To the Graduate Council:

I am submitting herewith a dissertation written by Matt H. Reiser entitled "Follow-Up Study and Analysis of Community College Career Education Graduates and Nongraduates in the State of Tennessee." I recommend that it be accepted in partial fulfillment of the requirements for the degree of Doctor of Education, with a major in Vocational-Technical Education.

Garry R. Bice

Garry R. Bice, Major Professor

We have read this dissertation
and recommend its acceptance:

Wm H. Coffield

Donald K. LaBrant

Siegfried C. Deitz

Accepted for the Council:

Hilton A. Smith

Vice Chancellor
Graduate Studies and Research

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FOLLOW-UP STUDY AND ANALYSIS OF COMMUNITY COLLEGE CAREER EDUCATION GRADUATES AND NONGRADUATES IN THE STATE OF TENNESSEE

A Dissertation

Presented for the

Doctor of Education

Degree

The University of Tennessee, Knoxville

Matt H. Reiser

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ABSTRACT

The purposes of the study were to determine the current status of career education follow-up studies in Tennessee's community colleges; to design an automated follow-up system and utilize this system to survey approximately two thousand 1973 and 1974 community college graduates and nongraduates; and to analyze and compare the community college data with a 1973 survey of twenty-two thousand high school vocational students.

A community college follow-up survey of vocational/career education administrators in Tennessee was performed. An optical scan career education questionnaire was developed and interfaced with an automated computerized data collection system, which addressed questionnaire packages and tabulated returns upon recovery of responses. These tabulations were interfaced with a computer program called the Statistical Program for Social Science (SPSS). Results of this analysis were presented in the study in tabular form showing percentages and analysis of variance.

This follow-up study and analysis of community college career education graduates and nongraduates in the State of Tennessee resulted in the following major findings:

1. There was no uniform comprehensive career education follow-up system used by Tennessee's community colleges.

2. The use of an automated follow-up and/or analysis system would be feasible and efficient if a career student information data bank were available.

3. The analysis of the follow-up data indicated that there was no difference, at the .05 level of significance, among students in selected community colleges, community college programs, high school vocational programs, community college career education graduates and nongraduates, and community college career education graduates and high school vocational completions relative to job satisfaction, future educational plans, and evaluation of career instruction. There also was no significant difference among students from different high school vocational programs or between community college career education graduates and nongraduates in regard to yearly salary. There was, however, a significant difference among students in selected community colleges, community college programs, and between community college career education graduates and high school vocational completions in regard to yearly salary. Community college career students reported a higher yearly salary than did high school students completing a vocational program.

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CHAPTER I

INTRODUCTION

I. BACKGROUND OF THE STUDY

As a unique American invention, the community/junior college has been an operational concept in education for more than seventy years. For the first fifty years, however, two-year, postsecondary institutions were few in number and limited in geographic location.

In the decades since 1950, spectacular growth occurred in the community/junior college movement; and by 1970, two-year colleges had an estimated enrollment of approximately two million students, according to Martin (1971). She predicted that by 1980, the community college student body would exceed 30 percent of the total undergraduate college enrollment in the United States.

Many social, political, and economic factors have contributed to the phenomenal growth and expansion of the community college. Chief among these, and most relative to this study, was the fact that one of the most significant changes in the occupational structure of the United States at the time of this investigation was the rapid growth of occupations that did not exist fifteen years before.

The introduction of the career education concept, the increased emphasis on vocational-technical education, and the critical demand for workers who possess a technical background have created a need to reevaluate the public educational system in order to make it more

responsive to those it serves. The challenge of structuring public education to supply productive workers at the skilled and technical levels is unparalleled in the world's history. Expanding and changing manpower requirements require that educational organizations be sensitive and responsive to the needs of individuals in the communities, states, and the nation.

The rapid growth of the community college movement has permitted these institutions to pay only limited attention to the appraisal of their occupational programs and general college services. Rouche's (1972) study, conducted to determine research practices on the community college level, revealed limited institutional research. Administrators and faculty were deeply engrossed in the crucial day-to-day problems involved in meeting the facility, staff, and program needs of their rapidly expanding student bodies. Attention and maximum effort, therefore, were being directed toward immediate needs, rather than to longer term planning efforts based upon follow-up and assessment of students (p. 15).

O'Connor (1969) stated that the diversity of occupational programs and the high cost in both human and material resources makes it imperative to establish continuous and effective research on the students and their relationship to the college programs. O'Connor also indicated that community colleges can respond quickly and effectively to the dynamic forces operating in the community by maintaining current research relative to the effects of their training.

The effectiveness of an institution in meeting the needs of its student clientele is measured to a large extent by assessment of the results, or how well the school experiences have prepared the student for encounters with society and the world of work. Medsker (1960) implied that the educational evaluation of the final product (former students) would provide much insight into the educational process.

Dobbin and Turnbull (1965), in a report to the National Committee for Appraisal and Development of Junior College Student Personnel Programs, emphasized the need for student follow-up:

> The single most potent tool for finding out how well a program of instruction works is the follow-up study. Until a college has taken the time and effort to see what its graduates are like, it can only assume that the program it offers does the student some good. (p. 13)

Tyler (1954), in "Modern Aspects of Evaluation," wrote that educational institutions realize the importance of follow-up, but research indicates that little emphasis has been placed on its use in actual educational evaluation. He further stated that follow-up studies must be included as an integral part of each community college's research and evaluation efforts.

II. STATEMENT OF THE PROBLEM

Tennessee's community colleges had not established a comprehensive system for follow-up research of career education students, and there was no comprehensive community college career student information data bank available for identifying graduate and nongraduate career students.

III. ANALYSIS OF THE PROBLEM

Several underlying premises formed the foundation of the study:

1. The rapid expansion of the Tennessee Community College System had led to a proliferation of career education courses, especially in the area of emerging occupations such as paraprofessional, health-related technician training.

2. While considerable research usually preceded the approval and implementation of a new career program, former student follow-up evaluations of existing programs did not seem to be emphasized by most of the community colleges in Tennessee.

3. There was a need for timely change in dynamic, flexible educational institutions, but the changes needed to be based upon the best information available and should reflect extensive use of comprehensive evaluation systems.

4. Development, implementation, or modification of career programs was often done by administrative and instructional staff without the benefit of adequate research.

5. Program development, implementation and/or modification, should be a dynamic ongoing process dependent upon "output" evaluation as well as "process" analysis.

6. Former student reflections on previous training could produce a reliable means of evaluating "output" effectiveness of career education programs.

7. Feedback, per se, is considered one of the most powerful tools in the management of systems and is generally necessary for the establishment of effective communication techniques.

8. The resource cost necessary to produce a valid comprehensive follow-up study should not exceed the value of the data.

IV. PURPOSES OF THE STUDY

One purpose of the study was to determine the status of career education follow-up survey techniques used in Tennessee's community colleges, and the opinions of the worth of this method of program evaluation by the directors of each college's career education division (Appendix A).

Another purpose of the study was to design a computerized, automated follow-up system which could be used by Tennessee community colleges for rapid retrieval and analysis of follow-up data. The automated system hopefully would remove one of the most objectionable factors of follow-up studies: the complexity of implementing and analyzing such a study.

A third purpose of the study was to establish an initial data bank of follow-up information by using the computerized, automated follow-up questionnaire.

Finally, the study was conducted to determine the status of community college career program graduates and nongraduates, and high school vocational program completers relative to their (1) current salary, (2) job satisfaction, (3) future educational plans, and (4) their feelings about their career training programs.

V. RESEARCH HYPOTHESES

The following null hypotheses were tested in this study:

H_o 1: There was no significant difference among students in selected community colleges in regard to:

a. Present yearly salary.

b. Degree of job satisfaction.

c. Future educational plans.

d. Evaluation of their career training.

H_o 2: There was no significant difference among students in selected community college career programs in regard to

a. Present yearly salary.

b. Degree of job satisfaction.

c. Future educational plans.

d. Evaluation of their career training.

H_o 3: There was no significant difference among students from different high school vocational programs in regard to:

a. Present yearly salary.

b. Degree of job satisfaction.

c. Evaluation of their career training.

H_o 4: There was no significant difference between community college career education graduates and nongraduates in regard to:

a. Present yearly salary.

b. Degree of job satisfaction.

c. Future educational plans.

d. Evaluation of their career training.

H_o 5: There was no significant difference between community college career education graduates and high school vocational completions in regard to:

a. Present yearly salary.

b. Degree of job satisfaction.

c. Evaluation of their career/vocational training.

VI. NEED FOR THE STUDY

The community college appeared to be rapidly becoming the distributive agency in American education—placed not at the terminal end of the educational process, but at the crossroads, processing a wide variety of students with infinite educational needs and goals. As the growth of the community college expands to fulfill individual needs, evaluation by students becomes increasingly important.

The Tennessee State Advisory Council on Vocational Education, in its 1973 annual report, made the following recommendation relative to the need for postsecondary follow-up studies:

> It is recommended that the State Board for Vocational Education develop an "Information Management System" for all postsecondary programs (area schools, technical institutes, community colleges) and that it be combined with the system now being operated for the secondary programs. This would give the Division of Vocational Education much more readily retrievable information than they now have. (p. 8)

McConnell (1967) stated that community colleges must ascertain the effectiveness of programs by evaluation by present and former students,

while O'Connor (1969) wrote that a well-planned follow-up study must be an integral part of the research program of every college. O'Connor further stated that the need for follow-up studies in the two-year institutions was more imperative than in senior colleges because, in addition to the requirement for training of students with broad interests, aspirations, and abilities, the community college must also meet the challenge of rapidly changing needs in the business and industrial community.

Johnson (1962) found that while personnel in most colleges believed follow-up studies to be of major importance in program and services evaluation, less than one-third of one hundred colleges surveyed were organized to do such research. Furthermore, in the colleges doing some follow-up research, that responsibility was delegated as an additional duty to a faculty or staff member.

Swanson (1965) found only four full-time researchers in 337 junior colleges surveyed. Sharp (1966) in his publication found very few follow-up studies concentrated upon students or graduates of postsecondary vocational education. Rouche (1967), while doing research on college dropouts, confirmed Sharp's findings.

Deem (1969), in a survey of 440 junior college staff members from forty public community colleges, reported that all but two members believed follow-up studies were needed but that only 9 of the 440 members felt their institutions conducted adequate follow-up studies.

Eighty-seven state-level directors of state and/or community college career education programs were asked by the researcher for information

relative to follow-up systems used in their states (Appendix B). Sixty-two of the directors of state and community college educational programs responded. Three stated that their states had an automated vocational follow-up system but they were attempting to refine their programs. Two indicated that they did not have and they were not planning to develop a comprehensive follow-up system for vocational-technical education. The remaining fifty-seven respondents indicated they were actively engaged in refining and developing vocational follow-up studies in the areas of high school, adult continuing education, technical, and/or community colleges (Appendix C).

VII. LIMITATIONS OF THE STUDY

The study was limited by the following:

1. Internal graduation requirements and administrative procedures of the different colleges varied so greatly it was often difficult to identify the student's major area of specialization.

2. Nonstandardization of titles and content of many of the career education programs at the different colleges made lateral comparison difficult.

   a. Curriculum requirements for degree programs with the same titles varied in the different community colleges.

   b. Individual career courses comprising a career educational program differed in content and in the ratio of applied to theoretical material.

3. The results of the study can be generalized only to the State of Tennessee.

VIII. DEFINITION OF TERMS

The following definitions are included for clarification of their use in the study. Other terms or phrases used in the report are considered to be self-explanatory.

Community college. A two-year public institution of higher education with academic, career, and general education programs. The programs are designed to provide a wide range of options and services in response to the needs of the local community.

Career education program. A collection of college level courses designed to prepare a student for employment in business, industry, and health related or social service areas upon completion of an associate of science degree.

Automated follow-up. A system using questionnaires printed by a technique which allows automatic respondent identification, mailing, scanning, and tabulation of responses, computer collection and storage, and student response analysis. The automated system requires a minimum amount of personal handling such as key punching data relative to student's identification number, address, and study area.

Career education graduate. A community college student who has fulfilled the educational requirements for a specific career associate of science degree program.

Career education nongraduate. A community college student who was enrolled in a career education program and satisfactorily completed all or most of the technical courses but did not fulfill requirements for graduation.

High school vocational completion. A student who has completed the requirements of his high school vocational program but who may or may not have graduated from the high school.

CHAPTER II

RELATED LITERATURE

A review of literature relevant to the study falls into five general areas: the growth of the community college movement, the need for educational accountability, the characteristics of feedback systems, a survey of follow-up studies, and automated follow-up studies.

I. GROWTH OF COMMUNITY COLLEGE MOVEMENT

A study of the community college movement revealed not only its dynamic growth and community acceptance but also its quest for a separate identity within the higher education sphere. The rapidity of its growth and its acceptance of change pushed obligatory tasks such as follow-up research into the background. Priority duties such as curriculum and teaching innovation, facility planning and equipping, program development, and faculty training forced many administrators to postpone evaluative research to a future date.

Thornton (1966) attributed the rapid growth of the community college to three major factors: first, the attention and promotion given the system by several midwest universities; second, the rapid rise of economic production and the need for technicians in a technically oriented society. The third factor, frequently referred to as the "American Dream," was the promotion of the belief that a college education should be available to all (p. 45).

Raines (1968) compared the conception, birth, and growth of the community college to a familial offspring. The community college (child) was fathered by the university and sheltered during its infant years by its mother, the secondary school. The birth date most often accepted is 1901 at Joliet Township High School, Joliet, Illinois. The term "junior college," first used by William Rainey Harper in 1896, even implies parental relationship with the senior college. Fretwell (1954, p. 11) in his book, Founding Public Junior Colleges, stated that the name did not come into general use until 1916. Originally the junior college was concerned with the first two years of collegiate grade liberal education.

Thornton (1966, p. 59) observed that as the junior college system grew it also began to seek a place as a nonsubordinate entity which would give it independence. A major step toward maturity occurred when the junior college accepted as part of its domain the responsibility for postsecondary vocational education. The junior college approached adulthood by including adult education and community services. Johnson (1969) noted that the term, community college, replaced the older term, junior college, as the philosophical beliefs of the new school began to place increased emphasis on community needs and less attention on preparation for the senior college. Johnson stated, "Junior may be growing up, but the end is no where in sight" (p. 372).

Dr. William Boast, dean of general studies at Denver Community College, in a speech given at the Office of Education's Secretary's Conference on Vocational Education at Atlanta, Georgia, in August 1970, stated:

> The success and tremendous growth of the number of community colleges can best be contributed to its sensitivity and to its extreme flexibility to the needs of the student and the community rather than to the school system itself. Community colleges must build two-way bridges between its curriculums and the world of work. It must use its resources, its research ability to foster and actively promote a community of learning rather than an institution of learning. When the postsecondary community college, the technical institute, or area vocational school has done its job, it will insure outward mobility for all high school students into the world of work.

II. NEED FOR EDUCATIONAL ACCOUNTABILITY

Nadler (1970) in his book, Developing Human Resources, defined evaluation as the process of finding out what has happened. Nadler further stated that, "Each part of the learning process should be concerned with the evaluation of the final output, which should be an ongoing process, in terms of human resource development" (p. 214).

Accountability is a simple fundamental concept, but establishing a workable, effective system can be quite complex. Its application in the educational arena has been, to some degree, limited, with the process of training receiving more attention than the final results of the training.

Rouche (1972), writing on accountability in two-year community colleges, suggested four essential characteristics of accountability: (1) it accents results, (2) requires measurement, (3) assumes and shifts responsibility, and (4) permeates the entire college structure.

> Accountability aims squarely at what comes out of educational system rather than what goes into it. If educational institutions exist primarily to cause learning, then educators should scrutinize the results of their efforts. Teaching causes learning and if no learning occurs, no teaching has taken place. (p. 187)

Lessinger (1971), former associate commissioner of education, stated the urgent requirement for emphasizing results:

> Our schools must assume a revised commitment . . . [to] include the willingness to change a system which does not work, and find one that does; to seek causes of failure in the system and its personnel instead of focusing solely on students; in short, to hold the school accountable for results. (p. 1)

Accountability relative to measurement indicates that schools should promote comprehensive and efficient evaluation systems. Educational evaluation should measure not only how well a student does his course work but also how well the student utilizes his information in his career. If empirical evidence, as well as the theoretical, is acceptable, one can assume that the good education will result in a change of behavior by the student.

Accountability assumes and shifts responsibility for the net results of education from the student to the educational system. That concept, presented by Meade (1968), in an address to the National Association of Secondary School Principals, promoted the idea that educational systems incorrectly hold the student responsible for the learning process. When a true comprehensive accountability system is established, intelligent changes can be made by the system. While the institution must also be internally sensitive to the ongoing educational process, it must also be accountable for the final results of its educational processes. This condition is satisfied when a program (or assorted courses) is compatible with the student's goals and society's needs to utilize this student as a productive member of the community.

Davies (1970) also supported the shifting of responsibility for learning from the student to the establishment.

> This concept of accountability . . . means . . . that schools and colleges will be judged on how they perform, not what they promise. It means shifting primary learning responsibility from the student to the school. It also means that a lot of people are going to be shaken up. (p. 11)

Davies summed up accountability as being far more than a glib term or "in word." He believed that schools and colleges should shoulder responsibility for their students. The concept is in agreement with recognized educational authorities and is often required by national and state vocational-technical divisions. The position set forth by the Tennessee State Plan for Vocational Education (1973-1974) on evaluation is as follows:

> The philosophy of evaluation activities includes both formative and summative evaluative activities and procedures which will constantly improve the quality of vocational instruction. Intensive evaluations are to be made of the states' postsecondary institutions. (p. 27)

III. CHARACTERISTICS OF FEEDBACK SYSTEMS

Stufflebeam (1971) defined evaluation as the science of providing information for decision making. He went on to state that "feedback is an integral part of any evaluation system" (p. 53).

The emphasis on output evaluation requires former students to make observations related to how they, in retrospect, view their previous educational training. Miller (1972) cited student rating of instruction and programs as being among the most reliable, valid, and consistent methods of evaluation. Miller emphasized the need for feedback into the educational evaluation system.



Bloom, Hastings, and Madaus (1971) agreed with Stufflebeam in establishing a distinction between process evaluation and product evaluation:

> Process evaluation is continuous during the implementation of the project (courses).
> Product evaluation is used at the end of a complete cycle (program). (p. 48)

It is generally accepted by managers of systems that there are four basic elements: input, process, output, and the feedback loop. This is graphically shown as:

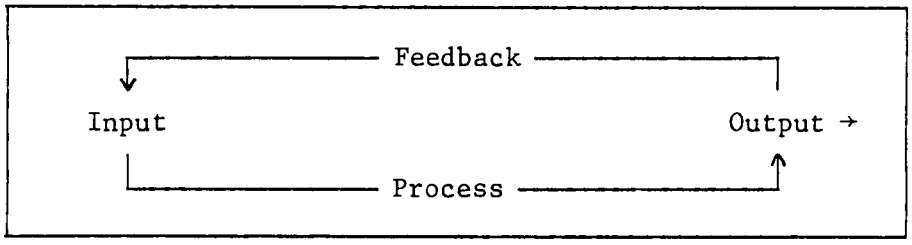

Figure 1. Simplified diagram of basic evaluation system.

It is this feedback component of the evaluation system with which this study was actively concerned. Wiener (1965), in his book entitled Cybernetics, discussed feedback relative to equipment as "control of a machine on the basis of actual performance rather than its expected performance." He further stated:

> It is my thesis that the physical functioning of the living individuals and the operation of some of the newer communication machines are precisely parallel in their analogous attempts to control entropy through feedback. (p. 26)

Wiener supported the concept that feedback can act as a powerful change agent, both in machinery and with human beings.

Wentling and Lawson (1975) stated in their book on evaluation of training programs:

> Feedback is the communication of judgment and data information regarding the evaluative focus back to the decision makers or individuals who are responsible for making changes. . . . for an evaluation to be of any use to improvement, the judgments must be accurately fed back to those individuals who are in a position to utilize it. (p. 43)

Silvern (1972) in his book, Systems Engineering Applied to Training, stated there are four major ingredients to a training program:

1. Humans (trainees, instructors, managers, and maintenance)
2. Course Method and Content (lesson plans, ancillary materials, and software)
3. Hardware
4. Facilities (p. 120)

He went on to state that when these four elements interact under controlled direction it is necessary to immediately detect and correct malfunctions by applying feedback evaluations of the process. Silvern pointed out if the educational program is excellent, attention should be directed toward the qualifications of the input students.

