employment unrelated to training</td>
<td>36</td>
<td>8</td>
<td>44</td>
<td>361</td>
</tr>
<tr>
<td>Employment related to training</td>
<td>278</td>
<td>39</td>
<td>317</td>
<td>81.5</td>
</tr>
<tr>
<td>Total</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>382</td>
<td>61</td>
<td>443</td>
<td></td>
</tr>
</tbody>
</table>

\[ \chi^2 = 2.94 \]
\[ .95 \chi^2 = 7.815 \]
\[ p > .05 \]

A noteworthy observation was the small difference in the "less than sixty day" category between program completers and program noncompleters securing employment related to training (85.5 and 87.7 percent respectively). Employment unrelated to training was secured by 77.8 percent of the program noncompleters compared with 81.8 percent of the program completers.
The data suggested that securing employment was independent of program completion. Research findings failed to reject the null hypothesis which stated that having secured employment related to training within sixty days of leaving or completing the program is independent of program completion. The contingency Chi-Square test yielded a value of 2.94, which is insufficient to exceed 7.815 needed for three degrees of freedom at .05 level of significance (.95 $\chi^2_3 = 7.815$). It was concluded that the frequency of having secured employment related to training within sixty days of leaving or completing the program was independent of program completion.

Prior to the study, this writer was of the opinion that securing employment was independent of program completion. This was based on the notion that some students left the training program as soon as sufficient job skills had been obtained to secure employment.

Research question #7

What is the relative contribution of financial assistance, sex, and age to grade point average?

Null Hypothesis VII. It is hypothesized that financial assistance, sex, and age make no significant contribution to the prediction of grade point average.

A full model analysis of variance yielded an F value of 1.69 which was significant at the .05 level. The $R^2$ value was .0417 (Table 4.11). The null hypothesis that financial assistance, sex, and age made no significant contribution to grade point average was rejected. Inspection of the data disclosed that age was the only main effect variable that was
Table 4.11. Contribution of financial assistance, sex, and age to grade point average

<table>
<thead>
<tr>
<th>Source</th>
<th>DF</th>
<th>Sum sq.</th>
<th>Mean sq.</th>
<th>F</th>
<th>$R^2$</th>
</tr>
</thead>
<tbody>
<tr>
<td>Model</td>
<td>15</td>
<td>26.2572</td>
<td>1.7505</td>
<td>1.69*</td>
<td>0.0417</td>
</tr>
<tr>
<td>Error</td>
<td>582</td>
<td>603.7996</td>
<td>1.0375</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Corrected total</td>
<td>597</td>
<td>630.0568</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Source</th>
<th>DF</th>
<th>Sum sq.</th>
<th>F</th>
</tr>
</thead>
<tbody>
<tr>
<td>Age</td>
<td>3</td>
<td>16.6366</td>
<td>4.38**</td>
</tr>
<tr>
<td>Sex</td>
<td>1</td>
<td>0.8490</td>
<td>0.82</td>
</tr>
<tr>
<td>Financial assistance</td>
<td>1</td>
<td>2.2697</td>
<td>2.19</td>
</tr>
<tr>
<td>Age * sex</td>
<td>3</td>
<td>2.4344</td>
<td>0.78</td>
</tr>
<tr>
<td>Age * financial assistance</td>
<td>3</td>
<td>8.8597</td>
<td>2.85*</td>
</tr>
<tr>
<td>Sex * financial assistance</td>
<td>1</td>
<td>1.2875</td>
<td>1.24</td>
</tr>
<tr>
<td>Age * sex * financial assistance</td>
<td>3</td>
<td>0.2794</td>
<td>0.09</td>
</tr>
</tbody>
</table>

* $p \leq .05$.
** $p \leq .01$.

significant; an $F$ value of 4.38 was significant at the .01 level. Analysis of the data revealed that the youngest category of students earned a higher grade point average than other students.

The interaction of age and financial assistance yielded an $F$ score of 2.85, significant at the .05 level. When the students were grouped in age
categories (18 or less, 19-20, 21-25, and above 25), the data disclosed that the financially assisted students 18 years or less and above 25 years had higher grade point averages than those in the 19-20 and 21-25 age groups. By groups, the nonfinancially assisted students' grade point average had some variation but not to the same degree as the financially assisted students' grade point average.