Wiener (1965) stated that feedback, when introduced into a system involving a complex process, vastly increases the ability to achieve desired output.

> If the information which proceeds backwards (feedback) from the performance is able to change the general method and performance, we have a process which may be called learning. (p. 26)

IV. SURVEY OF FOLLOW-UP STUDIES

O'Connor (1969), working on a research project for the American Association of Community Colleges, wrote:

> To ascertain the effectiveness of the college program, there must be "follow-up" from the day the student enters the institution until even after he gains employment or transfer to another institution. Simply defined, follow-up is a process by which the educational institution seeks to determine how effective it is in meeting the needs of those it serves. Introspective by nature, it determines how well the stated objectives of the college are being achieved. (p. 4)

Holmes (1971) performed an empirical validation of career education graduates in relationship to their employment and found follow-up studies to be an important element in the total evaluation process.

> Present vocational-technical programs must be reevaluated and restructured to provide a unifying education experience meeting student needs, interests and abilities rather than a random assemblage of unrelated and self-contained courses. (p. 673)

Holmes went on to provide pertinent data for evaluating the effectiveness of vocational-technical programs and said that close coordination between the former student, industry, and the educational institution is a must if the object of career programs is to provide trained manpower.

Follow-up procedures, according to O'Connor (1969), should be employed to make certain that the college programs are serving the needs of the community.

> It would be ill-advised for a community college to overemphasize preprofessional programs where technical and semiprofessional programs would be more appropriate. To verify whether the community college is reflecting in its programs the needs of the community, follow-up surveys of each graduating class should be conducted. Such information should provide a valid basis for eliminating curriculums . . . [and] adding new programs required by employment changes. Feedback of information . . . provides one of the best means of obtaining an evaluation of the relevance of course content, instructional emphasis and student advisement. (p. 10)

O'Connor also addressed himself to student dropouts from technical programs:

> One of the most costly, perplexing, and persistent problems faced by community college administrators is that of student dropouts. [Internal] studies of this problem usually do not result in a reduction in the number . . . leaving college before completing their work. A sustained analysis of this problem might yield effective solutions. Follow-up studies must include an analysis of dropouts. (p. 12)

Eninger's (1968) study provided comprehensive follow-up information of one hundred high schools offering vocational-technical programs. The survey involved 5,327 graduates for the purpose of determining how well the schools were reaching their objectives in the following areas:

1. Time to get full-time job
2. Relatedness of job to training
3. Job satisfaction
4. Earnings and job progression
5. Job security
6. Employer stability
7. Geographic mobility (p. 4)

Byram and Robertson (1971) listed five specific purposes of follow-up evaluation which are compatible with most sources investigated.

1. To obtain value judgements from former students on how well education prepared the individual for his work.
2. To determine the impact of training programs on present job performance.
3. To plan future programs and evaluate present programs.
4. To determine how adequate the training program was in light of student's future educational performance.
5. To determine student's mobility. (p. 13)

Young (1969), writing on the need for follow-up studies, stated that educators need to know more about their former students, specifically in the following areas:

1. Student's interests, aspirations, abilities, and aptitudes;
2. Performance requirements of the various occupations;

3. Employers' hiring standards;
4. Occupational entry barriers; and,
5. Existing sources of manpower. (p. 46)

Young went on to suggest that these data should be used to establish local and state program priorities in terms of research allocation.

Borgen and Davis (1974) in their book, Planning, Implementing, and Evaluating Career Preparation Programs, wrote:

> It is impossible to determine whether quality courses and programs are being offered unless evaluations are made and become an integral part of your course and program development procedures. Only through systematic evaluation procedures can you adequately assess the strengths and weaknesses of your career preparation courses and programs and make the necessary adjustments to insure quality. (p. 392)

Borgen and Davis recommended these major inputs for good evaluation:

1. Currently enrolled students
2. Former students
3. Faculty
4. Advisory committee members
5. Employers
6. State evaluators (p. 393)

V. AUTOMATED FOLLOW-UP STUDIES

The State of New York has adopted a reporting and evaluation system for occupational education (RESOE) which is a part of a total management information system (MIS). The RESOE system is designed to assist all persons at the local, state, and federal level with the tools to improve the quality and effectiveness of occupational education. New York's procedure guide, RESOE, The Reporting and Evaluative System for Occupational Education (1974), states:

> Program design is not complete without a means of evaluation that permits continued redesign and improvement. Traditionally, following up occupational graduates locally

> to determine what jobs or advanced training they have pursued has been one method of evaluating occupational programs. If graduates obtained jobs or sought further training in the areas for which their occupational program prepared them, the program was deemed to be effective.
>
> However, the traditional methods that local agencies have used to execute follow-up surveys often have proven to be time-consuming and costly. In the past, each agency has pursued its survey, independently, and costs and procedures have not been shared. Local agencies have incurred great expense in attempting to obtain follow-up data through telephone calls and personal interviews. Results have often been incomplete, inconclusive, and hard to interpret. (p. 14)

Binnie (1974), director of the Occupational Education Council for the State of Washington, viewed follow-up systems as follows:

> During recent years students, taxpayers, professional associations and legislators have demanded greater accountability of financial resources used in public education. Accountability in vocational education has been viewed in terms of job-entry, job-holding, and job-advancement skills. To determine the effectiveness of a program in relation to these standards for accountability, basic data are needed regarding the number and type of persons entering continuing, and completing training, and then as the results of this training the number of students entering and holding jobs. Best results are derived from responses gathered from former students. (p. 1)

Binnie also commented on follow-up systems relative to their effectiveness.

> Several methods have been employed by national and state agencies to secure accurate data. These methods have proved to be ineffective. A system was needed that could be conducted by local education agencies, and, at the same time, meet the informational needs of national and state agencies. (p. 1)

Hoffman (1971) developed a statewide, computerized, secondary student follow-up system for the State of Kansas. The recommendation by the Kansas Board of Education after reviewing the "strengths and weaknesses" of vocational education in Kansas was that:

> The Board should design and implement a plan for systematic follow-up of every student leaving a secondary school in the state, including the identification of reasons of why each student left and where he went. (p. 1)

Barber (1968, p. 2), of the U.S. Office of Education, expressed his concern over the poor quality or complete lack of follow-up studies in the vocational educational institutions of the United States. He asked Kansas State Teacher's College to consider doing research to develop an "ultimate" follow-up system(s).

Hoffman (1971) reported on Phase I of his research, listing the following reasons why computer application of follow-up survey data would be advantageous:

1. Follow-up studies can be comprehensive, yet be done on a counting basis at state level.
2. Free local school faculty from much of the detail work.
3. Centralized automatic data collection would be more efficient and less costly than done on a local basis.
4. Increased accuracy. (p. 5)

While many follow-up surveys of graduates are designed to provide general information, the survey of former students is also extremely valuable in producing specialized information. Garner (1969), in a study of 830 engineering terminal and transfer preengineering students at a community college in Maryland, found both classifications of students had similar jobs, started at about the same rate of pay, and were equal in on-the-job stability. The only significant difference was preengineering students limited themselves to engineering-type jobs. These findings were significant because preengineering and terminal engineering students were trained in widely different programs in the same institution.

Williams (1973) studied the procedures of 518 community colleges for follow-up of graduates and made the following recommendations relative to the use of follow-up as an element of institutional evaluation:

1. More community colleges should examine the postcollege activities and perceptions of nongraduates.
2. Greater use of representative sampling techniques to reduce cost should be used.
3. More complete descriptions of procedures and interpretations of data are needed.
4. Greater use should be made of employer evaluations as well as college records.
5. Community colleges should design follow-up studies in a manner which measures the obtainment of student's career goals. (p. 96)

Pautler (1967), in a follow-up study of three hundred high school vocational students, found that there was a significant difference between vocational graduates and vocational dropouts in their type of employment but no significant difference in their yearly salary twenty months after leaving school. He also found there was not a significant difference between the two groups in number of employer changes.

A follow-up study on technical agricultural graduates and dropouts completed by Cummins (1973) did not agree with Pautler's study. Cummins found that dropouts were not well prepared for present employment, that graduates averaged fewer jobs and higher salaries, that employers rated graduates as more productive, and that graduates appeared to be more mobile. Cummins recommended that all technical programs should be regularly evaluated by graduates, dropouts, employers, advisory committee, and program personnel. He also stated that a state-wide follow-up of all technical programs was necessary.

Robinson (1972) did a similar follow-up study on office occupation students at a community college and supported Pautler in that there was no relationship between employment, salaries, and job stability for the graduates or dropouts. Robinson recommended improvement in method and course content of office occupational programs.

Bensman (1969), in a follow-up study of 267 post-high-school vocational students in Ohio, found the vocational program prepared the students exceptionally well for employment but guidance and counseling services at the schools were less than adequate. Another finding was that the choice of a vocational curriculum, as opposed to an academic transfer program, did not hinder entrance into two- and four-year colleges and most former students did pursue some type of advanced educational training. The follow-up also indicated a need for better placement services.

Maner's (1973) study on relationships between employment patterns of engineering technicians from accredited and nonaccredited engineering programs found there was no significant difference between either type of program in salary five years after graduation, ability to obtain a first job, job satisfaction, employment security, or job progression. Maner further concluded that the standards of the American Society for Engineering Education and the Engineers Council for Professional Development were not valid predictors of job success.

Jopling (1971), in a follow-up study to measure relationship of career degree program length and students' postschool activities, challenged the validity of educational emphasis on two years being the

optimum time for a postsecondary career program. The research also raised some questions relative to the validity of the concept that occupational programs serve only the local geographic area.

Anthony and Miljus (1974) completed a follow-up study and compared the vocational high school graduates with technical institute graduates for a five-year period from 1965 through 1969. The conclusions were:

1. The attitudes of vocational and technical school graduates have been examined only minimally.
2. Educators . . . fail to ask the students themselves for their personal evaluation of their institutional services.
3. All schools should undertake to institutionalize the feedback process from their graduates.
4. Feedback informational systems should be employed on a regular scheduled basis.
5. Feedback and analysis can be used effectively to meaningfully modify the educational program and process. (p. 40)

Most of the follow-up studies of graduates of community colleges revealed that the utilization of an institutional wide comprehensive survey which requested general information was of limited value in career education evaluation. Kloster (1965) strongly recommended that this be done:

> It is recommended that follow-up of vocational oriented students be carried out separate and apart from any general follow-up studies the school may make. (p. 1)

Cox (1969), the principal investigator of a state-wide study, "Utah's Project Follow-Up," agreed with Kloster's viewpoint:

> One fact which becomes increasingly obvious was that there was little information available on vocational students in the same school which could be used to correlate follow-up information. (p. 5)

A review of the Utah follow-up study indicated that the compromise to make the questionnaire comprehensive for terminal vocational and

transfer students resulted in almost no usable feedback on the effectiveness of the career program evaluation. Utah did compare these "student status" data with other state information and did arrive at state costs per successful student.

Garner (1969, p. 42), in a study of six Maryland community colleges, compared "terminal" program electronic students with preengineering students. He found in his study of 636 respondents that "terminal" electronic curriculum students obtained jobs in engineering more often than engineering transfer students.

VI. SUMMARY

The impact of scientific, technological, social, and electronic changes on the American way of life has brought about a reexamination of society's educational techniques. The need for a higher educational system which is sensitive, comprehensive, flexible, and community oriented has speeded up the growth of the community college system.

In order for this unique American educational invention to serve society efficiently and effectively it would have to assume accountability for its innovativeness. This could be done through comprehensive evaluation, including feedback systems. One of the most promising sources of data for assessing the effectiveness of educational efforts is provided by the students themselves. The absence of systematic and comprehensive data on career programs, employment performance, and satisfaction of graduates made it difficult to properly evaluate the product as well as the process of the institution.

The difficulty of administratively monitoring former college career students for feedback data indicated a need for an automated follow-up system which could furnish adequate information on a timely basis without expenditure of excessive resources.

CHAPTER III

METHODOLOGY

This chapter describes the community college population, the status of community college follow-up systems in Tennessee, the instrumentation and data collection procedures used, and the method of data analysis that was employed.

I. POPULATION

There were nine Tennessee community colleges at the time of the study which had been operational long enough to establish comprehensive career programs and to have graduated their first class. An initial estimate by personnel of the State Board of Regents placed the number of career education graduates during 1973 and 1974 at one thousand students with nongraduates equaling or surpassing this figure. Associate of science career programs offered by the community colleges were in excess of eighty-eight. All the Tennessee state agencies previously listed suggested a total population research survey due to (1) the large number of career education programs offered by the community colleges, and (2) the relatively small number of graduates per program. These agencies also suggested that it would be of considerable value to their organizations for the survey to include 100 percent of the 1973 and 1974 graduates and all the nongraduates who could be identified.

Each participating community college president appointed a contact person who was responsible for graduates and nongraduates, supplying

data relative to name, address, completion status, and major area of study.

Considerable difficulty was encountered in identifying career education students, especially in the nongraduate category, due to the lack of standardized student background data collection systems used by the individual community colleges. With the exception of one college, all input data were generated by hand sorting transcripts and other recorded material such as graduation programs. A total of 1,998 students were identified, of which 1,121 students were identified as graduates and 877 as nongraduates.

II. TENNESSEE FOLLOW-UP DATA

Initially, each of the directors of career education in these Tennessee community colleges was asked in a personal interview to describe his institution's follow-up procedures for their former career students. Replies varied from irregular special program surveys to comprehensive total institution survey on a one-time basis. A questionnaire was then sent to the nine deans and directors of community college career programs (Appendix A) and the following information was collected:

1. Does your institution require periodic student follow-up? — 2 yes, 7 no
2. Has your college performed an institutional wide student follow-up — 4 yes, 5 no
3. Has your college ever performed a follow-up on your college dropouts? — 3 yes, 6 no
4. Do you use a formal follow-up of all career program graduates? — 2 yes, 7 no

The questionnaire also requested that the top career education administrators of the college's career programs evaluate the need for career education follow-up studies. The directors and deans of career education programs stated:

1. Follow-up studies of graduates are important but directors and deans do not have enough time to do good follow-up research.
2. All community colleges should do a comprehensive follow-up of career students once a year including all students in all career programs.
3. An automated student follow-up system and analysis would be of great value for both improving existing career programs and for institutional reports.
4. Follow-up studies are a reliable and useful supplement to career program evaluation.
5. Nongraduates should be included in follow-up studies of career students.

A third section of the questionnaire asked that seven factors be ranked in order of their importance to career program evaluation, improvement, and modification. These are listed below in order of their importance.

1. Vocational faculty
2. Follow-up studies of graduates
3. Advisory committees' recommendations
4. On-campus students' evaluations
5. Curriculum academic standards committee recommendations
6. Follow-up studies of nongraduates
7. College policies

Review of the results of the survey of the deans and directors resulted in three findings:

1. There was limited, intermittent use of follow-up research studies of career students by the community colleges.

2. Most top career educational administrators stated that follow-up studies of their graduates were important but too time consuming to perform and analyze.

3. Follow-up research was cited as the second most important factor in program modification with career faculty recommendations being considered the most valuable.

Based upon the findings relative to the need and value of a follow-up study, the following state agencies were contacted by letter (Appendix D) and asked to make recommendations relative to a need for a "Comprehensive Community College Career Education Follow-Up Survey":

1. Tennessee's Research Coordinating Unit (RCU) for Vocational Education.
2. State Board of Regents for the State University and Community College System of Tennessee (SBR).
3. Tennessee Higher Education Commission (THEC).
4. Tennessee State Advisory Council on Vocational Education.
5. Tennessee's State Board for Vocational Education.
6. President's Council for Tennessee's Community Colleges.

Each agency supported the need for a comprehensive follow-up study of community college career education graduates. The researcher, having determined a need for a follow-up study, proceeded to search for suitable techniques to employ in the design of the study.

III. NATIONAL SURVEY

A letter was sent to the state vocational directors or commissioners and/or community college chancellors of all fifty of the states asking for information relative to their state's follow-up studies for vocational, technical, and community college career education (Appendix B).

Forty-six state officials cooperated, sending the studies they had undertaken and letters evaluating the worth of these studies. Five states made available to the researcher detailed reports of their comprehensive automatic follow-up system. Forty-one additional states indicated their follow-up research was (1) unsatisfactory and being completely reworked, (2) unsatisfactory in some areas and was being modified, or (3) being shifted from a manual to automatic system (Appendix C).

IV. FOLLOW-UP INSTRUMENT DEVELOPMENT

Examples of follow-up questionnaires were extracted from all reports received, and the common questions identified and categorized. This common information was almost identical to the follow-up questionnaire used by the Tennessee Research Coordinating Unit (RCU) to survey twenty-two thousand high school vocational students during 1973 (Appendix E).

The RCU's high school vocational questionnaire presented the following advantages over others studied:

1. Comprehensive questions.
2. High readability.
3. Attractive format.
4. Capable of being tabulated by an automatic optical scanning system.
5. Easy for respondent to complete.
6. Required minimum time to complete.

7. Had the capability of automatic addressing, printing identification information on questionnaire, stuffing, mailing, and opening after recovery.

The RCU's questionnaire, however, required some modification to make it compatible with the terminology and function of the community colleges. These changes were as follows:

1. The term "vocational program" was changed to read "career program."
2. College nomenclature was substituted for high school descriptive terms. An example was "counseling service" being substituted for "guidance and counseling."

The high school vocational questionnaire and the community college questionnaire used in the study were similar, allowing a cross comparison of this study with the 1973 high school follow-up study.

The community college questionnaire sought information from respondents pertaining to (Appendix F):

1. Program choice and completion status.
2. Reasons for noncompletion.
3. Current and future education plans and present educational status.
4. Evaluation by student of:
   a. Career instruction.
   b. Other instruction.
   c. Instructor advisement.
   d. Counseling service.
   e. Job placement information.

5. Wage rate.
6. Miles to work.
7. Reasons for part-time employment.
8. Relationship of present job to training program.
9. Attitude of former student towards present job.
10. Suggested improvements in previous career program.
11. Former student's social security number.

A block was completed by the computer prior to mailing showing:

1. Student's name.
2. Address.
3. Unique student identification number.
4. Status as graduate or nongraduate.
5. Student's major area of study, and unique code number.

The RCU's high school questionnaire utilized the U.S. Office of Education code numbers. The community college used the codes of the Tennessee Higher Education Commission (THEC) for reporting enrollments and budgetary data (Appendix G).

After modification of the high school vocational follow-up questionnaire, the resulting community college follow-up questionnaire was field-tested at Cleveland State Community College. Forty-eight full-time career education students were given questionnaires and asked to respond to the questions. Fourteen community college career education faculty and three noncareer education school administrators were asked to complete the questionnaire as if they had been enrolled in a career program. All of these test groups found the questionnaire easy to understand and answer.

The questionnaire was then presented to state vocational-technical agencies for comment and suggestions. No suggestions for change, addition, or deletion were made. The questionnaire was then commercially printed in a format compatible for optical mark sense reading (Appendix F).

V. DATA COLLECTION

A total of 1,998 students were mailed the questionnaire package containing the questionnaire, a return addressed, stamped envelope, and a letter from the Chancellor of the State Board of Regents asking for assistance from former students (Appendix F). After ten days a postcard was mailed to nonrespondents requesting reply to the follow-up questionnaire. Ten days later former students who had not returned the questionnaire were mailed a second questionnaire package. Answers were received from 777 students (38.9 percent of the population); 34.7 percent of the graduates and 44.6 percent of the nongraduates responded.

VI. METHODS OF ANALYSIS

The respondents' completed questionnaires were manually checked for correct representation of data and then optically scanned to register and tabulate information on magnetic tape. This tape was interfaced with a second tape carrying the analysis program. The computer program used to cross-tabulate the input data was the "Statistical Program for Social Science" (SPSS).

The SPSS program, with suitable command and limitations input instructions, produced information about students in tabular form relative to the hypotheses to be tested concerning (1) present yearly salary, (2) degree of job satisfaction, (3) future educational plans, and (4) evaluation of their career training. These areas of student response were then compared and cross-tabulated with the major categories listed below:

1. Community colleges.
2. Community college career programs.
3. High school vocational programs.
4. Community college career education graduates and nongraduates.
5. Community college career education graduates and high school vocational completions.

Tables were developed exhibiting numbers of responses to a specific question and percentages of students in each category. The data in the number and percentage tables were then analyzed using a one-way analysis of variance. Both Type 1 problems (fixed effects) and Type 2 problems (random effects) were considered since the analysis program calculated the between and within component of variance as well as the usual values used in variance tables.

Source of Variance	Degree of Freedom	Sum of Squares	Mean Square	F Ratio
Between	k-1	B	$S_b^2 = \frac{B}{k-1}$	S_b^2/S_w^2
Within	N-k	A-B	$S_w^2 = \frac{A-B}{N-k}$	
Total	N-1	A		

For Type 2 problems, the between component of variance S_A^2 was calculated by the formula:

$$S_A^2 = \frac{S_b^2 - S_w^2}{n_o}$$

where

$n_o = \frac{1}{k-1} \left[\Sigma n - \frac{\Sigma n^2}{\Sigma n} \right]$,

k = number of tested levels of the factor (treatment),

n_i = number of replications of treatment i (the n's of the last column),

X_{ij} = replication j of treatment i, $i \geq 2$, $j \geq 2$,

$A = \frac{N\Sigma\Sigma\chi^2 - (\Sigma\Sigma\chi)^2}{N}$ or grand mean,

$B = = \Sigma \frac{(\Sigma\chi)^2}{n} - \frac{(\Sigma\Sigma\chi)^2}{N}$, and

$N = \Sigma n$.

All F ratios were computed at the .05 level of significance and the null hypotheses accepted or rejected under these conditions. Data related to null hypothesis 5a (comparison of the yearly salary of community college career education graduates with that of high school vocational completions) were analyzed using a chi-square test (m × n) to further confirm or reject the acceptance of the null hypotheses.

$$\chi^2 = \sum_{i=1}^{n} \frac{\sum_{j=1}^{m} (aij - fij)^2}{fij}$$

where

$$fij = \frac{\sum^{Ri} \sum^{Cj}}{n} = \text{expected frequency},$$

aij = observed frequency,

n = number of rows, and

m = number of columns.

In addition, ancillary data generated by the follow-up survey were tabulated and analyzed for the purpose of illuminating and expanding the findings related to the hypotheses of the study. These data were presented in the form of percentage tables.

Responses of college graduates, nongraduates, and high school students who had completed their vocational training programs were studied in regard to the relationship of their present jobs to their former career training, the frequency of use of knowledge and skills acquired in career training programs, their satisfaction with their former career training programs, their evaluation of counseling and job placement services, their present educational activities, and the relationship of their present studies to their former career training.

It is recognized that in some cases the SPSS Statistical Package may not have been the most appropriate statistics to use, primarily because respondents were not randomly selected from the total population. The reader will have to judge whether or not the total sample used is appropriate for using analysis of variance and other statistics in the study.

CHAPTER IV

PRESENTATION AND ANALYSIS OF DATA

This chapter presents selected data related to the follow-up study and analysis of 1973 and 1974 Tennessee community college career education graduates and nongraduates from six community colleges. These data were also compared with high school vocational students who completed their vocational programs during 1973. The information was obtained from questionnaires returned by the community college and high school students. Table 1 shows the number of questionnaires mailed and the number and percentage of returns.

TABLE 1

POPULATION RESPONSE

Population	Questionnaires		Percentage of Return
	Mailed	Returned	
Community college graduates	1,121	389	34.7
Community college nongraduates	877	388	44.2
High school vocational completions	22,000	2,489	11.3

Chapter I presented three null hypotheses with four major areas and two null hypotheses with three major areas. The data from the questionnaires were collected and exhibited in tabular form showing number and percentage of responses to specific items related to each of these eighteen null hypotheses being tested. The data in each of these

fifteen tables* were then analyzed; all F ratios were tested at the .05 level of significance and the null hypothesis accepted or rejected under those conditions using a one-way analysis of variance. Hypothesis 5a was further tested at the .05 level using a chi-square test due to the large positive and negative coefficient of skewness.

Table 2 presents the salaries per year, in percentages, of career students in the different community colleges. There were 50.3 percent of the students who reported incomes of $8,001 or more. The mean annual salary for all students was $8,260. The mean salaries of career students in Colleges D and F exceeded $9,300. The mean salary of students in College E was $6,395, and College C students reported annual incomes less than $8,000. The income range of students in community colleges was $4,167. Of the students from College F, 22.4 percent reported salaries in excess of $12,000 per year and 5.3 percent of College E students also reported they were in this salary category.

Students reporting annual salaries in the $10,001 to $11,000 bracket ranged from a high of 21.7 percent with two colleges showing no students in this category. Students earning near minimum wage, or $5,000 or less per year, ranged from 4.3 to 31.6 percent among the community colleges.

Table 3 presents a one-way analysis of variance which yielded an F ratio of 4.36 with 5 degrees of freedom between students in selected community colleges and 48 degrees of freedom within. F is equal to 2.41

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*For convenience, data received from community college graduates and nongraduates (Hypothesis 4) and from high school completions (Hypothesis 5) were presented together, but analyzed separately for each component of the hypotheses.

TABLE 2

YEARLY SALARY RANGES OF CAREER STUDENTS, BY COMMUNITY COLLEGE

	$1 to $5,000		$5,001 to $6,000		$6,001 to $7,000		$7,001 to $8,000		$8,001 to $9,000		$ 9,001 to $10,000		$10,001 to $11,000		$11,001 to $12,000		Over $12,000	
	N	%	N	%	N	%	N	%	N	%	N	%	N	%	N	%	N	%
College A	16	19.5	18	22.0	3	3.7	15	18.3	13	15.9	5	6.1	5	6.1	1	1.2	6	7.3
College B	2	4.3	6	13.0	3	6.5	3	6.5	7	15.2	8	17.4	10	21.7	3	6.5	4	8.7
College C	7	12.1	10	17.2	10	17.2	7	12.1	7	12.1	4	6.9	0	0.0	3	5.2	10	17.2
College D	39	22.0	21	11.9	16	9.0	22	12.4	14	7.9	16	9.0	12	6.8	11	6.2	26	14.7
College E	6	31.6	4	21.1	4	21.1	1	5.3	2	10.5	1	5.3	0	0.0	0	0.0	1	5.3
College F	14	9.5	12	8.2	7	4.8	17	11.6	9	6.1	20	13.6	14	9.5	21	14.3	33	22.4
Total Respondents = 529																		
Number	84		71		43		65		52		54		41		39		80	
Mean Percentage		15.9		13.4		8.1		12.3		9.8		10.2		7.8		7.4		15.1

at the .05 level of significance. Null hypothesis 1a—that there was no significant difference among students in selected community colleges in regard to their present yearly salary—was rejected, since the F ratio attained was greater than 2.41.

TABLE 3

ANALYSIS OF VARIANCE RELATED TO HYPOTHESIS 1a

Source of Variation	Degree of Freedom	Sum of Squares	Mean Square	F Ratio
Between	5	1.1	2.2	4.36*
Within	48	2445.9	50.9	
Total	53	2447.0		

*$p < .05$
$F = 2.41$ at .05 level of significance

Career students' responses by college to the question, "How do you feel about your present job?," are displayed in Table 4. Six hundred and thirteen students responded to this question with fifty-six students disliking their jobs somewhat or very much. Fifty students indicated they had no opinion as to their feelings about their jobs. The distribution of the responses indicates that 60.2 percent liked their jobs very much and 22.5 percent liked their jobs somewhat.

Null hypothesis 1b—that there was no significant difference among students in selected colleges in regard to degree of job satisfaction—was accepted. Data displayed in Table 5 show an F ratio of 1.35 with 5 degrees of freedom between students in selected community colleges

TABLE 4

COMMUNITY COLLEGE CAREER STUDENTS' SATISFACTION WITH PRESENT JOBS, BY COMMUNITY COLLEGE

Community College Identification Codes	Like it Very Much		Like it Somewhat		No Opinion		Dislike it Somewhat		Dislike it Very Much	
	N	%	N	%	N	%	N	%	N	%
College A	50	54.3	25	27.2	9	9.8	8	8.7	0	0.0
College B	41	87.2	4	8.5	1	2.1	1	2.1	0	0.0
College C	38	59.4	16	25.0	5	7.8	2	3.1	3	4.7
College D	142	64.3	47	21.3	14	6.3	10	4.5	8	3.6
College E	10	47.6	6	28.6	4	19.0	1	4.8	0	0.0
College F	88	52.4	40	23.8	17	10.1	16	9.5	7	4.2
Total Respondents = 613										
Number	369		138		50		38		18	
Mean Percentage		60.2		22.5		8.2		6.2		2.9

and 24 degrees of freedom within. F is equal to 2.62 at the .05 level of significance.

TABLE 5

ANALYSIS OF VARIANCE RELATED TO HYPOTHESIS 1b

Source of Variation	Degree of Freedom	Sum of Squares	Mean Square	F Ratio
Between	5	5929.3	1185.8	1.35*
Within	24	21076.0	878.2	
Total	29	27005.3		

*$p < .05$
$F = 2.62$ at .05 level of significance

Career students were questioned relative to their future educational plans within the next two years. Five hundred and forty-one, or 69.6 percent, of the career students responded that they did plan to take additional training at a college or other type school. Table 6 presents the number and percentage of responses, type of school, and the students' community colleges.

Table 6 reveals also that 40.5 percent of the community college students indicated that they expected to continue taking courses at the same community college. Thirty-nine percent indicated that they expected to enroll in a senior college or university within the next two years. The remaining 20.4 percent of the students indicated their desire to go to another community college, an area vocational school, a technical institute, commercial school, or other type of school.

TABLE 6

COMPARISON OF COMMUNITY COLLEGE CAREER STUDENTS' EDUCATIONAL ASPIRATIONS, BY COMMUNITY COLLEGE

Community College Identification Code	The Same Community College		Another Community College		Senior College or University		Area Vocational School		Technical Institute		Commercial School		Other Schools	
	N	%	N	%	N	%	N	%	N	%	N	%	N	%
College A	14	19.4	4	5.6	39	54.2	6	8.3	2	2.8	0	0.0	7	9.8
College B	13	34.2	1	2.6	23	60.5	0	0.0	0	0.0	0	0.0	1	2.6
College C	27	37.0	2	2.7	31	42.5	6	8.2	0	0.0	0	0.0	7	9.6
College D	106	57.6	9	4.9	42	22.8	11	6.0	2	1.1	1	0.5	13	7.1
College E	2	7.4	0	0.0	24	88.8	0	0.0	0	0.0	0	0.0	1	3.7
College F	57	38.8	10	6.8	52	35.4	7	4.8	8	5.4	3	2.0	10	6.8
Total Respondents = 541														
Number	219		26		211		30		12		4		39	
Mean Percentage		40.5		4.8		39.0		5.5		2.2		0.7		7.2

Other than the same community college or senior college or university categories, the two most popular selections were area vocational schools at 5.5 percent and another community college at 4.8 percent; 30.4 percent of the students responded that they had no future educational plans.

Null hypothesis 1c—that there was no significant difference among students in selected community colleges in regard to future educational plans—was accepted (Table 7). The analysis of variance yielded an F ratio of 1.35. The F value of 2.48 suggests acceptance at the .05 level of significance.

TABLE 7

ANALYSIS OF VARIANCE RELATED TO HYPOTHESIS 1c

Source of Variation	Degree of Freedom	Sum of Squares	Mean Square	F Ratio
Between	5	2767.3	553.5	1.35*
Within	36	14797.1	411.0	
Total	41	17564.4		

*$p < .05$
$F = 2.48$ at .05 level of significance

Table 8 shows that the mean percentage of students rating their career education instruction very good was 55.9 percent, with a range of 50.0 to 62.2 percent. A mean of 38.8 percent of all students rated their career education instruction as average with a low of 31.8 percent and a high of 47.1 percent. From all the community colleges, 5.3 percent

TABLE 8

COMPARISON OF COMMUNITY COLLEGE CAREER STUDENTS' EVALUATIONS OF THEIR CAREER TRAINING SERVICES, BY COMMUNITY COLLEGE

Community College Identification Code	Career Instruction						All Other Instruction						Instructor Advisement					
	Very Good		Average		Poor		Very Good		Average		Poor		Very Good		Average		Poor	
	N	%	N	%	N	%	N	%	N	%	N	%	N	%	N	%	N	%
College A	60	55.0	43	39.4	6	5.5	39	36.4	66	61.7	2	1.9	56	51.9	47	43.5	5	4.6
College B	34	60.7	19	33.9	3	5.4	24	43.6	31	56.4	0	0.0	25	44.6	24	42.9	7	12.5
College C	46	50.5	42	46.2	3	3.3	28	34.1	54	65.9	0	0.0	51	60.1	30	35.7	3	3.6
College D	141	53.0	110	41.4	15	5.6	93	39.6	130	55.3	12	5.1	129	53.1	88	36.2	26	10.7
College E	17	50.0	16	47.1	1	2.9	14	42.4	19	57.6	0	0.0	16	47.1	16	47.1	2	5.9
College F	125	62.2	64	31.8	12	6.0	89	45.9	103	53.1	2	1.0	96	50.8	78	41.3	15	7.9
Number of Respondents	423		294		40		286		395		16		373		283		58	
Mean Percentage		55.9		38.8		5.3		41.1		56.8		2.2		52.2		39.6		8.1

of the students rated their career instruction poor. The range of percentages in this category was 2.9 to 6.0 percent.

In the evaluation of all other instruction, the mean percentages were 41.4 percent, very good; 56.8 percent, average; and 2.2 percent, poor. Instructor advisement evaluation showed mean percentages as follows: 52.2 percent, very good; 39.6 percent, average; and 8.1 percent, poor.

Null hypothesis 1d—that there was no significant different among students in selected community colleges in regard to the evaluation of their career training—was accepted. The analysis of variance yielded an F ratio of 1.75, which was not significant at the .05 level (Table 9).

TABLE 9

ANALYSIS OF VARIANCE RELATED TO HYPOTHESIS 1d

Source of Variation	Degree of Freedom	Sum of Squares	Mean Square	F Ratio
Between	5	13367.6	2673.5	1.75*
Within	12	18313.3	1526.1	
Total	17			

*$p < .05$
$F = 3.11$ at .05 level of significance

Table 10 presents a range of salaries for community college career students who majored in twenty different programs. Five hundred and thirty students responded to the question relative to salary. Sixteen percent of the respondents made less than $5,000 per year, and 15.1 percent made in excess of $12,000.

TABLE 10

YEARLY SALARY RANGES OF COMMUNITY COLLEGE CAREER STUDENTS, BY PROGRAM

Community College Career Programs	$1 to $5,000 N	%	$5,001 to $6,000 N	%	$6,001 to $7,000 N	%	$7,001 to $8,000 N	%	$8,001 to $9,000 N	%	$ 9,001 to $10,000 N	%	$10,001 to $11,000 N	%	$11,001 to $12,000 N	%	Over $12,000 N	%
General Business	1	6.3	2	12.5	3	18.8	1	6.3	2	12.5	2	12.5	0	0.0	1	6.3	4	25.0
Public Service	6	40.0	4	26.7	0	0.0	1	6.7	2	13.3	1	6.7	0	0.0	0	0.0	1	6.7
General Program	1	12.5	1	12.5	0	0.0	3	37.5	0	0.0	1	12.5	0	0.0	1	12.5	1	12.5
Business Occupations	10	11.6	13	15.1	9	10.5	12	14.0	6	7.0	6	7.0	8	9.3	8	9.3	14	16.3
Office Occupations	28	38.4	27	37.0	11	15.1	2	2.7	1	1.4	1	1.4	1	1.4	0	0.0	2	2.7
Data Processing	8	17.0	7	14.9	3	6.4	9	19.1	2	4.3	4	8.5	1	2.1	4	8.5	9	19.1
Medical Laboratory Technician	0	0.0	0	0.0	0	0.0	3	60.0	1	20.0	0	0.0	1	20.0	0	0.0	0	0.0
Radiologic Technician	1	33.3	0	0.0	0	0.0	2	66.7	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0
Technical Nurse	4	7.8	1	2.0	2	3.9	6	11.8	18	35.3	7	13.7	7	13.7	3	5.9	3	5.9
Mental Health	0	0.0	1	10.0	1	10.0	0	0.0	0	0.0	2	20.0	2	20.0	0	0.0	4	40.0
Architecture	4	26.7	1	6.7	1	6.7	2	13.3	0	0.0	0	0.0	3	20.0	1	6.7	3	20.0
Other Technology	0	0.0	1	14.3	0	0.0	0	0.0	0	0.0	1	14.3	0	0.0	2	28.6	3	42.9
Mechanical Technology	1	9.1	0	0.0	0	0.0	1	9.1	1	9.1	1	9.1	1	9.1	3	27.3	3	27.3
Civil Technology	0	0.0	0	0.0	0	0.0	1	6.3	1	6.3	3	18.8	2	12.5	0	0.0	9	56.3
Electrical and Electronics	1	3.4	3	10.3	3	10.3	1	3.4	2	6.9	7	24.1	3	10.3	4	13.8	5	17.2
Industrial Technology	4	8.3	2	4.2	3	6.3	5	10.4	6	12.5	4	8.3	3	6.3	7	14.6	14	29.2
Agriculture Technology	4	26.7	2	13.3	1	6.7	5	33.3	0	0.0	1	6.7	1	6.7	1	6.7	0	0.0
Home Economics	7	70.0	0	0.0	0	0.0	1	10.0	0	0.0	2	20.0	0	0.0	0	0.0	0	0.0
Law Enforcement	4	7.0	6	10.5	5	8.8	8	14.0	10	17.5	9	15.8	7	12.3	3	5.3	5	8.8
Unclassified	1	14.3	0	0.0	1	14.3	2	28.6	0	0.0	2	28.6	1	14.3	0	0.0	0	0.0
Total Respondents = 530																		
Number	85		71		43		65		52		54		41		39		80	
Mean Percentage		16.0		13.4		8.1		12.3		9.8		10.2		7.7		7.4		15.1

Of the civil technology students, 56.3 percent reported salaries over $12,000, while 42.9 percent of the other technology students also indicated yearly salaries in this bracket. The percentage of the technical nurses who reported a salary in the $7,000 to $10,000 range was 60.8. High percentages in the lowest salary group, $1 to $5,000, were shown for public service, 40.0 percent; office occupations, 38.4 percent; and home economics, 70.0 percent.

Table 11 shows a one-way analysis of variance relative to salary differences among students in selected community college career programs. With 19 degrees of freedom between these students and 160 degrees of freedom within these groups, an F ratio of 5.93 was produced with F equaling 1.64 at the .05 level of significance. Null hypothesis 2a—that there was no significant difference among students in selected community college career programs in regard to present yearly salary—was therefore rejected.

TABLE 11

ANALYSIS OF VARIANCE RELATED TO HYPOTHESIS 2a

Source of Variation	Degree of Freedom	Sum of Squares	Mean Square	F Ratio
Between	19	1293.4	68.1	5.93*
Within	160	1836.9	11.5	
Total	179	3130.3		

*$p < .05$
$F = 1.64$ at .05 level of significance

Responses of students from different career programs to the question, "How do you feel about your job?," are shown in Table 12. A mean of 60.3 percent of the students liked their present jobs very much; 22.5 percent liked it somewhat; 8.1 percent stated they had no opinion; 6.2 percent disliked their present jobs somewhat; and 2.9 percent disliked their present jobs very much.

Students in the technical nursing area indicated the highest level of job satisfaction with 81.1 percent liking their jobs very much. Among the business programs, the highest percentage of students liking their jobs very much were those majoring in data processing (74.1 percent). The students in the general business program ranked job satisfaction lowest with only 40.0 percent liking their jobs very much.

Industrial technology and data processing ranked high in job satisfaction—each indicated that 43 percent liked their jobs very much. However, these two programs ranked highest in the percentage of students who disliked their jobs very much (11.1 percent). The unclassified students, those not normally majoring in a specific area, ranked the lowest of all the programs in job satisfaction with only 28.6 percent liking their jobs very much.

Data displayed in Table 13 show an F ratio of 1.45 with 19 degrees of freedom between students in selected community college career programs and 79 degrees of freedom within. The F value of 1.70 at the .05 level of significance was not attained, so the researcher failed to reject hypothesis 2b—that there was no significant difference among students in selected community college career programs in regard to degree of job satisfaction.