When the variables in the full model were analyzed, it was concluded that age and age with financial assistance were the variables that contributed significantly to the earned grade point average.

Research question #8

What is the relative contribution of financial assistance, sex, and age to having secured employment?

Null Hypothesis VIII. It is hypothesized that financial assistance, sex, and age make no significant contribution to the prediction of having secured employment related to training.

A regression analysis was computed on the variables stated in the research question and null hypothesis. The full model analysis of variance yielded an F value of 1.88, significant at the .05 level. The $R^2$ value was 0.0621. These data are shown in Table 4.12. The null hypothesis was rejected.

Individual variables revealed that only sex reflected a significant value; $F = 13.23$, significant at the .01 level. Closer examination manifested that male students were employed in training related jobs more frequently than were female students.
Table 4.12. Contribution of financial assistance, sex, and age to securing employment related to training

<table>
<thead>
<tr>
<th>Source</th>
<th>DF</th>
<th>Sum sq.</th>
<th>Mean sq.</th>
<th>F</th>
<th>R²</th>
</tr>
</thead>
<tbody>
<tr>
<td>Model</td>
<td>15</td>
<td>3.7020</td>
<td>0.2468</td>
<td>1.88*</td>
<td>0.0621</td>
</tr>
<tr>
<td>Error</td>
<td>427</td>
<td>55.9188</td>
<td>0.1310</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Corrected total</td>
<td>442</td>
<td>59.6208</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Source</th>
<th>DF</th>
<th>Sum of sq.</th>
<th>F</th>
</tr>
</thead>
<tbody>
<tr>
<td>Financial assistance</td>
<td>1</td>
<td>0.0204</td>
<td>0.16</td>
</tr>
<tr>
<td>Sex</td>
<td>1</td>
<td>1.7331</td>
<td>13.23**</td>
</tr>
<tr>
<td>Age</td>
<td>3</td>
<td>0.5434</td>
<td>1.38</td>
</tr>
<tr>
<td>Financial assistance * sex</td>
<td>1</td>
<td>0.0006</td>
<td>0.00</td>
</tr>
<tr>
<td>Financial assistance * age</td>
<td>3</td>
<td>0.4937</td>
<td>1.26</td>
</tr>
<tr>
<td>Sex * age</td>
<td>3</td>
<td>1.8251</td>
<td>4.65**</td>
</tr>
<tr>
<td>Financial assistance * sex * age</td>
<td>3</td>
<td>0.0293</td>
<td>0.07</td>
</tr>
</tbody>
</table>

* p ≤ .05.
** p ≤ .01.

Sex and age was the only interaction that made a contribution to the prediction of having secured employment related to training. An F value of 4.65 was significant at the .01 level. It was discovered that males in the older age group were more likely to have secured employment while
females were less likely to have secured employment related to training. Conceivably, the mobility of females may have been a limiting factor in their success in having secured employment; however, this aspect was not investigated.

When examining the main effects and interactions, it was concluded that sex and sex with age were the only variables that made a significant contribution to the prediction.
CHAPTER V. SUMMARY, CONCLUSIONS, IMPLICATIONS AND RECOMMENDATIONS

The concept of providing financial assistance to students enrolled in postsecondary career education has been in existence since the mid 1960s. Financial assistance was available in a variety of forms and the distribution of the financial assistance was dependent on criteria established by the granting agency or administrative unit. A common concern of granting agencies and administrative units was the effectiveness of the financial assistance on student performance. It was within the realm of "how effective were the Basic Education Opportunity Grant and Comprehensive Employment and Training Act funds on student performance" that this research was conducted.

Statement of the Problem

The problem of this study was to compare grade point average, program completion rate, and having secured employment related to training of selected financially assisted students with nonassisted students in three Iowa area school/community college career education programs.