TABLE 12

COMMUNITY COLLEGE CAREER STUDENTS' SATISFACTION WITH PRESENT JOBS, BY PROGRAM

Community College Career Programs	Like it Very Much		Like it Somewhat		No Opinion		Dislike it Somewhat		Dislike it Very Much	
	N	%	N	%	N	%	N	%	N	%
General Business	6	40.0	5	33.3	2	13.3	2	13.3	0	0.0
Public Service	13	68.4	3	15.8	1	5.3	0	0.0	2	10.5
General Program	3	37.5	2	25.0	1	12.5	2	25.0	0	0.0
Business Occupations	45	46.9	24	25.0	11	11.5	10	10.4	6	6.3
Office Occupations	49	59.8	21	25.6	5	6.1	5	6.1	2	2.4
Data Processing	43	74.1	6	10.3	6	10.3	1	1.7	2	11.1
Medical Laboratory Technician	4	80.0	0	0.0	0	0.0	1	20.0	0	0.0
Radiologic Technician	2	66.7	1	33.3	0	0.0	0	0.0	0	0.0
Technical Nurse	43	81.1	9	17.0	0	0.0	1	1.9	0	0.0
Mental Health	10	76.9	1	7.7	1	7.7	1	7.7	0	0.0
Architecture	7	36.8	9	47.4	2	10.5	1	5.3	0	0.0
Other Technology	2	25.0	2	25.0	3	37.5	1	12.5	0	0.0
Mechanical Technology	7	53.8	3	23.1	1	7.7	1	7.7	1	7.7
Civil Technology	10	62.5	3	18.8	2	12.5	1	6.3	0	0.0
Electrical and Electronics	16	50.0	10	31.3	1	3.1	4	12.5	1	3.1
Industrial Technology	43	65.2	17	25.8	1	1.5	3	4.5	2	11.1
Agriculture Technology	12	54.5	25	22.7	4	18.2	1	4.5	0	0.0
Home Economics	9	69.2	3	23.1	1	7.7	0	0.0	0	0.0
Law Enforcement	43	66.2	11	16.9	7	10.8	2	3.1	2	3.1
Unclassified	2	28.6	3	42.9	1	14.3	1	14.3	0	0.0
Total Respondents = 614										
Number	370		138		50		38		18	
Mean Percentage		60.3		22.5		8.1		6.2		2.9

TABLE 13

ANALYSIS OF VARIANCE RELATED TO HYPOTHESIS 2b

Source of Variation	Degree of Freedom	Sum of Squares	Mean Square	F Ratio
Between	19	3035.2	159.7	1.45*
Within	79	8697.6	110.1	
Total	98	11732.7		

*$p < .05$
$F = 1.70$ at .05 level of significance

Students planning to enroll for more career education within the next two years are shown in Table 14. The largest percentage (40.5 percent) of the students planned to enroll in additional career education within the next two years at the same college they were enrolled in during 1973 or 1974. Only 4.8 percent of the students planned to enroll in another community college, but 38.9 percent planned to enroll in a senior college or university. The remainder (15.8 percent) planned to enroll in an area vocational school, technical school, commercial school, or other type of school within the next two years.

The range of students continuing in the same community college varied by program from zero to 85.7 percent. The largest percentages of students who planned to continue at the same community college were 75.0 percent in the general program; 64.6 percent in industrial technology; and 85.7 percent, unclassified.

The highest percentage of students who planned to transfer within the next two years to a senior college was 77.8 percent in the general

TABLE 14

COMPARISON OF COMMUNITY COLLEGE CAREER STUDENTS' EDUCATIONAL ASPIRATIONS, BY PROGRAM

Community College Career Programs	The Same Community College		Another Community College		Senior College or University		Area Vocational School		Technical Institute		Commercial School		Other Schools	
	N	%	N	%	N	%	N	%	N	%	N	%	N	%
General Business	4	22.2	0	0.0	14	77.8	0	0.0	0	0.0	0	0.0	0	0.0
Public Service	5	27.8	1	5.6	9	50.0	1	5.6	0	0.0	0	0.0	2	11.1
General Program	6	75.0	0	0.0	2	25.0	0	0.0	0	0.0	0	0.0	0	0.0
Business Occupations	37	37.9	4	37.8	50	47.2	4	37.8	4	37.8	2	1.9	5	4.7
Office Occupations	21	36.2	4	6.9	23	39.7	3	5.2	1	1.7	0	0.0	6	10.3
Data Processing	30	52.6	2	28.6	18	31.6	3	5.3	2	3.5	0	0.0	2	3.5
Medical Laboratory Technician	1	33.3	0	0.0	2	66.7	0	0.0	0	0.0	0	0.0	0	0.0
Radiologic Technician	0	0.0	0	0.0	1	50.0	1	50.0	0	0.0	0	0.0	0	0.0
Technical Nurse	7	17.9	3	7.7	22	56.4	0	0.0	0	0.0	0	0.0	7	17.9
Mental Health	3	25.0	0	0.0	3	25.0	3	25.0	0	0.0	0	0.0	3	25.0
Architecture	9	47.4	2	10.5	6	31.6	1	5.3	0	0.0	0	0.0	1	5.3
Other Technology	2	33.3	0	0.0	4	66.7	0	0.0	0	0.0	0	0.0	0	0.0
Mechanical Technology	4	40.0	1	10.0	2	20.0	0	0.0	2	20.0	0	0.0	1	10.0
Civil Technology	6	46.2	0	0.0	3	23.0	2	15.4	1	7.7	0	0.0	1	7.7
Electrical and Electronics	12	37.4	2	6.3	10	31.3	3	9.4	1	3.1	1	3.1	3	9.4
Industrial Technology	31	64.6	2	4.2	6	12.5	5	10.4	0	0.0	0	0.0	4	8.3
Agriculture Technology	7	30.4	0	0.0	13	56.5	1	4.3	0	0.0	1	4.3	1	4.3
Home Economics	4	44.4	0	0.0	5	55.6	0	0.0	0	0.0	0	0.0	0	0.0
Law Enforcement	24	44.4	5	9.3	18	33.3	3	5.6	1	1.9	0	0.0	3	5.6
Unclassified	6	85.7	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	1	4.3
Total Respondents = 542														
Number	219		26		211		30		12		4		40	
Mean Percentage		40.5		4.8		38.9		5.5		2.2		0.7		7.4

business program. The law enforcement students, with 33.3 percent, and home economics students, with 55.6 percent, planned to transfer to a senior college or university.

Null hypothesis 2c—that there was no significant difference among students in selected community college career programs in regard to future educational plans—was accepted. The one-way analysis of variance (Table 15) yielded an F ratio of 0.84, which was not significant at the .05 level.

TABLE 15

ANALYSIS OF VARIANCE RELATED TO HYPOTHESIS 2c

Source of Variation	Degree of Freedom	Sum of Squares	Mean Square	F Ratio
Between	19	1299.6	68.4	0.84*
Within	64	5197.3	81.2	
Total	83	6496.8		

*P < .05
F = 1.73 at .05 level of significance

Data displayed in Table 16 reveal the evaluations of former students of their career education instruction, by program. The mean of all students in all programs was 55.9 percent rating career instruction very good; 38.8 percent, average; and 5.3 percent, poor.

Career instruction was considered very good by 33.3 percent of the students majoring in the general program of the business area and by 71.6 percent of the data processing majors. The very good range in the

TABLE 16

COMPARISON OF COMMUNITY COLLEGE CAREER STUDENTS' EVALUATIONS
OF THEIR CAREER TRAINING SERVICES, BY PROGRAM

Community College Career Programs	Career Instruction						All Other Instruction						Instructor Advisement					
	Very Good		Average		Poor		Very Good		Average		Poor		Very Good		Average		Poor	
	N	%	N	%	N	%	N	%	N	%	N	%	N	%	N	%	N	%
General Business	9	37.5	15	62.5	0	0.0	6	27.3	16	72.7	0	0.0	14	58.3	9	37.5	1	4.2
Public Service	8	33.3	15	62.5	1	4.2	5	22.7	16	72.7	1	6.3	9	40.9	11	50.0	2	9.1
General Program	4	33.3	8	66.7	0	0.0	6	50.0	6	50.0	0	0.0	5	41.7	7	58.3	0	0.0
Business Occupations	68	55.7	47	38.5	7	5.7	43	38.4	68	60.7	1	6.3	64	57.1	40	35.7	8	7.1
Office Occupations	62	57.9	40	37.4	5	4.7	36	35.3	61	59.8	5	31.3	53	51.0	43	41.3	8	7.7
Data Processing	53	71.6	19	25.7	2	2.7	35	47.9	38	52.1	0	0.0	44	62.0	24	33.8	3	4.2
Medical Laboratory Technician	3	60.0	1	20.0	1	20.0	4	80.0	1	20.0	0	0.0	2	40.0	2	40.0	1	20.0
Radiologic Technician	4	80.0	1	20.0	0	0.0	0	0.0	4	100.0	0	0.0	1	20.0	3	60.0	1	20.0
Technical Nurse	30	50.0	25	41.7	5	8.3	22	38.6	34	59.6	1	6.3	19	32.2	33	55.9	7	11.9
Mental Health	8	50.0	5	31.3	3	18.8	7	50.0	5	35.7	2	12.5	8	57.1	5	37.7	1	7.1
Architecture	10	41.7	11	45.8	3	12.5	9	37.5	15	62.5	0	0.0	12	50.0	10	41.7	2	8.3
Other Technology	4	44.4	4	44.4	1	11.1	4	44.4	5	55.6	0	0.0	1	12.5	14	62.5	2	25.0
Mechanical Technology	6	40.0	6	40.0	3	20.0	5	31.3	10	62.5	1	6.3	5	31.3	8	50.0	3	18.8
Civil Technology	13	65.0	6	30.0	1	5.0	11	52.4	10	47.6	0	0.0	15	75.0	5	25.0	0	0.0
Electrical and Electronics	21	47.7	20	45.5	3	6.8	14	32.6	29	67.4	0	0.0	17	39.5	24	55.8	2	4.7
Industrial Technology	39	55.7	29	41.4	2	2.9	25	44.6	29	51.8	2	12.5	34	57.6	17	28.8	8	13.6
Agriculture Technology	15	46.9	15	46.9	2	6.3	13	41.9	18	58.1	0	0.0	18	60.0	9	30.0	3	10.0
Home Economics	9	50.0	8	44.4	1	5.6	8	50.0	6	37.5	2	12.5	10	58.8	6	35.3	1	5.9
Law Enforcement	51	76.1	16	23.9	0	0.0	30	51.7	27	46.6	1	1.7	38	62.3	18	29.5	5	8.2
Unclassified	5	62.5	3	37.5	0	0.0	3	37.5	5	62.5	0	0.0	3	42.9	4	57.1	0	0.0
Number of Respondents	424		294		40		288		403		16		374		283		58	
Mean Percentage		55.9		38.8		5.3		40.7		57.0		2.3		52.3		39.6		8.1

medical area shows a low of 50.0 percent for the technical nurses and a high of 80.0 percent for the radiology technicians. The industrial technologies ranked from a low of 40 percent for mechanical technology to a high of 65.0 percent for civil technology in rating their career education instruction very good. Fifty percent of the home economics students rated their career education instruction very good, as did 76.1 percent of the law enforcement students.

Twenty percent of the medical laboratory and the mechanical engineering technicians indicated that their career education instruction was poor, while 18.8 percent of the mental health students rated their career instruction poor.

In the evaluation of all other instruction, students in two programs rated their academic instruction superior to their career instruction. These were in the general program and the medical laboratory technician program. Evaluation of all other instruction was 40.7 percent, very good; 57.0 percent, average; and 2.3 percent, poor. Instructional advisement was rated very good by 52.3 percent of all the students, average by 39.6 percent, and poor by 8.1 percent.

Data displayed in Table 17 show that the analysis of variance yielded an $\underline{F}$ ratio of 1.94. The $\underline{F}$ ratio of 1.94 was significant beyond the .05 level. Null hypothesis 2d—that there was no significant difference among students in selected community college career programs in regard to evaluation of their career training—was therefore rejected.

TABLE 17

ANALYSIS OF VARIANCE RELATED TO HYPOTHESIS 2d

Source of Variation	Degree of Freedom	Sum of Squares	Mean Square	F Ratio
Between	19	7484.4	393.9	1.94*
Within	40	8124.0	203.1	
Total	59	15608.4		

*$p < .05$
$F = 1.84$ at .05 level of significance

Eight high school vocational programs are listed in Table 18 indicating level of annual salary of students. Responses were received from 1,556 students to a questionnaire item relating to salary. Of these students, 61.9 percent indicated they were making less than $5,000 per year after completion of their high school vocational programs. Respondents earning $6,000 or less amounted to 77.6 percent. Students earning $6,001 to $9,000 per year comprised 17.8 percent of the vocational students and 4.7 percent earned over $9,001 per annum.

The lowest paid students (in the $1 to $5,000 bracket) were in the health occupations, 88.5 percent; home economics, 70.7 percent; and office occupations, 68.2 percent. Technical education and trade and industrial students were the highest paid of the high school groups.

A one-way analysis of variance yielded an F ratio of 1.30. The F ratio of 1.30 was not significant at the .05 level (Table 19). Null hypothesis 3a—that there was no significant difference among students

TABLE 18

YEARLY SALARY RANGES OF HIGH SCHOOL VOCATIONAL COMPLETIONS, BY PROGRAM

High School Vocational Programs	$1 to $5,000		$5,001 to $6,000		$6,001 to $7,000		$7,001 to $8,000		$8,001 to $9,000		$ 9,001 to $10,000		$10,001 to $11,000		$11,001 to $12,000		Over $12,000	
	N	%	N	%	N	%	N	%	N	%	N	%	N	%	N	%	N	%
Agriculture Education	96	51.9	28	15.1	23	12.4	15	8.1	8	4.3	5	2.7	4	2.2	1	0.5	5	2.7
Technical Education	2	20.0	4	40.0	1	10.0	2	20.0	0	0.0	0	0.0	0	0.0	0	0.0	1	10.0
Trade and Industrial	157	30.1	70	21.8	34	10.6	24	7.5	16	5.0	4	1.2	6	1.0	4	1.2	7	2.2
Distributive Education	156	60.2	40	15.4	23	8.9	17	6.6	8	3.1	3	1.2	2	0.7	2	0.7	8	3.1
Health Occupations	54	88.5	3	4.9	3	4.9	1	1.6	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0
Office Occupations	230	68.2	52	15.4	30	8.9	12	3.6	8	2.4	3	0.9	0	0.0	1	0.3	1	0.3
Home Economics	251	70.7	43	12.1	26	7.3	14	3.9	5	1.4	6	1.7	2	0.6	2	0.6	3	0.9
Unclassified	17	63.0	4	14.8	3	11.1	0	0.0	0	0.0	1	3.7	1	3.7	0	0.0	1	3.7
Total Respondents = 1,556																		
Number	963		244		146		85		45		22		15		10		26	
Mean Percentage		61.9		15.7		9.4		5.5		2.9		1.4		1.0		0.6		1.7

from different high school vocational programs in regard to present yearly salary—was accepted.

TABLE 19

ANALYSIS OF VARIANCE RELATED TO HYPOTHESIS 3a

Source of Variation	Degree of Freedom	Sum of Squares	Mean Square	F Ratio
Between	7	36.1	5.1	1.30*
Within	64	25335.4	395.9	
Total	71	25371.5		

*$P < .05$
$F = 2.15$ at .05 level of significance

Table 20 presents data relative to the responses of high school students to the question, "How do you feel about your present job?" The table shows that 49.7 percent of all the high school vocational students liked their jobs very much, and 26.7 percent liked them somewhat. However, 5.6 percent of the high school students disliked their jobs somewhat, and 3.8 percent disliked their jobs very much. Forty percent of the high school technical education students liked their jobs very much and 53.3 percent of the distributive education students were of the same opinion.

The greatest range of responses occurred in the dislike-the-job-somewhat category. Percentages in this category ranged from 5.2 percent for home economics to 20 percent for technical education. No opinion was offered by 21.8 percent of the health occupation students as to whether they liked or disliked their jobs.

TABLE 20

COMPARISON OF HIGH SCHOOL VOCATIONAL COMPLETIONS' SATISFACTION WITH PRESENT JOBS, BY PROGRAM

High School Vocational Programs	Like it Very Much		Like it Somewhat		No Opinion		Dislike it Somewhat		Dislike it Very Much	
	N	%	N	%	N	%	N	%	N	%
Agriculture Education	97	48.5	56	28.0	23	11.5	11	5.5	13	6.5
Technical Education	4	40.0	3	30.0	1	10.0	2	20.0	0	0.0
Trade and Industrial	159	46.4	99	28.9	48	14.0	25	7.3	12	3.5
Distributive Education	145	53.3	73	26.8	42	15.4	8	2.9	4	1.5
Health Occupations	32	50.0	11	17.2	14	21.8	5	7.8	2	3.1
Office Occupations	185	53.0	94	26.9	41	11.7	20	5.7	9	2.6
Home Economics	184	48.2	94	24.6	63	16.5	20	5.2	21	5.5
Unclassified	14	46.7	11	36.7	2	6.7	2	6.7	1	3.3
Total Respondents = 1,650										
Number	820		441		234		93		62	
Mean Percentage		49.7		26.7		14.2		5.6		3.8

The one-way analysis of variance (Table 21) produced an F ratio of 2.05, with F equaling 2.32 at the .05 level of significance. Null hypothesis 3b—that there was no significant difference among students from different high school vocational programs in regard to degree of job satisfaction—was accepted.

TABLE 21

ANALYSIS OF VARIANCE RELATED TO HYPOTHESIS 3b

Source of Variation	Degree of Freedom	Sum of Squares	Mean Square	F Ratio
Between	7	32854.7	4693.5	2.05*
Within	32	73253.2	2289.2	
Total	39	106107.9		

*$p < .05$
$F = 2.32$ at .05 level of significance

Table 22 shows the evaluation by high school students of their previous career training services by vocational program. Career instruction was rated very good by 53.3 percent of the home economics students and 76.0 percent of the students in health occupations. The students in unclassified high school vocational programs and in home economics rated career instruction in the poor category by 7.1 and 7.3 percent, respectively. None of the technical education students and only 1.7 percent of the health occupations students rated career instruction poor.

TABLE 22

COMPARISON OF HIGH SCHOOL VOCATIONAL COMPLETIONS' EVALUATIONS OF THEIR CAREER TRAINING SERVICES, BY PROGRAM

High School Vocational Programs	Career Instruction						All Other Instruction					
	Very Good		Average		Poor		Very Good		Average		Poor	
	N	%	N	%	N	%	N	%	N	%	N	%
Agriculture Education	152	56.5	104	38.7	13	4.0	88	34.0	161	62.2	10	3.9
Technical Education	10	66.7	5	33.3	0	0.0	6	42.9	8	57.1	0	0.0
Trade and Industrial	270	60.0	152	33.8	28	6.2	134	31.0	275	63.7	23	5.3
Distributive Education	213	57.9	140	38.0	15	4.1	107	29.8	236	65.6	17	4.7
Health Occupations	92	76.0	27	22.3	2	1.7	53	45.3	59	50.4	5	4.3
Office Occupations	304	59.4	187	36.5	21	4.1	155	31.3	321	64.8	19	3.8
Home Economics	324	52.3	250	40.4	45	7.3	176	29.7	384	64.8	33	5.6
Unclassified	28	63.6	15	34.1	1	7.1	14	12.0	25	21.4	3	2.6
Number of Respondents	1393		880		125		733		1469		110	
Mean Percentage		58.1		36.7		5.2		31.7		63.5		4.8

Career education instruction was rated very good by 58.1 percent of the students and all other instruction was rated very good by 31.7 percent of the students. Career education instruction was rated average in 36.7 percent of the responses, and all other instruction was rated average in 63.5 percent of the cases.

Table 23 shows that the one-way analysis of variance yielded an F ratio of 1.84, which was not significant at the .05 level. Null hypothesis 3c—that there was no significant difference among students from different high school vocational programs in regard to evaluation of their career training—was accepted at the .05 level of significance.

TABLE 23

ANALYSIS OF VARIANCE RELATED TO HYPOTHESIS 3c

Source of Variation	Degree of Freedom	Sum of Squares	Mean Square	F Ratio
Between	7	117863.9	16837.7	1.84*
Within	16	146266.0	9141.6	
Total	23	264129.9		

*$p < .05$
$F = 2.66$ at .05 level of significance

Table 24 compares salary ranges of community college graduates and nongraduates, and high school students who completed their vocational programs.