Description of the Sample

Full-time postsecondary career education students were selected from three area schools/community colleges that had nine similar programs. Area schools participating in the study were: Northeast Iowa Technical Institute, North Iowa Area Community College, and Des Moines Area Community College. Career education programs included: agri-business, auto
mechanics, bookkeeping, building trades, conditioned air, licensed practical nursing, retail marketing, secretarial, and welding. The sample included 598 full-time program completing and noncompleting students.

Data were collected by reviewing former students' individual folder in the respective area school registrar's office, accessing records from the respective area school placement office, and questionnaires returned by participating individuals.

Of the 598 individuals in the study, data were collected on 483 individuals relative to having secured employment. Of the 598, 154 were financially assisted with Basic Education Opportunity Grant (BEOG) and/or Comprehensive Employment and Training Act (CETA) funds and 444 were classified as nonfinancially assisted students.

Conclusions

This section provides a summary and conclusions of the study which are presented in relation to the null hypotheses.

Null Hypothesis I

It is hypothesized that there is no significant difference in the grade point average of the financially assisted students and nonassisted students. This hypothesis was tested using the Student t-test at the .05 level of significance.

Conclusion The mean grade point average for the financially assisted students was 2.41 and the mean grade point average for the nonfinancially assisted students was 2.60. Statistical analysis failed to
reject the null hypothesis. Insufficient data were available to substantiate that a significant difference existed in the grade point average of the two groups. Therefore, it was concluded that no significant difference existed in the earned grade point average of the two groups.

**Null Hypothesis II**

It is hypothesized that the frequency of program completion is independent of financial assistance or nonassistance. The contingency Chi-Square test of independence at the .05 level of significance was used.

**Conclusion** The data disclosed that the proportion of male to female students was 283 to 315, respectively. A greater number of male students received financial aid but a higher percentage of the financially assisted female students completed their program of study. Four hundred thirty-one, or 72.1 percent, of all students completed their program of study while 167 did not. Seventy-two and three tenths (72.3) percent of the nonfinancially assisted students completed their program of study while 71.4 percent of the financially assisted students completed their program of study. The null hypothesis was not rejected. It was concluded that the frequency of program completion was independent of financial assistance or nonfinancial assistance.

**Null Hypothesis III**

It is hypothesized that no significant difference exists in the proportion of financially assisted students and the proportion of non-assisted students who secured employment related to training within sixty days of leaving or completing the program. The contingency Chi-Square test of independence was used at the 5 percent level of significance.
Conclusion

Four hundred forty-three students reported having secured employment related to training. Nearly one-half of the students had secured their employment at the time of leaving or completing the program. Within sixty days of leaving the program or completing the program 84.7 percent of the nonfinancially assisted and 90.8 percent of the financially assisted students had secured employment. Tables 4.5, 4.6, and 4.7 provide a summary of the two groups. The null hypothesis was not rejected. The data suggested that the financially assisted and the nonfinancially assisted students secured employment in approximately the same amount of time. Therefore, it was concluded that there was no significant difference in the proportion of financially assisted and nonassisted students having secured employment related to training within sixty days of completing or leaving the program.

Null Hypothesis IV

It is hypothesized that no significant relationship exists between grade point average and program completion. This hypothesis was tested using the Pearson product-moment correlation at the .05 level of significance.

Conclusion

The data disclosed that a relationship existed between grade point average and program completion. Students completing their program of study had higher grade point averages than did program non-completers. Analysis of grade point averages manifested that financially assisted program completers had a sizeable variation in the number of students above the mean compared with those below the mean. Similarly,
the nonfinancially assisted program completers had a significant difference in the number of students above the mean with those below the mean. The correlation yielded by the test applied was $r = 0.635$. The null hypothesis was rejected. It was concluded that a highly significant relationship existed between grade point average and program completion.

Null Hypothesis V

It is hypothesized that there is no significant relationship between grade point average and having secured employment related to training within sixty days of leaving or completing the program. This hypothesis was tested using the point-biserial correlation at the .05 level of significance.

Conclusion The null hypothesis was rejected. The correlation was significant beyond the .01 level; $r = 0.260$. Therefore, it was concluded that grade point average was a variable that had a significant contribution in securing employment related to training within sixty days of completing or leaving the program. Students with an earned grade point average above the mean were more successful in securing employment and secured employment in less time after completing or leaving the program.