Sixteen percent of the graduates and nongraduates earned less than $5,000 per year. Less than $7,000 per year was reported by 35.6 percent

TABLE 24

YEARLY SALARY RANGES OF COMMUNITY COLLEGE CAREER GRADUATES, NONGRADUATES, AND HIGH SCHOOL VOCATIONAL COMPLETIONS

	$1 to $5,000		$5,001 to $6,000		$6,001 to $7,000		$7,001 to $8,000		$8,001 to $9,000		$ 9,001 to $10,000		$10,001 to $11,000		$11,001 to $12,000		Over $12,000	
	N	%	N	%	N	%	N	%	N	%	N	%	N	%	N	%	N	%
Community College Career Graduates	43	15.6	38	13.8	17	6.2	35	12.7	32	11.6	27	9.8	20	7.2	24	8.7	40	14.5
Community College Career Nongraduates	40	16.5	32	13.2	25	10.3	30	12.4	20	8.3	24	9.9	18	7.4	15	6.2	38	15.7
Community College Career Students' Total	83	16.0	70	13.5	42	8.1	65	12.6	52	10.1	51	9.8	38	7.4	39	7.5	78	15.0
High School Vocational Student Completions	963	61.9	244	15.7	146	9.4	85	5.5	45	2.9	22	1.4	15	1.0	10	0.6	26	1.7
Total Respondents = 2074																		
Number	1046		314		188		150		97		73		53		49		104	
Mean Percentage		50.4		15.1		9.1		7.2		4.7		3.5		2.6		2.4		5.0

of the graduates and 40 percent of the nongraduates, while 30.4 percent of the graduates and 29.3 percent of the nongraduates reported an annual income over $10,000.

Table 25 shows the results of a one-way analysis of variance between community college graduates and nongraduates in relationship to their yearly salary. A low F ratio of 0.80 was calculated. The F value with 1 degree of freedom between students and 16 degrees of freedom within needed to be 4.49. The calculated ratio of 0.80, therefore, was not significant at the .05 level. Null hypothesis 4a—that there was no significant difference between community college career education graduates and nongraduates in regard to present yearly salary—was accepted.

TABLE 25

ANALYSIS OF VARIANCE RELATED TO HYPOTHESIS 4a

Source of Variation	Degree of Freedom	Sum of Squares	Mean Square	F Ratio
Between	1	64.2	64.2	0.80*
Within	16	1282.9	80.2	
Total	17	1347.1		

*$p < .05$
$F = 4.49$ at .05 level of significance

Table 24 also indicates that 61.9 percent of the high school vocational students earned $5,000 or less per year compared to 15.6 percent of the community college graduates. Earnings up to $7,000 per year were reported by 35.6 percent of the college graduates as compared to 87.0 percent of the high school graduates.

College graduates with an annual salary of $7,000 to $10,000 amounted to 34.1 percent while 9.8 percent of the high school students were classified in this bracket. There were 30.4 percent of the college graduates who earned over $10,000 while 3.3 percent of the high school vocational students achieved this salary level.

Table 26 shows an F ratio of 5.02 with 1 degree of freedom between the students and 16 degrees of freedom within. With F equal to 4.49 at the .05 level of significance, null hypothesis 5a—that there was no significant difference between community college career education graduates and high school vocational completions in regard to present yearly salary—was rejected.

TABLE 26

ANALYSIS OF VARIANCE RELATED TO HYPOTHESIS 5a

Source of Variation	Degree of Freedom	Sum of Squares	Mean Square	F Ratio
Between	1	1.0	1.0	5.02*
Within	16	3186.6	199.2	
Total	17	3185.6		

*P < .05
F = 4.49 at .05 level of significance

Hypothesis 5a was further tested at the .05 level using a chi-square test due to the large positive and negative coefficient of skewness (Table 27). The chi-square analysis produced a value of χ^2 + 454.4, which was greater than the percentile value, 2.733, of the χ^2 distribution at the .05 level of significance. Null hypothesis 5a was again rejected.

TABLE 27

CHI-SQUARE ANALYSIS OF DATA RELATED TO HYPOTHESIS 5a

Category	Number	Degree of Freedom	Chi-Square
College graduates	276	8	454.4*
High school completions	1,556		
Total	1,832		

*$\underline{p} < \chi^2$
$\underline{p}$ = 2.733 at .05 level of significance

Table 28 indicates the mean, variance, standard deviation, and coefficient of skewness of data comparing community college career education graduates and high school completions. Community college graduates earned a salary mean of $8,268 compared with $5,962 for the high school vocational students. The community college graduates earned $2,306 or 28 percent more than the high school students. The salary distribution for the high school students was skewed more toward the lower salary range than was the salary distribution of the college graduates.

TABLE 28

MEAN, VARIANCE, STANDARD DEVIATION, AND COEFFICIENT OF SKEWNESS OF DATA RELATED TO HYPOTHESIS 5a

Category	Number	Salary Mean	Variance	Standard Deviation	Coefficient of Skewness
College graduates	276	$8,268	743.000	$2,726	0.140
High school completions	1,556	$5,962	2.891	$1,700	2.306

Table 29 presents data relative to community college graduates and nongraduates, and high school students who completed their vocational programs relative to their feelings about their present jobs. Sixty percent of the career graduates and nongraduates liked their present jobs very much, 22.5 percent liked them somewhat, and 9.3 percent disliked their jobs somewhat or very much. There were 8.4 percent of the community college career graduates who liked their jobs better than the nongraduates. The nongraduates liked their jobs somewhat in 22.9 percent of the cases as compared to 22.1 percent for the community college graduates. The graduates disliked their jobs very much in 1.3 percent of the cases as compared to 4.9 percent of the responses of the nongraduates.

One-way analysis of variance of the comparison of the feelings of graduates and nongraduates about their present jobs is shown in Table 30. A low $\underline{F}$ ratio of 0.01 was calculated, which was not significant at the .05 level. Null hypothesis 4b—that there was no significant difference between community college career education graduates and nongraduates in regard to degree of job satisfaction—was accepted.

Table 29 also indicates that 64.1 percent of the community college career graduates liked their jobs very much as compared to 49.7 percent of the high school vocational students. Only 1.3 percent of the career graduates disliked their jobs very much compared to 3.8 percent of the high school students.

Table 31 presents a one-way analysis of variance with an $\underline{F}$ ratio of 3.45, which was not significant at the .05 level.

TABLE 29

COMPARISON OF COMMUNITY COLLEGE CAREER GRADUATES, NONGRADUATES, AND HIGH SCHOOL VOCATIONAL COMPLETIONS IN REGARD TO JOB SATISFACTION

	Like it Very Much		Like it Somewhat		No Opinion		Dislike it Somewhat		Dislike it Very Much	
	N	%	N	%	N	%	N	%	N	%
Community College Career Graduates	200	64.1	69	22.1	20	6.4	19	6.1	4	1.3
Community College Career Nongraduates	160	55.6	66	22.9	30	10.4	18	6.3	14	4.9
Community College Career Students' Total	360	60.0	135	22.5	50	8.3	37	6.3	18	3.0
High School Vocational Student Completions	820	49.7	441	26.7	234	14.2	93	5.6	62	3.8
Total Respondents = 2,250										
Number	1,180		576		284		130		80	
Mean Percentage		52.4		25.6		12.6		5.8		3.6

TABLE 30

ANALYSIS OF VARIANCE RELATED TO HYPOTHESIS 4b

Source of Variation	Degree of Freedom	Sum of Squares	Mean Square	F Ratio
Between	1	57.6	57.6	0.01*
Within	8	40856.4	5107.1	
Total	9	40914.0		

*$p < .05$
$F = 5.32$ at .05 level of significance

TABLE 31

ANALYSIS OF VARIANCE RELATED TO HYPOTHESIS 5b

Source of Variation	Degree of Freedom	Sum of Squares	Mean Square	F Ratio
Between	1	179024.4	179024.4	3.45*
Within	8	415699.2	51962.4	
Total	9	594723.6		

*$p < .05$
$F = 5.32$ at .05 level of significance

hypothesis 5b—that there was no significant difference between community college career education graduates and high school vocational completions in regard to degree of job satisfaction—was accepted.

Table 32 shows that both community college graduates and nongraduates planned to take further career education training. Information on future educational aspirations was not available for high school students.

Comparison of the community college students showed that 50.2 percent of the nongraduates planned to continue at the same community college, but only 28.2 percent of the graduates planned to take additional training at the same community college. Plans to go on to a senior college or university were reported by 57.9 percent of the graduates with 22.4 percent of the nongraduates expecting to do the same. Two percent of the graduates planned additional vocational training at an area vocational school, while 8.9 percent of the nongraduates expected to do the same within the next two years.

Null hypothesis 4c—that there was no significant difference between community college career education graduates and nongraduates in regard to future educational plans—was accepted. Table 33 presents an F ratio of 0.02, which was not significant at the .05 level.

TABLE 32

COMPARISON OF COMMUNITY COLLEGE CAREER GRADUATES AND NONGRADUATES IN REGARD TO THEIR EDUCATIONAL ASPIRATIONS

	The Same Community College		Another Community College		Senior College or University		Area Vocational School		Technical Institute		Commercial School		Other Schools	
	N	%	N	%	N	%	N	%	N	%	N	%	N	%
Community College Career Graduates	71	28.2	7	2.8	146	57.9	5	2.0	4	1.6	0	0.0	19	7.5
Community College Career Nongraduates	141	50.2	19	6.8	63	22.4	25	8.9	8	2.8	4	1.4	21	7.5
Total Respondents = 533														
Number	212		26		209		30		12		4		40	
Mean Percentage		39.8		4.9		39.2		5.6		2.3		0.8		7.5

TABLE 33

ANALYSIS OF VARIANCE RELATED TO HYPOTHESIS 4c

Source of Variation	Degree of Freedom	Sum of Squares	Mean Square	F Ratio
Between	1	60.1	60.1	0.02*
Within	12	31812.8	2651.1	
Total	13	31872.9		

*$p < .05$
$F = 4.75$ at .05 level of significance

Table 34 presents data relative to the evaluation of college and high school students of their previous career training services. The table shows that 51.4 percent of the nongraduates rated their career instruction very good as compared to 61.6 percent of the graduates. However, 7.4 percent of the nongraduates rated their career instruction as poor while only 3.4 percent of the graduates did so.

The graduates, when evaluating all other instruction, rated it very good in 42.8 percent of the cases as compared to 39.3 percent of the nongraduates. Only 0.6 percent of the career graduates rated their other instruction poor while 3.8 percent of the nongraduates gave the same evaluation. Instructor advisement was rated very good by 51.1 percent of the graduates and 49.4 percent of the nongraduates selected this same level of evaluation.

Null hypothesis 4d—that there was no significant difference between community college career education graduates and nongraduates in regard to evaluation of their career training—was accepted. The

TABLE 34

COMPARISON OF COMMUNITY COLLEGE CAREER GRADUATES, NONGRADUATES, AND HIGH SCHOOL VOCATIONAL COMPLETIONS IN REGARD TO THEIR EVALUATIONS OF THEIR CAREER TRAINING SERVICES

	Career Instruction						All Other Instruction						Instructor Advisement					
	Very Good		Average		Poor		Very Good		Average		Poor		Very Good		Average		Poor	
	N	%	N	%	N	%	N	%	N	%	N	%	N	%	N	%	N	%
Community College Career Graduates	234	61.6	133	35.0	13	3.4	152	42.8	201	56.6	2	0.6	200	55.1	143	39.4	20	5.5
Community College Career Nongraduates	188	51.4	151	41.3	27	7.4	134	39.3	194	56.9	13	3.8	169	49.4	136	39.8	37	10.8
Community College Career Students' Total	422	56.6	284	38.1	40	5.4	286	41.1	395	56.8	15	2.2	369	52.3	279	39.6	57	8.1
High School Vocational Student Completions	1393	58.1	880	36.7	125	5.2	733	31.7	1469	63.5	110	4.8	N/A	N/A	N/A	N/A	N/A	N/A
Number of Respondents	1815		1164		165		1019		1864		125		369		279		57	
Mean Percentage		57.7		37.0		5.3		33.8		62.0		4.2		52.3		39.6		8.1

F ratio produced was a low 0.003 (Table 35), which was not significant at the .05 level. Therefore, the hypothesis was accepted.

TABLE 35

ANALYSIS OF VARIANCE RELATED TO HYPOTHESIS 4d

Source of Variation	Degree of Freedom	Sum of Squares	Mean Square	F Ratio
Between	1	32.6	32.6	0.003*
Within	4	38702.7	9675.7	
Total	5	38735.3		

*P < .05
F = 7.71 at .05 level of significance

Table 34 also shows a mean of 57.7 percent of all students rating their career instruction very good and 5.3 percent, poor. The range between the two groups of students in both evaluation categories is less than 3.5 percent. All other instruction was rated very good by 42.8 percent of college graduates and 41.1 percent of the high school students. Instructor advisement is generally not considered a formal function of the high school, and data were not available in this category.

Data were analyzed and presented in Table 36, using a one-way analysis of variance technique. An F ratio of 3.24 was calculated, which was not significant at the .05 level. Null hypothesis 5c—that there was no significant difference between community college career education graduates and high school vocational completions in regard to evaluation of their career/vocational training—was accepted.

TABLE 36

ANALYSIS OF VARIANCE RELATED TO HYPOTHESIS 5c

Source of Variation	Degree of Freedom	Sum of Squares	Mean Square	F Ratio
Between	1	678720.7	678720.7	3.24*
Within	4	838153.3	209538.3	
Total	5	1516874.0		

*P < .05
F = 7.71 at .05 level of significance

The next series of tables contains ancillary data generated by the follow-up survey. These data were analyzed for the purpose of providing more detail about the findings related to the hypotheses of the study, and are presented in the form of percentage tables.

College students were asked to indicate the relationship of their present jobs to their former career training. Table 37 shows the percentages of their responses by college. Working in the same or a highly related field were 55.5 percent of the students, while 25.2 percent indicated that their work was not related to their training.

A high correlation between their work and training was reported by 92.5 percent of the College B students, and the remaining 8.5 percent reported work slightly related. The highest percentage of students who reported work unrelated to their training were from College C (31.3 percent). College D and College F had 29.8 and 29.9 percent of their students who responded that their work was not related to their training.

TABLE 37

RELATIONSHIP OF COMMUNITY COLLEGE STUDENTS' PRESENT JOBS TO THEIR CAREER TRAINING, BY COLLEGE

Community College Identification Code	Same Field		Highly Related		Slightly Related		Not Related	
	N	%	N	%	N	%	N	%
College A	33	36.7	26	28.9	18	20.0	13	14.4
College B	26	55.3	17	36.2	4	8.5	0	0.0
College C	16	25.0	19	29.7	9	14.1	20	31.3
College D	64	29.8	55	25.6	32	14.9	64	29.8
College E	4	19.0	6	28.6	6	28.6	5	23.8
College F	32	19.2	37	22.2	48	28.7	50	29.9
Total Respondents = 604								
Number	175		160		117		152	
Mean Percentage		29.0		26.5		19.4		25.2

A comparison of responses of college students in different programs to a question about the relationship of their present jobs to their career training indicated that 55.3 percent found the job to be highly related or the same job for which they trained (Table 38). A high percentage (90.3 percent) of nursing students were working in the same or a highly related field.

Of the students who were in the general program classification, 50 percent stated that there was no relationship between their present jobs and their former career training. Agriculture technology and public service students also showed a low correlation with approximately 45 percent of the students in each area responding that there was no relationship between training and jobs.

The percentage of high school students in all vocational programs who indicated their present jobs were the same or highly related to the jobs for which they had trained was 34.1 percent (Table 39). Stating that their present jobs were not related to their training were 41.9 percent of the high school students who completed their vocational programs.

Responses from high school students in agricultural education and home economics programs were similar with 46.9 and 46.8 percent respectively working in jobs not related to training. On the other hand, the highest percentage of high school students who were working in jobs highly related or the same as those for which they had trained was reported by the unclassified students (43.3 percent). These were followed by the office occupations students (41.8 percent) working in

TABLE 38

RELATIONSHIP OF COMMUNITY COLLEGE STUDENTS' PRESENT JOBS TO THEIR CAREER TRAINING, BY PROGRAM

Community College Career Programs	Same Field		Highly Related		Slightly Related		Not Related	
	N	%	N	%	N	%	N	%
General Business	2	13.3	4	26.7	5	33.3	4	26.7
Public Service	4	22.2	1	5.6	5	27.8	8	44.4
General Program	1	12.5	2	25.0	1	12.5	4	50.0
Business Occupations	11	11.2	31	31.6	22	22.4	34	34.7
Office Occupations	25	30.9	28	34.6	16	19.8	12	14.8
Data Processing	21	37.5	6	10.7	14	25.0	15	26.8
Medical Laboratory Technician	4	80.0	0	0.0	1	20.0	0	0.0
Radiologic Technician	1	33.3	1	33.3	0	0.0	1	33.3
Technical Nurse	32	61.5	15	28.8	4	7.7	1	1.9
Mental Health	6	46.2	3	23.1	1	7.7	3	23.1
Architecture	5	26.3	4	21.1	4	21.1	6	31.6
Other Technology	2	28.6	0	0.0	3	42.9	2	28.6
Mechanical Technology	0	0.0	4	30.8	4	30.8	5	38.5
Civil Technology	3	20.0	4	26.7	4	26.7	4	26.7
Electrical and Electronics	4	12.5	9	28.1	9	28.1	10	31.3
Industrial Technology	16	24.6	25	38.5	11	16.9	13	20.0
Agriculture Technology	4	18.2	2	9.1	6	27.3	10	45.5
Home Economics	4	33.3	2	16.7	2	16.7	4	33.3
Law Enforcement	29	46.0	15	23.8	6	9.5	13	20.6
Unclassified	0	0.0	4	57.1	0	0.0	3	42.9
Total Respondents = 605								
Number	175		160		118		152	
Mean Percentage		28.9		26.4		19.5		25.1

TABLE 39

RELATIONSHIP OF HIGH SCHOOL VOCATIONAL STUDENTS' PRESENT JOBS TO THEIR VOCATIONAL TRAINING, BY PROGRAM

High School Vocational Programs	Same Field		Highly Related		Slightly Related		Not Related	
	N	%	N	%	N	%	N	%
Agriculture Education	25	12.9	35	18.0	43	22.2	91	46.9
Technical Education	0	0.0	2	20.0	2	20.0	6	60.0
Trade and Industrial	38	11.1	75	21.9	79	23.1	150	43.9
Distributive Education	44	16.2	56	20.6	71	26.1	101	37.1
Health Occupations	9	13.8	10	15.4	10	15.4	36	55.4
Office Occupations	50	14.3	96	27.5	86	24.6	117	33.5
Home Economics	47	12.0	64	15.3	98	24.9	184	46.8
Unclassified	4	13.3	9	30.0	8	26.7	9	30.0
Total Respondents = 1,655								
Number	217		347		397		694	
Mean Percentage		13.1		21.0		24.0		41.9

the same or a highly related field and the distributive education students with 36.8 percent in this category.

Community college graduates reported a much higher relationship between their present jobs and previous training than did the college nongraduates. Table 40 reveals that 68.4 percent of the graduates were employed in jobs that were the same or highly related to their training as compared to 40.3 percent of the nongraduates. Of the high school students who completed their vocational training programs, 41.9 percent reported employment in jobs not related to their training as compared to 13.9 percent of the community college career graduates.

Approximately 50 percent of the community college students responded that they used the knowledge and skills acquired in their career training frequently, and 23.1 percent indicated occasional use. Of all the college students, 13.1 percent reported they never used their technical knowledge and skills (Table 41).

The mean percentage of all students using their knowledge and skills frequently was 49.6 percent, while the mean percentage of all students never using their training was 13.1 percent. College B ranked highest with 87.2 percent of the students using their training frequently, while College E ranked lowest with 33.3 percent of the students responding in this category.