Null Hypothesis VI

It is hypothesized that the frequency of having secured employment related to training within sixty days of leaving or completing the program is independent of program completion. The contingency Chi-Square test of independence at the .05 level was used.

Conclusion The null hypothesis was not rejected. Table 4.10 provides a summary of the findings. The data revealed that the frequency
of having secured employment related to training within sixty days of leaving or completing the program was independent of program completion. The finding of this study supported the idea that students who leave before completing the program had employment when they left. Therefore, it was concluded that securing employment related to training within sixty days of leaving the program was independent of program completion. Perhaps, as espoused by Bottoms, Lawry, and Sultan as cited in the review of the literature, some students will continue in a career education program only as long as necessary to develop saleable labor market skills.

Null Hypothesis VII

It is hypothesized that financial assistance, sex, and age make no significant contribution to the prediction of grade point average. This hypothesis was tested with the F-statistic at the .05 level of significance.

Conclusion The null hypothesis was rejected. It was concluded that the variables age and age with financial assistance made a significant contribution to the prediction of grade point average.

Null Hypothesis VIII

It is hypothesized that financial assistance, sex, and age make no significant contribution to the prediction of having secured employment related to training. This hypothesis was tested by the F-statistic at the .05 level of significance.

Conclusion The null hypothesis was rejected. It was concluded that the variables of sex and sex with age made a significant contribution to the prediction of having secured employment related to training.
Male students reported having greater success in securing training-related employment. Males in the older age group reported having the greatest success and females in the older age group had the least success in securing employment related to training.

Implications

In summary, it may be helpful to the practitioner for this writer to express opinions based on his perceptions of the research findings. The implications stated have potential for additional study. Hopefully, research will be conducted to confirm or refute the following:

1. Individuals attending postsecondary career education programs may have entered and remained in school because of the financial assistance received. The perception that financially assisted students do not perform academically, secure employment as readily, or complete programs as frequently was not substantiated in this study. Basically, people who were financially assisted did as well as those who were not financially assisted with Basic Education Opportunity Grant and/or Comprehensive Employment and Training Act funds. An assumption can be made that without financial assistance many individuals would not have enrolled and remained in postsecondary career education programs.

2. Students who left before completing the program may have fulfilled their goal by completing only a portion of a postsecondary career education program. The perception that program completion is necessary to secure employment was not substantiated in this study. It can be assumed that some students remained in the career education program only as long as necessary to develop the skills to enter the labor market. Perhaps, as the need arises these same individuals will re-enter for additional training.

3. Mobility or a lack of mobility may be a factor that contributes to the inability of some students in securing employment. Older female graduates may have domestic responsibilities that limit their mobility and thus hinder their success in securing employment. The probability of entering the labor market at a later time is quite high because of the skills and knowledge acquired in the postsecondary career education program.
4. Individuals who failed to respond to the mailed questionnaire may have a poor self-image. The nonrespondents had a lower mean grade point average than those who responded to the mailed questionnaire. Perhaps, the individuals' low self-concept contributed to the poor academic performance, program completion, and response to the mailed questionnaire.

5. Individuals who failed to respond to the mailed questionnaire may have influenced the results of having secured employment related to training. However, it is assumed that the nonrespondents were randomly distributed. To obtain information from nonresponding students, perhaps, alternative methods could be used to determine the number of individuals who had secured employment related to training.

6. Money spent on economically disadvantaged persons is a good investment. Instead of welfare or other social programs, additional money should be spent on those who need financial assistance for education. The rate of return, in taxes, may be many times the amount disbursed in the form of financial assistance.

Recommendations

As a result of this study, the following recommendations are made:

1. Similar research should be conducted on program completers and noncompleters from other area schools and different career education programs to determine if similar results prevail.

2. A similar study should be conducted with a component designed to investigate the nonresponding student values and characteristics.

3. Research should be conducted that would measure the impact of the amount of financial assistance on earned grade point average, program completion rate, and having secured employment related to training.

4. Research should be conducted that would determine the value of the career education received to performance on the first job.

5. A longitudinal study should be conducted to determine whether the career education received made any contribution toward upward mobility in the graduates' chosen occupations.

6. Area school personnel should survey program noncompleters to determine modifications and/or alternatives that would more adequately meet students' needs.
7. Research should be conducted that would identify goals and values of career education students to determine the impact of the career program and how well the program met individual needs.

8. Area schools should design a reporting system that would identify each student's career education goal to ascertain if program noncompleters had accomplished their goal when they left the program.

9. Financial assistance should continue to be available to those who are economically disadvantaged. This would enable students to pursue postsecondary career education who otherwise may not have the financial resources to do so.

10. Postsecondary career education programs should be designed so that students can leave the program when the desired skills have been achieved. Assessment systems should be developed and implemented that would recognize the student's accomplishment.
REFERENCE NOTES


REFERENCES


Attention to voc ed. Update, October 1980, 3(2), p. 3.


Bottoms, G. Work is bountiful, jobs are scarce. Man/Society/Technology, 1979, 38(8), 23.


Elterich, K., Gable, R., and Kerr, W. A comparative analysis of the effectiveness of community college counseling services as perceived by students, faculty, and counselors. *Community/Junior College Research Quarterly*, 1979, 3(2), 139-149.


Howlett, V. W. Federally funded students vs. nonfunded students: Their comparative achievement in office education classes (Doctoral dissertation, Brigham Young University, 1977). (ERIC ED 146 962)


Iowa State Department of Public Instruction. *Iowa guidance surveys, the dropout FY1979, the graduate one year after FY1978.* Des Moines: Author, 1979.

Iowa State Department of Public Instruction. *Accountability report for vocational education in Iowa, fiscal year, 1979.* Des Moines: Author, 1980. (a)


Iowa State Department of Public Instruction. *The Iowa career-vocational newsletter.* Des Moines: Author, 1980c, 1(3), 1-4.


Tex-SIS Follow-up System. First year graduate data summary—1975-76 (Monograph No. 6). Austin: Texas Education Agency, 1977. (b) (ERIC ED 146 961)


Winton, P. Hearings focus on voc ed law. Update, 1980, 3(2), 1; 6.


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The Iowa State University Committee on the Use of Human Subjects Research reviewed this project and concluded that the rights and welfare of the human subjects were adequately protected, that risks were outweighed by the potential benefits and expected value of the knowledge sought, that confidentiality of data was assured and that informed consent was obtained by appropriate procedures.

To my wife, Dorothy, and children, Karen, Brian, and Jason, my thanks and appreciation for their patience, encouragement, and long-suffering while this project was underway.
VOCATIONAL TRAINING PROGRAM SURVEY

DIRECTIONS: Please respond to the questions below. For each question, mark the item that most accurately answers the question. Remember, your answer will be kept in confidence.

1. Please mark the program in which you were enrolled.
   
   _____ Ag-business/supply and service
   _____ Air conditioning
   _____ Auto mechanics
   _____ Bookkeeping
   _____ Carpentry
   _____ General or retail merchandising
   _____ Secretarial
   _____ Licensed practical nursing
   _____ Welding

2. When did you attend the program that you marked above?
   
   From: ____________, 19___ to: ____________, 19___
   (month) (month)

3. Were you employed or did you accept employment within sixty (60) days after you left the program?
   
   Yes _____ No _____

If the response to question 3 is "yes", answer the remaining questions.

If the response to question 3 is "no", follow the directions at the end of the questionnaire.

(turn to back side of this page)
4. How many weeks passed from the time that you left school and the time you started the first job?

- Had job when I left
- 0 to 1 week
- 1 to 2 weeks
- 2 to 3 weeks
- 3 to 4 weeks
- 4 to 5 weeks
- 5 to 6 weeks
- 6 to 7 weeks
- 7 to 8 weeks
- 8 to 9 weeks
- Over 9 weeks

5. Was the first job you began upon leaving school related to the training program in which you attended? (Job related means that your training program developed the skills and knowledge needed to get the job.)