Community college medical career students as a group ranked highest in frequent use of skills: medical laboratory technicians, 100.0 percent; radiologic technicians, 33.3 percent; technical nurses, 90.6 percent; and mental health technicians, 76.9 percent (Table 42). Agriculture

TABLE 40

COMPARISON OF COMMUNITY COLLEGE CAREER GRADUATES', NONGRADUATES', AND HIGH SCHOOL VOCATIONAL STUDENTS' RESPONSES TO THE RELATIONSHIP OF THEIR PRESENT JOBS TO THEIR CAREER/VOCATIONAL TRAINING

	Same Field		Highly Related		Slightly Related		Not Related	
	N	%	N	%	N	%	N	%
Community College Career Graduates	120	38.7	92	29.7	55	17.7	43	13.9
Community College Career Nongraduates	52	18.4	62	21.9	62	21.9	107	37.8
Community College Career Students' Total	172	29.0	154	26.0	117	19.7	150	25.3
High School Vocational Student Completions	217	13.1	347	21.0	397	24.0	694	41.9
Total Respondents = 2,248								
Number	389		501		514		844	
Mean Percentage		17.3		22.3		22.9		37.6

TABLE 41

COMPARISON OF CAREER STUDENTS' RESPONSES RELATIVE TO THEIR USE OF KNOWLEDGE AND SKILLS ACQUIRED FROM THEIR CAREER TRAINING PROGRAM ON THEIR PRESENT JOBS, BY COMMUNITY COLLEGE

Community College Identification Codes	Frequently		Occasionally		Seldom		Never	
	N	%	N	%	N	%	N	%
College A	49	54.4	28	31.1	6	6.7	7	7.8
College B	41	87.2	4	8.5	2	4.3	0	0.0
College C	31	48.4	14	21.9	8	12.5	11	17.2
College D	115	52.3	45	20.5	32	14.5	28	12.7
College E	7	33.3	8	38.1	4	19.0	2	9.5
College F	57	35.0	41	25.2	34	20.9	31	19.0
Total Respondents = 605								
Number	300		140		86		79	
Mean Percentage		49.6		23.1		14.2		13.1

TABLE 42

COMPARISON OF COMMUNITY COLLEGE CAREER STUDENTS' RESPONSES RELATIVE TO THE USE OF THE KNOWLEDGE AND SKILLS ACQUIRED FROM THEIR CAREER TRAINING PROGRAMS ON THEIR PRESENT JOBS, BY PROGRAM

Community College Career Programs	Frequently		Occasionally		Seldom		Never	
	N	%	N	%	N	%	N	%
General Business	5	33.3	3	20.0	6	40.0	1	6.7
Public Service	8	42.1	3	15.8	4	21.1	4	21.1
General Program	2	25.0	2	25.0	1	12.5	3	37.5
Business Occupations	33	34.7	29	30.5	19	20.0	14	14.7
Office Occupations	41	50.0	24	29.3	11	13.4	6	7.3
Data Processing	28	50.0	10	17.9	6	10.7	12	21.4
Medical Laboratory Technician	5	100.0	0	0.0	0	0.0	0	0.0
Radiologic Technician	1	33.3	1	33.3	0	0.0	1	3.3
Technical Nurse	48	90.6	5	9.4	0	0.0	0	0.0
Mental Health	10	76.9	2	15.4	0	0.0	1	7.7
Architecture	9	47.4	3	15.8	7	36.8	0	0.0
Other Technology	1	14.3	1	14.3	3	42.9	2	28.6
Mechanical Technology	5	38.5	3	23.1	1	7.7	4	30.8
Civil Technology	6	40.0	3	20.0	3	20.0	3	20.0
Electrical and Electronics	9	28.1	11	34.4	6	18.8	6	18.8
Industrial Technology	34	52.3	16	24.6	13	20.0	2	3.1
Agriculture Technology	3	13.6	9	40.9	4	18.2	6	27.3
Home Economics	7	53.8	3	23.1	0	0.0	3	23.1
Law Enforcement	42	65.6	12	18.8	1	1.6	9	14.1
Unclassified	3	50.0	0	0.0	1	16.7	2	33.3
Total Respondents = 606								
Number	301		140		86		76	
Mean Percentage		49.7		23.1		14.2		13.0

technology ranked lowest of all college programs in student use of career training frequently on the job, but ranked highest, 40.9 percent, on occasional use of skills and knowledge.

As revealed in Table 42, in the general program, 37.5 percent of the students responded that they never used the knowledge and skills acquired in their training programs and 33.3 percent of the unclassified students responded the same way.

Table 43 reveals that 33.4 percent of the high school vocational students reported using their career training frequently while 26.7 percent said they never used their vocational skills. High school office occupations students (43.1 percent) frequently used their training on their present jobs. The percentage of college home economics students who used their training frequently was nearly double that of high school home economics students (53.8 and 28.5 percent, respectively).

As compared to students in all other high school vocational programs, those in the health occupations field reported the smallest percentage (26.2 percent) of students who used their vocational training frequently. Students in this field also reported the highest percentage (38.5 percent) of students who never used their vocational skills.

As revealed in Table 44, a higher percentage of community college career graduates (60.3 percent) used the knowledge and skills acquired in their training programs frequently than did the college nongraduates (37.6 percent). However, a comparison of the college nongraduates and the high school vocational completions showed similar percentages (37.6 and 33.4 percent) who used their skills frequently. Responding

TABLE 43

COMPARISON OF HIGH SCHOOL VOCATIONAL COMPLETIONS' RESPONSES TO THEIR USE OF KNOWLEDGE AND SKILLS ACQUIRED FROM THEIR VOCATIONAL TRAINING PROGRAMS ON THEIR PRESENT JOBS, BY PROGRAM

High School Vocational Programs	Frequently		Occasionally		Seldom		Never	
	N	%	N	%	N	%	N	%
Agriculture Education	56	28.6	48	24.5	33	16.8	59	30.1
Technical Education	4	40.0	2	20.0	1	10.0	3	30.0
Trade and Industrial	106	30.6	92	26.6	59	17.1	89	25.7
Distributive Education	97	35.8	67	24.7	46	17.0	61	22.5
Health Occupations	17	26.2	17	26.2	6	9.2	25	38.5
Office Occupations	150	43.1	72	20.7	49	14.1	77	22.1
Home Economics	110	28.5	79	20.5	78	20.2	119	30.8
Unclassified	11	36.7	7	23.3	4	13.3	8	26.7
Total Respondents = 1,652								
Number	551		384		276		441	
Mean Percentage		33.4		23.2		16.7		26.7

TABLE 44

COMPARISON OF COMMUNITY COLLEGE GRADUATES', NONGRADUATES', AND HIGH SCHOOL VOCATIONAL COMPLETIONS' RESPONSES RELATIVE TO THEIR USE OF KNOWLEDGE AND SKILLS ACQUIRED FROM THEIR CAREER/VOCATIONAL TRAINING PROGRAMS ON THEIR PRESENT JOBS

	Frequently		Occasionally		Seldom		Never	
	N	%	N	%	N	%	N	%
Community College Career Graduates	187	60.3	67	21.6	34	11.0	22	7.1
Community College Career Nongraduates	106	37.6	70	24.8	50	17.7	56	19.9
Community College Career Students' Total	293	49.5	137	23.1	84	14.2	78	13.2
High School Vocational Student Completions	551	33.4	384	23.2	276	16.7	441	26.7
Total Respondents = 2244 Number	844		521		360		519	
Mean Percentage		37.7		23.2		16.0		23.1

that they never used their career knowledge and skills on their present jobs were 7.1 percent of the college graduates, 19.9 percent of the nongraduates, and 26.7 percent of the high school students who completed a vocational training program.

Five hundred and ninety-three community college students responded to the question, "If you had it to do over again, would you select the same career program?" (Table 45). Of these respondents, 75.5 percent indicated that they would select the same program again with College B students having the highest percentage (87.5 percent) responding this way. Stating that they would not select the same program if they had it to do over again were 28 percent of the College D students as compared to 12.5 percent of College B students.

The highest percentage of students who would not select the same program again were from the public service program (50.0 percent). On the other hand, 100.0 percent of the medical laboratory technicians and 91.3 percent of the technical nurses would choose the same program again (Table 46). Even though 27.3 percent of the agriculture technology students indicated that they did not use their training on their present jobs (Table 42, page 86), 83.3 percent of them would select the same program again. Only 14.3 percent of the other technology students responded that they used their training frequently, but 71.4 percent said that they would select the same program again.

The smallest percentage (77.6 percent) of the high school students who would select the same program again were in the home economics area as compared to 93.3 percent of the technical education students who

TABLE 45

COMPARISON OF CAREER STUDENTS' RESPONSES RELATIVE TO THEIR SELECTION OF THE SAME CAREER PROGRAMS AGAIN, BY COMMUNITY COLLEGE

Community College Identification Code	Would Select Same Career Program		Would Not Select Same Career Program	
	N	%	N	%
College A	64	75.3	21	24.7
College B	42	87.5	6	12.5
College C	56	83.6	11	16.4
College D	149	72.0	58	28.0
College E	21	80.8	5	19.2
College F	116	72.5	44	27.5
Total Respondents = 593				
Number	448		145	
Mean Percentage		75.5		24.5

TABLE 46

COMPARISON OF COMMUNITY COLLEGE STUDENTS' RESPONSES RELATIVE TO THEIR SELECTION OF THE SAME CAREER PROGRAMS AGAIN, BY PROGRAM

Community College Career Programs	Would Select Same Career Program		Would Not Select Same Career Program	
	N	%	N	%
General Business	10	66.7	5	33.3
Public Service	9	50.0	9	50.0
General Program	5	83.3	1	16.7
Business Occupations	78	75.0	26	25.0
Office Occupations	56	70.9	23	29.1
Data Processing	44	77.2	13	22.8
Medical Laboratory Technician	5	100.0	0	0.0
Radiologic Technician	3	75.0	1	25.0
Technical Nurse	42	91.3	4	8.7
Mental Health	8	53.3	7	46.7
Architecture	12	66.7	6	35.3
Other Technology	5	71.4	2	28.6
Mechanical Technology	9	64.3	5	35.7
Civil Technology	15	78.9	4	21.1
Electrical and Electronics	29	78.4	8	21.6
Industrial Technology	40	75.5	13	24.5
Agriculture Technology	20	83.3	4	16.7
Home Economics	10	76.9	3	23.1
Law Enforcement	45	83.3	9	16.7
Unclassified	4	80.0	1	20.0
Total Respondents = 593				
Number	449		144	
Mean Percentage		75.7		24.3

reported the highest percentage (Table 47). More than 80 percent of the high school students in each of the other six programs would choose the same program if they had it to do over again.

A higher percentage of high school than college students would reselect the same career training program (Table 48). As compared to 75.5 percent of the college students, 83.4 percent of the high school students would select the same training program again. The percentages of community college career graduates and high school vocational students who completed their training programs who would choose the same program again were nearly identical (83.8 and 83.4 percent, respectively). Of the college nongraduates, only 66.1 percent would select the same program again.

Career education students from six community colleges rated their college counseling services as very good, average, or poor (Table 49). Rating this service very good were 39.1 percent of the students while 46.9 percent considered the counseling service average, and 14 percent rated the service poor. Ratings in the very good category by college ranged from a low of 28.6 percent to a high of 46.7 percent. The percentage of students who indicated that their college counseling service was poor also differed from college to college. Students' responses ranged from a low of 9.3 percent (College A) to a high of 17.1 percent (College E).

Community college graduates and nongraduates rated their job placement service much lower than they did the counseling service with 23.4 percent rating the placement service very good and a nearly equal percentage of students rating the service poor.

TABLE 47

COMPARISON OF HIGH SCHOOL VOCATIONAL COMPLETIONS' RESPONSES RELATIVE TO THEIR SELECTION OF THE SAME CAREER PROGRAMS AGAIN, BY PROGRAM

High School Vocational Program	Would Select Same Career Program		Would Not Select Same Career Program	
	N	%	N	%
Agriculture Education	215	81.1	50	18.9
Technical Education	14	93.3	1	6.7
Trade and Industrial	379	85.9	62	14.1
Distributive Education	313	85.1	55	14.9
Health Occupations	106	85.4	18	14.5
Office Occupations	438	87.4	63	12.6
Home Economics	493	77.6	142	22.4
Unclassified	35	83.3	7	16.7
Total Respondents = 2,391				
Number	1993		398	
Mean Percentage		83.4		16.6

TABLE 48

COMPARISON OF COMMUNITY COLLEGE GRADUATES', NONGRADUATES', AND HIGH SCHOOL VOCATIONAL COMPLETIONS' RESPONSES RELATIVE TO THEIR SELECTION OF THE SAME CAREER PROGRAMS AGAIN

	Would Select Same Career Program		Would Not Select Same Career Program	
	N	%	N	%
Community College Career Graduates	258	83.8	50	16.2
Community College Career Nongraduates	179	66.1	92	33.9
Community College Career Students' Total	437	75.5	142	24.5
High School Vocational Student Completions	1993	83.4	398	16.6
Total Respondents = 2970				
Number	2430		540	
Mean Percentage		81.8		18.2

TABLE 49

COMPARISON OF STUDENTS' EVALUATIONS OF THEIR PREVIOUS CAREER TRAINING SERVICES, BY COMMUNITY COLLEGE

Community College Identification Code	Counseling Service						Job Placement					
	Very Good		Average		Poor		Very Good		Average		Poor	
	N	%	N	%	N	%	N	%	N	%	N	%
College A	50	46.7	47	43.9	10	9.3	29	29.6	41	41.8	28	28.6
College B	18	32.1	29	51.8	9	16.1	11	20.8	22	41.5	20	37.7
College C	33	41.3	38	47.5	9	11.3	12	17.6	36	52.9	20	29.4
College D	86	39.1	103	46.8	31	14.1	36	20.0	100	55.6	44	24.4
College E	10	28.6	19	54.3	6	17.1	7	21.2	16	48.5	10	30.3
College F	71	38.0	85	45.5	31	16.6	41	27.3	86	57.3	23	15.3
Number of Respondents	268		321		96		136		301		145	

Community college students' evaluations of counseling services varied considerably among different career programs (Table 50). The highest percentage of students in any area ranking counseling service very good were in the mental health technician program (61.5 percent). The highest percentage of students from any program ranking counseling service poor were the radiologic technicians (50.0 percent).

In the area of job placement services, 75.0 percent of the medical laboratory technicians rated it very good as compared to only 5.0 percent of the public service students. Of the technical nursing students, 38.5 percent rated job placement poor as did 37.5 percent of the agriculture technology students.

Of students from high school vocational programs, 45.7 percent rated their counseling service very good, while 41.2 percent rated it average and 13.1 percent, poor (Table 51). Ranking counseling services very good were 64.1 percent of the high school health occupations students, and 39.5 percent of the unclassified students gave it this rating. The highest percentage of students who considered the counseling service poor were from the trade and industrial program (15.4 percent). Only 5.1 percent of the health occupations students rated counseling service poor.

The high school office occupations students (43.3 percent) considered the job placement service very good. The mean percentage of all students from all high school programs rating the job placement service very good was 29.3 percent. The highest percentage of students rating job placement poor were 34.4 percent of students in the

TABLE 50

COMPARISON OF COMMUNITY COLLEGE STUDENTS' EVALUATIONS OF THEIR PREVIOUS CAREER TRAINING SERVICES, BY PROGRAM

Community College Career Programs	Counseling Service						Job Placement					
	Very Good		Average		Poor		Very Good		Average		Poor	
	N	%	N	%	N	%	N	%	N	%	N	%
General Business	8	34.8	13	56.5	2	8.7	4	19.0	10	46.6	7	33.3
Public Service	6	27.3	10	45.5	6	27.3	1	5.0	13	65.0	6	4.1
General Program	5	41.7	7	58.3	0	0.0	1	10.0	6	60.0	3	30.0
Business Occupations	39	35.1	51	45.9	21	18.9	16	17.6	45	49.5	30	33.0
Office Occupations	36	37.5	51	53.1	9	9.4	24	28.6	48	57.1	12	14.3
Data Processing	33	46.5	30	42.3	8	11.3	14	24.6	31	54.4	12	21.1
Medical Laboratory Technician	2	40.0	2	40.0	1	20.0	3	75.0	0	0.0	1	25.0
Radiologic Technician	0	0.0	2	50.0	2	50.0	0	0.0	4	100.0	0	0.0
Technical Nurse	20	35.1	28	49.1	9	15.8	9	17.3	23	44.2	20	38.5
Mental Health	8	61.5	2	15.4	3	23.1	4	33.3	4	33.3	4	33.3
Architecture	9	37.5	14	58.3	1	4.2	2	9.5	13	61.9	6	28.6
Other Technology	2	28.6	3	42.9	2	28.6	1	14.3	5	71.4	1	14.3
Mechanical Technology	6	37.5	8	50.0	2	12.5	2	18.2	7	63.6	2	18.2
Civil Technology	9	42.9	9	42.9	3	14.3	8	44.4	9	50.0	1	5.6
Electrical and Electronics	14	34.1	24	58.5	3	7.3	10	30.3	19	57.6	4	12.1
Industrial Technology	24	45.3	18	34.0	11	20.8	13	30.2	21	48.8	9	20.9
Agriculture Technology	12	40.0	14	46.7	4	13.3	5	20.8	10	41.7	9	37.5
Home Economics	5	33.3	8	53.3	2	13.3	5	38.5	5	38.5	3	23.1
Law Enforcement	24	44.4	23	42.6	7	13.0	12	24.5	22	44.9	15	30.6
Unclassified	4	50.0	4	50.0	0	0.0	1	14.3	6	85.7	0	0.0
Number of Respondents	268		321		96		136		301		145	

TABLE 51

COMPARISON OF HIGH SCHOOL VOCATIONAL COMPLETIONS' EVALUATIONS OF THEIR PREVIOUS CAREER TRAINING SERVICES, BY PROGRAM

High School Vocational Programs	Counseling Service						Job Placement					
	Very Good		Average		Poor		Very Good		Average		Poor	
	N	%	N	%	N	%	N	%	N	%	N	%
Agriculture Education	117	45.0	111	42.7	32	12.3	61	24.7	101	40.9	85	34.4
Technical Education	7	53.8	4	30.8	2	15.4	2	18.2	7	63.6	2	18.2
Trade and Industrial	186	42.8	186	42.8	63	14.5	116	28.4	176	43.0	117	28.6
Distributive Education	169	46.3	150	41.1	46	12.6	134	38.3	137	39.1	79	22.6
Health Occupations	75	64.1	36	30.8	6	5.1	46	43.4	40	37.7	20	18.7
Office Occupations	213	43.3	210	42.7	69	14.0	143	29.7	210	43.7	128	26.6
Home Economics	272	46.2	234	39.8	82	13.9	128	23.1	243	43.8	184	33.2
Unclassified	15	39.5	21	55.3	2	5.3	13	38.2	15	44.1	6	17.6
Number of Respondents	1054	45.7	952	41.2	302	13.1	643	29.3	929	42.4	621	28.3

agriculture education program followed closely by 33.2 percent of the home economics students.

A comparison of community college graduates and nongraduates relative to their evaluations of counseling and job placement services indicated small differences (Table 52). A higher percentage (44.2 percent) of graduates, nongraduates, and high school vocational students rated their schools' counseling service very good than rated their job placement service very good (28.1 percent).

Table 53 demonstrates that the responses of the majority of community college students to the question, "If you are enrolled in a school or college, what type of institution is it?" indicated that they were enrolled in a senior college or university (55.3 percent). Responding that they were enrolled in the same community college were 24.1 percent of the college students in all programs. One hundred percent of the general business, general program, and radiologic technician students were enrolled in a senior college or university. A total of 10 percent of the former college students indicated that they were enrolled in another community college, area vocational school, technical institute, or commercial school.

The majority of high school vocational completions (Table 54) presently in school were enrolled in a senior college (53.4 percent) or a community college (20.9 percent). A higher percentage of high school vocational students were enrolled in commercial schools (9.8 percent) than were enrolled in public vocational schools such as technical institutes (8.5 percent) and area vocational schools (6.4 percent).

TABLE 52

COMPARISON OF COMMUNITY COLLEGE GRADUATES', NONGRADUATES', AND HIGH SCHOOL VOCATIONAL COMPLETIONS' EVALUATIONS OF THEIR PREVIOUS CAREER/VOCATIONAL TRAINING PROGRAMS

	Counseling Service						Job Placement					
	Very Good		Average		Poor		Very Good		Average		Poor	
	N	%	N	%	N	%	N	%	N	%	N	%
Community College Career Graduates	141	39.5	178	49.9	38	10.6	84	25.8	155	47.5	87	26.7
Community College Career Nongraduates	123	38.6	140	43.9	56	17.6	51	20.5	142	57.0	56	22.5
Community College Career Students' Total	264	39.1	318	47.0	94	13.9	135	23.5	297	51.7	143	24.9
High School Vocational Student Completions	1054	45.7	952	41.2	302	13.1	643	29.3	929	42.4	621	28.3
Number of Respondents	1318	44.2	1270	42.5	396	13.3	778	28.1	1226	44.3	764	27.6

TABLE 53

COMPARISON OF COMMUNITY COLLEGE CAREER STUDENTS' RESPONSES RELATIVE TO WHAT TYPES OF INSTITUTIONS THEY WERE ENROLLED IN, BY PROGRAM

Community College Career Programs	The Same Community College		Another Community College		Senior College or University		Area Vocational School		Technical Institute		Commercial School		Other Schools	
	N	%	N	%	N	%	N	%	N	%	N	%	N	%
General Business	0	0.0	0	0.0	9	100.0	0	0.0	0	0.0	0	0.0	0	0.0
Public Service	1	12.5	0	0.0	5	62.5	0	0.0	0	0.0	1	12.5	1	12.5
General Program	0	0.0	0	0.0	4	100.0	0	0.0	0	0.0	0	0.0	0	0.0
Business Occupations	6	14.3	2	4.8	27	64.3	1	2.4	2	4.8	2	4.8	2	4.8
Office Occupations	5	20.8	0	0.0	13	54.2	0	0.0	0	0.0	0	0.0	6	25.0
Data Processing	4	33.3	1	8.3	7	58.3	0	0.0	0	0.0	0	0.0	0	0.0
Medical Laboratory Technician	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0
Radiologic Technician	0	0.0	0	0.0	1	100.0	0	0.0	0	0.0	0	0.0	0	0.0
Technical Nurse	2	20.0	1	10.0	6	60.6	0	0.0	0	0.0	0	0.0	1	10.0
Mental Health	0	0.0	0	0.0	2	50.0	0	0.0	0	0.0	0	0.0	2	50.0
Architecture	6	54.5	1	9.1	2	18.2	0	0.0	0	0.0	0	0.0	2	18.2
Other Technology	3	75.0	0	0.0	1	25.0	0	0.0	0	0.0	0	0.0	0	0.0
Mechanical Technology	1	50.0	1	50.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0
Civil Technology	1	16.7	0	0.0	4	66.7	0	0.0	0	0.0	1	16.7	0	0.0
Electrical and Electronics	6	33.3	1	5.6	5	27.8	3	16.7	1	5.6	0	0.0	2	11.1
Industrial Technology	4	57.1	0	0.0	1	14.3	0	0.0	0	0.0	0	0.0	2	28.6
Agriculture Technology	2	15.4	0	0.0	10	76.9	1	7.7	0	0.0	0	0.0	0	0.0
Home Economics	0	0.0	1	25.0	3	75.0	0	0.0	0	0.0	0	0.0	0	0.0
Law Enforcement	5	31.3	0	0.0	9	56.3	0	0.0	0	0.0	1	6.3	1	6.3
Unclassified	2	66.7	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	1	33.3
Total Respondents = 199														
Number	48		7		110		5		3		5		21	
Mean Percentage		24.1		3.5		55.3		2.5		1.5		2.5		10.6

TABLE 54

COMPARISON OF HIGH SCHOOL VOCATIONAL COMPLETIONS' RESPONSES RELATIVE TO WHAT TYPES OF INSTITUTIONS THEY WERE ENROLLED IN, BY PROGRAM

High School Vocational Programs	Community College		Senior College or University		Area Vocational School		Technical Institute		Commercial School		Other Schools	
	N	%	N	%	N	%	N	%	N	%	N	%
Agriculture Education	19	21.3	52	58.4	5	5.6	0	0.0	6	6.7	7	7.9
Technical Education	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0
Trade and Industrial	16	14.2	60	53.1	9	8.0	3	2.7	14	12.4	11	9.7
Distributive Education	35	25.2	73	52.5	11	7.9	2	1.4	8	5.8	10	7.2
Health Occupations	7	15.2	23	50.0	5	10.9	0	0.0	7	15.2	4	8.7
Office Occupations	38	22.0	92	53.2	9	5.2	2	1.2	20	11.6	12	6.9
Home Economics	54	22.5	129	53.8	11	4.6	0	0.0	23	9.6	23	9.6
Unclassified	3	12.5	11	45.8	3	12.5	0	0.0	3	12.5	4	16.7
Total Respondents = 824												
Number	172		440		53		7		81		71	
Mean Percentages		20.9		53.4		6.4		8.5		9.8		8.6

None of the technical education students indicated that they were presently enrolled in school. The highest percentage of students in any program who were enrolled in any type of school was 58.4 percent of the agriculture education students who were enrolled in a senior college.

Table 55 reveals that the percentage of community college career graduates who were enrolled in senior colleges was much higher (73.2 percent) than either the nongraduates (37.0 percent) or the high school vocational completions (53.4 percent). A relatively large percentage of graduates continued to take courses at the same community college (15.5 percent) while nongraduates presently enrolled in the same community college exceeded 30.0 percent.

Table 56 indicates that 72.9 percent of the community college career students presently enrolled in school were majoring in the same or in an area highly related to their previous career training. The differences among colleges was significant in this regard with percentages ranging from 42.2 percent (College F) to 75.0 percent (College E) of students continuing their education in the same career field. The highest percentage of students now studying programs not related to their previous area of training was from College C (26.1 percent), while only 5 percent of the students from College E were studying in an unrelated field.

In a comparison of students from different programs, 90.0 percent of the nursing and 75.0 percent of the home economics students were presently enrolled in the same or a highly related career area (Table 57). Presently enrolled in nonrelated studies were 50.0 percent of the students formerly in the general program.

TABLE 55

COMPARISON OF COMMUNITY COLLEGE CAREER GRADUATES', NONGRADUATES', AND HIGH SCHOOL VOCATIONAL COMPLETIONS' RELATIVE TO WHAT TYPES OF INSTITUTIONS THEY WERE ENROLLED IN

	The Same Community College		Another Community College		Senior College or University		Area Vocational School		Technical Institute		Commercial School		Other Schools	
	N	%	N	%	N	%	N	%	N	%	N	%	N	%
Community College Career Graduates	15	15.5	3	3.1	71	73.2	1	1.0	2	2.1	0	0.0	5	5.2
Community College Career Nongraduates	28	30.4	4	4.3	34	37.0	4	4.3	1	1.1	5	5.4	16	17.4
Community College Career Students' Total	43	22.8	7	3.7	105	55.6	5	2.6	3	1.6	5	2.6	21	11.1
High School Vocational Student Completions	N/A		172	20.9	440	53.4	53	6.4	7	0.9	81	9.8	71	8.6
Total Respondents = 1,813														
Number	43		179		545		58		10		86		92	
Mean Percentage		4.2		17.7		53.8		5.7		1.0		8.5		9.1

TABLE 56

COMPARISON OF STUDENTS AS TO HOW RELATED THEIR PRESENT PROGRAM WAS TO THE CAREER PROGRAM IN WHICH THEY WERE ORIGINALLY TRAINED, BY COMMUNITY COLLEGE

Community College Identification Codes	Same Field		Highly Related		Slightly Related		Not Related	
	N	%	N	%	N	%	N	%
College A	9	45.0	8	40.0	0	0.0	3	15.0
College B	11	61.1	3	16.7	1	5.6	3	16.7
College C	14	60.9	2	8.7	1	4.3	6	26.1
College D	28	48.3	12	20.7	8	13.8	10	17.2
College E	15	75.0	4	20.0	0	0.0	1	5.0
College F	27	42.2	15	23.4	7	10.9	15	23.4
Total Respondents = 203								
Number	104		44		17		38	
Mean Percentage		51.2		21.7		8.4		18.7

TABLE 57

COMPARISON OF COMMUNITY COLLEGE CAREER STUDENTS AS TO HOW RELATED THEIR PRESENT PROGRAM WAS TO THE CAREER PROGRAM IN WHICH THEY WERE ORIGINALLY TRAINED

Community College Career Programs	Same Field		Highly Related		Slightly Related		Not Related	
	N	%	N	%	N	%	N	%
General Business	6	66.7	1	11.1	1	11.1	1	11.1
Public Service	5	62.5	1	12.5	1	12.5	1	12.5
General Program	1	25.0	1	25.0	0	0.0	2	50.0
Business Occupations	24	55.8	8	18.6	2	4.7	9	20.9
Office Occupations	10	43.5	5	21.7	0	0.0	8	34.8
Data Processing	6	40.0	5	33.3	4	26.7	0	0.0
Medical Laboratory Technician	0	0.0	0	0.0	0	0.0	0	0.0
Radiologic Technician	0	0.0	0	0.0	0	0.0	1	100.0
Technical Nurse	8	80.0	1	10.0	1	10.0	0	0.0
Mental Health	1	33.3	1	33.3	0	0.0	1	33.3
Architecture	4	40.0	4	40.0	1	10.0	1	10.0
Other Technology	2	50.0	1	25.0	0	0.0	1	25.0
Mechanical Technology	2	66.7	1	33.3	0	0.0	0	0.0
Civil Technology	2	33.3	2	33.3	0	0.0	2	33.3
Electrical and Electronics	9	50.0	2	11.1	1	5.6	6	33.3
Industrial Technology	5	55.6	1	11.1	3	17.6	0	0.0
Agriculture Technology	5	38.5	7	53.8	1	7.7	0	0.0
Home Economics	3	75.0	0	0.0	1	25.0	0	0.0
Law Enforcement	10	58.8	2	11.8	1	5.9	4	23.5
Unclassified	2	66.7	1	33.3	0	0.0	0	0.0
Total Respondents = 203								
Number	104		44		17		38	
Mean Percentage		51.2		21.7		8.4		18.7

As Table 58 shows, 40.2 percent of all high school vocational students enrolled in school or college were studying in highly related or the same area as their previous vocational programs. A majority of the health occupations students enrolled in school remained in the same or highly related training specialty (67.3 percent). Responses of high school agriculture students indicated that 61.0 percent were in a program only slightly related or not related to their former vocational studies. Of the high school trade and industrial students, 49.2 percent were presently enrolled in programs not related to their previous training.

Table 59 reveals that while 87.1 percent of the community college career graduates were continuing their education in the same or highly related area, only 34.1 percent of the high school vocational completions and 58.1 percent of the college nongraduates were enrolled in the same or a highly related program. A large number of the high school students had changed to majors slightly related or not related to their vocational programs (65.9 percent).

As revealed in Table 60, community college students responded to a question relative to areas needing revision in their former career training programs, and 18.8 percent of them indicated that revisions needed to be made in the area of college articulation. Evening course offerings needed revision according to 18.3 percent of the respondents while 14.9 percent would revise course content. The lowest percentage (2.6 percent) indicated a need for revision in the area of college policy and regulations.

TABLE 58

COMPARISON OF HIGH SCHOOL VOCATIONAL STUDENTS AS TO HOW RELATED THEIR PRESENT PROGRAM WAS TO THE VOCATIONAL PROGRAM IN WHICH THEY WERE ORIGINALLY TRAINED, BY PROGRAM

High School Vocational Program	Same Field		Highly Related		Slightly Related		Not Related	
	N	%	N	%	N	%	N	%
Agriculture Education	26	27.4	11	11.6	18	18.9	40	42.1
Technical Education	0	0.0	0	0.0	0	0.0	0	0.0
Trade and Industrial	27	20.5	22	16.7	18	13.6	65	49.2
Distributive Education	29	19.9	27	18.5	35	20.0	55	37.7
Health Occupations	23	46.9	10	20.4	5	10.2	11	22.4
Office Occupations	43	24.6	24	13.7	43	24.6	65	37.1
Home Economics	63	23.9	40	15.2	50	18.9	111	4.2
Unclassified	9	34.6	3	11.5	3	11.5	11	42.3
Total Respondents = 887								
Number	220		137		172		358	
Mean Percentage		24.8		15.4		19.4		40.4

TABLE 59

COMPARISON OF COMMUNITY COLLEGE GRADUATES, NONGRADUATES, AND HIGH SCHOOL VOCATIONAL COMPLETIONS AS TO HOW RELATED THEIR PRESENT PROGRAM WAS TO THE CAREER OR VOCATIONAL PROGRAM IN WHICH THEY WERE ORIGINALLY TRAINED

	Same Field		Highly Related		Slightly Related		Not Related	
	N	%	N	%	N	%	N	%
Community College Career Graduates	61	60.4	27	26.7	6	5.9	7	6.9
Community College Career Nongraduates	40	43.0	14	15.1	9	9.7	30	32.3
Community College Career Students' Total	101	52.1	41	21.1	15	7.7	37	19.1
High School Vocational Student Completions	217	13.1	347	21.0	397	24.0	694	41.9
Total Respondents = 1849								
Number	318		388		412		731	
Mean Percentage		17.2		21.0		22.3		39.5

TABLE 60

COMPARISON OF CAREER STUDENTS' RESPONSES REGARDING AREAS NEEDING REVISION IN THEIR FORMER CAREER PROGRAMS, BY COMMUNITY COLLEGE

Community College Identification Codes	Course Content		Program Requirements		Facilities Equipment		College Articulation		Variety of Courses		Evening Courses		Policy and Regulations		Financial Aid	
	N	%	N	%	N	%	N	%	N	%	N	%	N	%	N	%
College A	26	16.1	25	15.2	29	18.0	26	16.1	20	12.4	13	8.1	3	1.9	19	11.8
College B	13	17.6	10	13.5	6	8.1	13	17.6	8	10.8	14	18.9	6	8.1	4	5.4
College C	14	11.9	8	6.8	15	12.7	25	21.2	19	16.1	24	20.3	4	3.4	9	7.6
College D	49	15.4	27	8.5	34	10.7	47	14.8	53	16.7	77	24.2	4	1.3	27	8.5
College E	8	17.0	9	19.1	3	6.4	15	31.9	6	12.8	4	8.5	0	0.0	2	4.3
College F	36	13.7	29	11.1	30	11.5	58	22.1	35	13.4	47	17.9	8	3.1	19	7.3
Number of Respondents	146		108		117		184		141		179		25		80	
Mean Percentage		14.9		11.0		11.9		18.8		14.4		18.3		2.6		8.2

Considerable differences did exist among the six community colleges in the areas needing revision selected by their students. For example, 19.1 percent of the College E students felt that revision was needed in the area of program requirements while only 6.8 percent of the College C students indicated a need for revision in that area at their college.

Community college students from the radiologic technician program were least satisfied with their course content and program requirements as these two areas were selected for revision by 37.5 and 25.0 percent, respectively (Table 61). Students in the other technologies (31.3 percent) were dissatisfied with the college facilities and equipment. College articulation concerned 35.5 percent of the general business students and 33.3 percent of the home economics students. Industrial technology students (5.7 percent) were less concerned about college articulation than about any other area. The electrical and electronics students (17.5 percent), the mechanical technology students (10.3 percent), and the medical laboratory technicians (10.0 percent) had the highest percentages of students who felt that school policies and regulations needed revision.

Table 62 reveals that community college career students who completed their career education programs (49.9 percent) almost equaled the number who did not (50.1 percent). Students from three colleges indicated a low rate of completions (36.5 to 55.9 percent), but students from the remaining three colleges reported high rates of completion (84.4, 91.1, and 94.3 percent).

TABLE 61

COMPARISON OF COMMUNITY COLLEGE CAREER STUDENTS' RESPONSES REGARDING AREAS NEEDING REVISION IN THEIR FORMER CAREER PROGRAMS, BY PROGRAM

Community College Career Programs	Course Content		Program Requirements		Facilities Equipment		College Articulation		Variety of Courses		Evening Courses		Policy and Regulations		Financial Aid	
	N	%	N	%	N	%	N	%	N	%	N	%	N	%	N	%
General Business	2	6.5	3	9.7	2	6.5	11	35.5	5	16.1	6	19.4	0	0.0	2	6.5
Public Service	3	8.6	5	14.3	6	17.1	6	17.1	5	14.3	6	17.1	1	2.9	3	8.6
General Program	1	5.6	1	5.6	1	5.6	5	27.8	4	22.2	5	27.7	1	5.6	0	0.0
Business Occupations	24	13.5	24	13.5	12	6.7	38	21.3	28	15.7	34	19.1	6	3.4	12	6.7
Office Occupations	20	15.3	15	11.5	9	6.9	25	19.1	27	20.6	26	19.8	4	3.1	5	3.8
Data Processing	5	5.7	11	12.5	17	19.3	17	19.3	11	12.5	20	22.7	2	2.3	5	5.7
Medical Laboratory Technician	3	30.0	1	10.0	2	20.0	2	20.0	0	0.0	0	0.0	1	10.0	1	10.0
Radiologic Technician	3	37.5	2	25.0	1	12.5	1	12.5	0	0.0	0	0.0	0	0.0	1	12.5
Technical Nurse	16	19.5	12	14.6	12	14.6	14	17.1	6	7.3	8	9.8	3	3.7	11	13.4
Mental Health	6	23.1	2	7.7	4	15.4	4	15.4	3	11.5	3	11.5	0	0.0	4	15.4
Architecture	4	18.2	5	22.7	2	9.1	5	22.7	4	18.2	1	4.6	1	4.6	0	0.0
Other Technology	1	6.3	1	6.3	5	31.3	4	25.0	1	6.3	3	18.8	0	0.0	1	6.3
Mechanical Technology	7	24.1	2	6.9	2	6.9	4	13.8	3	10.3	4	13.8	3	10.3	4	13.8
Civil Technology	3	14.3	1	4.8	0	0.0	6	28.6	2	9.5	7	33.3	0	0.0	2	9.5
Electrical and Electronics	13	22.8	6	10.5	8	14.0	11	19.3	7	12.3	10	17.5	1	17.5	1	17.5
Industrial Technology	12	17.1	6	8.6	8	11.4	4	5.7	11	15.7	22	31.4	0	0.0	7	10.0
Agriculture Technology	8	16.7	3	6.2	11	22.9	9	18.8	7	14.6	6	12.5	0	0.0	4	8.3
Home Economics	2	11.1	2	11.1	0	0.0	6	33.3	3	16.7	4	22.2	0	0.0	1	5.6
Law Enforcement	11	13.9	5	6.3	12	15.2	9	11.4	11	13.9	14	17.7	2	2.5	15	19.0
Unclassified	1	10.0	0	0.0	1	10.0	4	40.0	3	30.0	0	0.0	0	0.0	1	10.0
Number of Respondents	145		107		115		185		141		179		25		80	
Mean Percentage		14.8		11.0		11.8		18.9		14.4		18.3		2.6		8.2

TABLE 62

COMPARISON OF STUDENTS WHO COMPLETED OR DID NOT COMPLETE THEIR CAREER PROGRAMS, BY COMMUNITY COLLEGE

Community College Identification Code	Completed Program		Did Not Complete Program	
	N	%	N	%
College A	92	84.4	17	15.6
College B	51	91.1	5	8.9
College C	52	55.9	41	44.1
College D	84	30.5	191	69.5
College E	33	94.3	2	5.7
College F	77	36.5	134	63.5
Total Respondents = 779				
Number	389		390	
Mean Percentage		49.9		50.1

The highest percentage of community college students who completed their programs were in general business, 95.8 percent; medical laboratory technicians, 100.0 percent; and technical nursing, 85.0 percent (Table 63). The lowest levels of program completions were in mechanical technology (17.6 percent) and the general program (25.0 percent).

"Working on a job" was cited by 37.0 percent of the college students as the reason they did not complete their career programs (Table 64). Other reasons for noncompletion included: marriage, 14.4 percent; finances, 13.3 percent; changed career objective, 12.9 percent; changed program, 11.2 percent; and dislike for program, 7.0 percent. Considerable differences existed among the colleges in the percentages of students who changed career objectives. These ranged from none of the College E students to 71.4 percent of College B students.

Table 65 reveals that 50.0 percent of the community college law enforcement and mechanical technology students did not complete their career programs because of employment. Marriage was named as the reason for not completing their career programs by 14.5 percent of the students with 30.0 percent of the home economics and 28.6 percent of the office occupations students citing this reason.