- Yes ______  No ______  Somewhat ______

6. Was your employment full-time or part-time? (Full-time is at least 36 hours per week.)

- Full-time ______  Part-time ______

7. Optional question.

In general, how satisfied were you with the vocational training that you received in the program?

8. Now that you have been away from school for a while and have been exposed to additional experiences, what would you like to have had as a part of your program?

Please insert this in the enclosed envelope and return to me. Thank you for your assistance.

Carl H. Rolf
605 SE 6th
Ankeny, Iowa 50021
VOCA TIONAL TRAINING PROGRAM SURVEY

DIRECTIONS: Please respond to the questions below. For each question, mark the item that most accurately answers the question. Remember, your answer will be kept in confidence.

1. Please mark the program from which you were graduated.
   ______ Ag-business/supply and service
   ______ Air conditioning
   ______ Auto mechanics
   ______ Bookkeeping
   ______ Carpentry
   ______ General or retail merchandising
   ______ Secretarial
   ______ Licensed practical nursing
   ______ Welding

2. When did you attend the program that you marked above?
   From: __________, 19___ to: __________, 19___
   (month) (month)

3. Were you employed or did you accept employment within sixty (60) days of graduation?
   Yes _____ No _____

If the response to question 3 is "yes", answer the remaining questions.

If the response to question 3 is "no", follow the directions at the end of the questionnaire.

(turn to back side of this page)
4. How many weeks passed from the time that you graduated and the time you started the first job?

- ______ Had the job when I graduated
- ______ 0 to 1 week
- ______ 1 to 2 weeks
- ______ 2 to 3 weeks
- ______ 3 to 4 weeks
- ______ 4 to 5 weeks
- ______ 5 to 6 weeks
- ______ 6 to 7 weeks
- ______ 7 to 8 weeks
- ______ 8 to 9 weeks
- ______ over 9 weeks

5. Was the first job you began upon graduation related to the program in which you attended? (Job related means that your training program developed the skills and knowledge needed to get the job.)

- ______ Yes
- ______ No
- ______ Somewhat

6. Was your employment full-time or part-time? (Full-time is at least 36 hours per week.)

- ______ Full-time
- ______ Part-time

7. Optional question.
In general, how satisfied were you with the vocational training that you received in the program?

8. Now that you have been out of school for a while and have been exposed to additional experiences, what would you like to have had as a part of your program?

Please insert this in the enclosed envelope and return to me. Thank you for your assistance.

Carl H. Rolf
605 SE 6th
Ankeny, Iowa 50021
APPENDIX B: COVER LETTER AND FOLLOW LETTER
MAILED WITH QUESTIONNAIRE
November 1, 1980

The purpose of this letter is to seek your help in answering the enclosed survey. This survey is a part of the information that is being gathered to determine the effectiveness of your vocational training program at the Des Moines Area Community College.

Results of this study have the potential of getting additional financial assistance for students and funding for vocational education in your community college. Because this information has such potential for future students, it is extremely important that you complete and return this survey. Your participation is vital and cooperation is needed in gathering this data.

All information will be coded, summarized and reported as group data to protect your identity. The number in the upper right hand corner is a survey number. Its purpose is to help in recording the information. If you have any questions, you may call one of the following numbers: (515) 964-1066 or (515) 964-6364.

After completing the survey, insert it into the enclosed addressed, stamped envelope and return it to Carl Rolf. Thank you in advance for your help and cooperation.

Sincerely,

Carl H. Rolf
603 SE 6th
Ankeny, Iowa 50021

Enclosures

P.S. Enjoy a cup of coffee or a coke after completing this survey.
November 17, 1980

Would you please take a few minutes to give me some help? I have not received your response to the questionnaire that I sent two weeks ago.

Your response to the questionnaire is very important to me. If my survey is to provide a true and valid picture, it is extremely important for everyone to return the questionnaire. For my study to have any effect upon future vocational funding it must be complete.

If you would be so kind, take a few minutes now to fill out the enclosed questionnaire and return it in the enclosed stamped envelope. Of course, if in the last few days you returned your questionnaire, please ignore this request and accept my sincere thanks for your help.

Sincerely,

Carl H. Rolf
605 S.E. 6th
Ankeny, IA 50021

Enclosures