TABLE 63

COMPARISON OF COMMUNITY COLLEGE STUDENTS WHO COMPLETED OR DID NOT COMPLETE THEIR CAREER PROGRAMS, BY PROGRAM

Community College Career Programs	Completed Program		Did Not Complete Program	
	N	%	N	%
General Business	23	95.8	1	4.2
Public Service	13	54.2	11	45.8
General Program	3	25.0	9	75.0
Business Occupations	55	40.7	80	59.3
Office Occupations	50	46.3	58	53.7
Data Processing	38	51.4	36	48.6
Medical Laboratory Technician	5	100.0	0	0.0
Radiologic Technician	3	50.0	3	50.0
Technical Nurse	51	85.0	9	15.0
Mental Health	6	33.3	12	66.7
Architecture	7	31.8	15	68.2
Other Technology	5	55.6	4	44.4
Mechanical Technology	3	17.6	14	82.4
Civil Technology	9	42.9	12	57.1
Electrical and Electronics	19	43.2	25	56.8
Industrial Technology	36	48.6	38	51.4
Agriculture Technology	18	56.3	14	43.8
Home Economics	9	50.0	9	50.0
Law Enforcement	31	44.9	38	55.1
Unclassified	4	66.7	2	33.3
Number of Respondents (780)	389		391	

TABLE 64

COMPARISON OF CAREER NONGRADUATES' REASONS FOR NOT COMPLETING THEIR CAREER PROGRAMS, BY COMMUNITY COLLEGE

Community College Identification Codes	Changed Career Objective		Working on a Job		Financial Reasons		Marriage		Disliked Program		Changed Programs		Poor Health	
	N	%	N	%	N	%	N	%	N	%	N	%	N	%
College A	3	14.3	4	19.0	2	9.5	3	14.3	5	23.8	2	9.5	2	9.5
College B	5	71.4	0	0.0	0	0.0	0	0.0	0	0.0	2	28.6	0	0.0
College C	4	8.5	18	38.3	7	14.9	13	27.7	1	2.1	4	8.5	0	0.0
College D	25	11.2	94	42.2	30	13.5	32	14.3	10	4.5	20	9.0	12	5.4
College E	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	2	100.0	0	0.0
College F	22	14.0	53	33.8	22	14.0	18	11.5	16	10.2	21	13.4	5	3.2
Total Respondents = 457														
Number	59		169		61		66		32		51		19	
Mean Percentage		12.9		37.0		13.3		14.4		7.0		11.2		4.2

TABLE 65

COMPARISON OF COMMUNITY COLLEGE CAREER NONGRADUATES' REASONS FOR NOT COMPLETING THEIR CAREER PROGRAMS, BY PROGRAM

Community College Career Programs	Changed Career Objective		Working on a Job		Financial Reasons		Marriage		Disliked Program		Changed Programs		Poor Health	
	N	%	N	%	N	%	N	%	N	%	N	%	N	%
General Business	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	1	100.0	0	0.0
Public Service	4	30.8	4	30.8	3	23.0	0	0.0	0	0.0	2	15.4	0	0.0
General Program	3	27.2	4	36.4	2	18.2	1	9.1	0	0.0	1	9.1	0	0.0
Business Occupations	11	11.0	37	37.0	12	12.0	19	19.0	6	6.0	11	11.0	4	4.0
Office Occupations	7	10.0	22	31.4	8	11.4	20	28.6	5	7.1	4	5.7	4	5.7
Data Processing	4	10.0	15	3.8	5	12.5	7	17.5	0	0.0	8	20.0	1	2.5
Medical Laboratory Technician	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0
Radiologic Technician	1	25.0	0	0.0	0	0.0	1	25.0	1	25.0	1	25.0	0	0.0
Technical Nurse	3	33.3	1	11.1	1	11.1	0	0.0	2	22.2	2	22.2	0	0.0
Mental Health	1	6.7	5	33.3	5	33.3	0	0.0	2	13.3	1	6.7	1	6.7
Architecture	2	11.8	7	41.2	2	11.8	2	11.8	0	0.0	3	17.6	1	5.9
Other Technology	0	0.0	1	25.0	0	0.0	0	0.0	1	25.0	2	50.0	0	0.0
Mechanical Technology	1	6.3	8	50.0	2	12.5	1	6.3	2	12.5	1	6.3	1	6.3
Civil Technology	2	16.7	5	41.7	3	25.0	1	8.3	0	0.0	1	8.3	0	0.0
Electrical and Electronics	4	11.1	13	36.1	6	16.7	4	11.1	5	13.9	3	8.3	1	2.8
Industrial Technology	7	17.9	16	41.0	4	10.3	4	10.3	3	7.7	2	5.1	3	7.7
Agriculture Technology	1	6.7	6	40.0	2	13.3	1	6.6	2	13.3	3	20.0	0	0.0
Home Economics	0	0.0	4	40.0	2	20.0	3	30.0	0	0.0	0	0.0	1	10.0
Law Enforcement	8	19.0	21	50.0	3	7.1	1	2.3	2	4.8	5	12.0	2	4.8
Unclassified	0	0.0	0	0.0	1	50.0	1	50.0	0	0.0	0	0.0	0	0.0
Total Respondents = 456														
Number	59		169		61		66		31		51		19	
Mean Percentage		12.8		37.1		13.4		14.5		6.8		11.2		4.2

CHAPTER V

CONCLUSIONS, RECOMMENDATIONS, AND IMPLICATIONS

I. SUMMARY OF OBJECTIVES

Community colleges in Tennessee at the time of this study did not have a comprehensive, ongoing follow-up system for career education students. Although deans and directors of career education recognized the need for comprehensive data, only a few follow-up studies of limited scope were performed on an irregular basis in specific, individual programs. The objectives of this study were:

1. To determine the status of follow-up surveys in the community colleges of Tennessee, including the problems related to performing such studies; the extent of data bank information relative to identifying career students at various levels of their training; and the opinions of college deans and directors as to the worth of such a study (Appendix A).

2. To design a pilot model of an automatic, computerized data recovery system including a follow-up questionnaire capable of being used with an optical scan tabulation unit and an appropriate data recovery system (Appendix H).

3. To tabulate and analyze responses made by study participants as students in selected community colleges, as students in selected community college career programs, and as students from different high school vocational programs. Community college career education graduates were compared with nongraduates, and graduates were compared with high

school vocational completions. Variables used for comparisons were present yearly salary, degree of job satisfaction, future educational plans, and evaluation of career training.

II. SUMMARY OF METHODOLOGY

The population identified for the study initially included nine of the ten community colleges in Tennessee. The tenth college did not participate because it had not been in operation long enough to generate graduates from its career programs.

The nine colleges that offered assistance to the researcher encountered difficulty in furnishing necessary input data because of the different data storage techniques utilized by each college. Each community college used an in-house computer system. The variety of computer equipment types and manufacturers, data storage techniques, operational procedures, and data formats made each college system difficult to interface conveniently with those of other colleges.

Lack of state requirements to maintain data on career students also made data recovery difficult. Three of the nine colleges did not furnish data in the necessary format and were excluded from the study. The six participating colleges represented two rural, two urban, and two metropolitan areas.

The researcher completed a preliminary survey to determine current status of career education follow-up studies in each of the ten community colleges. The survey utilized two techniques: a personal contact with

the career education dean or director, and a mailed questionnaire (Appendix F). Results of the survey supported the need for a follow-up study and indicated little or spasmodic use of that evaluation technique by the individual colleges.

National and state commissioners, directors, or chancellors involved in high-level administration of career-vocational programs were contacted by letter (Appendix B) and were requested to furnish the researcher information related to follow-up surveys in their jurisdictions. Response to the letter was 94 percent with all but three states furnishing detailed information on their programs. Four states also furnished detailed status reports of their automatic data recovery and analysis systems.

Staff members of Tennessee career-vocational education agencies were contacted for recommendations concerning the follow-up study and endorsements (Appendix D). The Community College Presidents' Council also endorsed the survey and appointed a member of each college staff to serve as a liaison between the college and the researcher (Appendix D).

A Community College Follow-Up Questionnaire capable of optical scan was developed (Appendix F) with the assistance of the Research Coordinating unit for Vocational Education at the University of Tennessee, Knoxville. A draft copy of the questionnaire was circulated to state career education agencies, committees, and colleges for recommendations. Final form of the questionnaire was similar to one developed by Ohio State and modified by the RCU for use in their 1973 follow-up study of twenty-two thousand high school vocational students (Appendix E).

The college questionnaire was tested for readability and ease of preparation at Cleveland State Community College utilizing forty-eight full-time career education students representing eleven different fields of study. Seven career education faculty members and three administrators also evaluated the questionnaire. Findings were very favorable, and the questionnaire was printed in optical scan form with necessary mailing enclosures (Appendix E).

III. SUMMARY OF DATA COLLECTION SYSTEM

Five of the community college project officials collected and furnished typed data to the researcher which were then arranged into proper sequence and key punched into IBM cards. One college furnished its data on cards ready for processing.

The card input data were consolidated and stored on a computer tape. The tape in turn was used to automatically address survey packets composed of a presealed mailing envelope, letter of endorsement from the Chancellor of the State Board of Regents, optical scan questionnaire, and a stamped return envelope. Returned questionnaires were optically scanned and the results were stored on magnetic tape.

Ten days after the first mailing, the computer screened the returns and addressed a postcard asking nonrespondents to return the questionnaire. Twenty days after the first mailing, a second questionnaire package was addressed by the computer and mailed to all nonrespondents. Two weeks after the third mailing, the master storage tape was interfaced with the Statistical Program for Social Sciences (SPSS) and a printout was obtained which tabulated and analyzed the follow-up data.

The data were then consolidated by number of responses per item and percentages of responses per category. A one-way analysis of variance was completed for each number and percentage table directly related to the eighteen null hypotheses of the study. A chi-square analysis was performed and mean, variance, standard deviation, and coefficient of skewness were presented on data relating to the comparison of the annual salaries of community college career education graduates and high school vocational completions. Responses to specific additional questions included in the follow-up survey questionnaire were categorized and presented in percentage tables.

IV. SUMMARY OF FOLLOW-UP SURVEY FINDINGS

Fifteen null hypotheses were accepted and three were rejected at the .05 level of significance. In regard to three of the variables studied—job satisfaction, future educational plans, and evaluation of career training—no significant difference was found among the six community colleges, among the different community college career programs, or among the high school programs. Also no significant difference was found in regard to these same three variables between community college graduates and nongraduates or between community college graduates and high school vocational completions. In addition, no significant difference was found in regard to yearly salary between community college career graduates and nongraduates or between high school programs.

However, there was a significant difference in regard to yearly salary among the six community colleges and among the different college

career programs as well as between community college graduates and high school vocational completions.

V. CONCLUSIONS RELATED TO FOLLOW-UP SURVEY

Community Colleges

Comparison of the six community colleges supported the null hypotheses that there were no significant differences, at the .05 level of significance, in regard to students' degree of job satisfaction, future educational plans, or evaluations of their career training. The majority of students were satisfied with their present jobs and career instruction and had similar educational plans. There was a significant difference among the students from the six colleges in the area of yearly salaries. One metropolitan and one urban college reported the highest salaries, while the two rural colleges indicated the lowest ranges of yearly income. Therefore, it can be concluded that the community colleges' location and service area influence career students' salaries.

Community College Career Programs

Data from twenty community college career programs were analyzed, and the null hypotheses that there were no significant differences in job satisfaction, future educational plans, and evaluation of career training were accepted at the .05 level of significance. Students in different career programs were satisfied with their jobs and previous career training. It can be concluded that the income of students is to some extent influenced by the type of career program that a student pursues in a community college.

High School Vocational Programs

Analysis of data from high school vocational program completions from eight different vocational programs indicated no significant differences among the programs in relation to present yearly salary, job satisfaction, or career training evaluation. It can be concluded from the findings of this study, however, that the type of high school vocational program had less influence in regard to salary, job satisfaction, and evaluation of training than the different career programs in the community colleges.

Community College Graduates and Nongraduates

Comparison of community college graduates and nongraduates supported the null hypotheses that there were no significant differences between these two categories in regard to yearly salary, job satisfaction, future educational plans, and evaluation of career training (Table 66).

Based upon findings of this study, and considering the limitations as outlined earlier, it can be concluded that it made no difference whether or not a student graduated or did not graduate from a career program in terms of his salary, job satisfaction, future educational plans, and evaluation of career training. Therefore, it can be concluded that for the respondents who participated in the study it did not make any difference whether or not they completed the program.

TABLE 66

COMPARISON OF ONE-WAY ANALYSIS OF VARIANCE F RATIOS OF COMMUNITY COLLEGE GRADUATES AND NONGRADUATES

Variable	N	Degrees of Freedom		F Ratio	F Value .05 Level of Significance
		Between	Within		
Salary	518	1	16	0.801	4.49
Job satisfaction	600	1	8	0.011	5.32
Future educational plans	533	1	12	0.023	4.76
Evaluation of career training	746	1	4	0.003	7.71

Community College Graduates and High School Vocational Completions

No difference between these two groups of respondents was significant at the .05 level in relation to job satisfaction and evaluation of career training. There was a significant difference in regard to yearly salary.

The mean yearly salary for the college graduates in all career programs was $8,268 compared to $5,962 for the high school students, or a difference of $2,305 per year. The standard deviation for the college students wzs $2,726, establishing a range of $5,542 to $10,994 for 68.2 percent of the graduates. The $1,700 standard deviation was smaller for the high school completions, establishing a range of $4,262 to $7,662.

Based upon the findings of this study, it can be concluded that those students who do go on to a career program in a community college will achieve higher salaries than students who just complete high school programs.

Slightly more than 25 percent of the community college students and nearly 42 percent of the high school students were employed in jobs not related to their career training. Only 37.7 percent of all the students surveyed reported that they frequently used their career skills and knowledge. A large majority of college graduates and high school students would select the same training program if they had it to do over again. Both high school and college counseling services received higher ratings than did job placement services. More than 50 percent of all respondents reported that they were continuing their education at a

senior college or university. Although nearly 75 percent of the college students were continuing their education in the same or in a highly related area, more than 60 percent of the high school students were not. College articulation and evening courses were selected more frequently than other areas by college students as needing revision. Career program completion rates differed markedly from college to college. Employment was the reason most often cited as the reason for noncompletion of a college career program.

Follow-Up System

There was no comprehensive, computerized data bank available in the Tennessee Community College System which lent itself to ready retrieval of career information. Basic and accurate information necessary to identify community college career students and their enrollment status was either not available at all or was fragmented among many different college record-keeping systems and was not readily available for follow-up study use.

No comprehensive state evaluation instruments were recognized or used for the follow-up of community college students. Individual colleges used locally constructed questionnaires for limited follow-up purposes in a narrow area.

Community college career education staff and faculty recognized the great need for follow-up studies but often had such limited administrative support they were unable to devote much time to such research. Generally, follow-up of career students was not considered a priority item by college staff assigned the primary task of research.

An automatic follow-up system, with the addition of a Career Student Information Bank, would be not only feasible, but an efficient and effective technique. While the system itself is relatively complex to design, minimum effort is required to maintain it. An automatic system provides accurate and rapid data collection and analysis which means that a follow-up study can be conducted in a minimum amount of time. Results are, therefore, usable in optimum time. An automated system also permits rapid comparison of collected data allowing standardized questionnaires to be analyzed for implications at various educational administrative levels, as well as permitting research in narrower areas for instructor or counselor use. Based upon the experience gained in the conduct of this study it can be concluded that an automated follow-up system for community colleges is not only feasible and economical but most desirable in terms of providing feedback for evaluation purposes.

VI. RECOMMENDATIONS

The recommendations of this study are related to an automated follow-up system and to the findings of the study in general. The following recommendations were a result of recording and analyzing the researcher's process of implementing a follow-up study of the 1973-1974 graduates and nongraduates of Tennessee's community colleges. These recommendations were not only based upon specific documented data, but also on the researcher's experience and day-to-day involvement as an administrator of community college career programs. Close association of the researcher with fellow directors and deans of career education,

state vocational staff personnel, career education faculty, students enrolled in career courses, and the community confirmed the need for a flexible, efficient and effective career student follow-up "system" rather than a follow-up "study" per se. This research, therefore, attempted to accomplish two ends: to establish the feasibility of a computerized follow-up system, and to demonstrate the results of such a follow-up study using a pilot model of an automated data collection system.

Recommendation One

That the Tennessee State Board of Regents for State and Community Colleges immediately establish a tentative requirement for all community colleges to maintain the necessary computerized data bank information to perform efficient and effective manual and/or automatic follow-up research (Appendix I).

Recommendation Two

That the State Board of Regents underwrite the costs of implementing a follow-up system and continue to provide the necessary resources required to provide an efficient and effective automated follow-up system.

Recommendation Three

Should another task force for automated follow-up studies desire to use the optical scan questionnaire designed and used in this study, it should be modified to delete questions found by the researcher to be

repetitious or of limited value for program and services evaluation and planning. Questions recommended to be deleted or added to the questionnaire are shown in Appendix H.

Recommendation Four

That the accepted null hypothesis that there were no significant differences between community college graduates and nongraduates in regard to salary, job satisfaction, future educational plans, and evaluation of career training be researched in depth as to why there were no significant differences.

Recommendation Five

That individual community colleges evaluate the data from this study pertaining to their institutions by comparing it to the means generated by all six colleges as a group.

Recommendation Six

That community college and high school counselors and instructors utilize the data from this study and similar follow-up studies and reports in advising students planning to enroll or enrolled in postsecondary career education programs.

Recommendation Seven

That the information contained in the related data percentage tables be studied further and analyzed for significant differences to provide high school and college administrators a more extensive evaluation upon which to base program modifications.

Recommendation Eight

That the same respondents be surveyed again in 1980 in respect to the variables investigated in the study in order that long range, as well as the short term, effects of career education programs might be studied.

Recommendation Nine

That a study be initiated to investigate variables not considered by the study, such as IQ, social economic status, race, ethnic background, and so forth. As an example, it might be appropriate to investigate variables related to student selection of career programs to determine if there are common characteristics which might contribute to the students' satisfaction or nonsatisfaction with their salary, job satisfaction, future educational plans, and evaluation of career programs and other services.

VII. IMPLICATIONS

The nearly identical responses of the community college graduates and nongraduates appeared to indicate that the career education courses, not the associate degree requirements, were the most important factor in the areas of personal economics and evaluation of community college training and services. The study results indicated that serious consideration should be given to relaxing degree requirements for academic courses and increasing the ratio of career courses, or to vastly increasing the flexibility of career programs in regard to

students' course selections. It appeared that career courses contributed as much to the satisfaction of the students as did the completing of the degree program. Further research should be done in this area.

Comparison and analysis of variables between colleges and between college career programs did not indicate enough difference to justify the effort of comparison except in the area of salary. Such comparisons have limited value in the improvement of career education. Comparison of an individual college career program to a similar program at another college would produce data of greater value to administrators and faculty for program modification.

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APPENDIXES

APPENDIX A

LETTER AND QUESTIONNAIRE SENT TO CAREER EDUCATION DEANS AND DIRECTORS TO SURVEY CURRENT FOLLOW-UP SYSTEMS USED BY TENNESSEE COMMUNITY COLLEGES

CLEVELAND STATE COMMUNITY COLLEGE
Cleveland, Tennessee 37311

Division of Career Education

(To Deans and Directors of Career Education,
Tennessee Community Colleges)

I am working on my dissertation on Follow-up Students in Community Colleges. I have enclosed a questionnaire. I would certainly appreciate it if you would fill it out and return it to me in the enclosed envelope. I don't believe I'm asking any questions that would embarrass any institution but you have my assurance that all information furnished will be confidential and no college will be identified. Data will be tabulated by our NCR computer and only the analysis will be used in this study. Please do not sign the questionnaire or identify your institution.

Since we have only 9 Directors of Community College Career Programs, the failure to return even one questionnaire could adversely effect the results of the survey. A copy of the final total survey results will be forwarded to you as soon as all questionnaires are received.

Thank you for your assistance.

Sincerely,

Matt H. Reiser, Director
Division of Career Education

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Enclosures

FOLLOW-UP SURVEY STATUS QUESTIONNAIRE

DIRECTORS OF TECHNICAL PROGRAMS

1. Does your institution have a written policy or procedure requiring periodic student follow-up? ____Yes ____No

2. Has your college ever performed an institutional wide follow-up survey of: graduates ____Yes ____No; dropouts ____Yes ____No

3. If YES for GRADUATES, what years? ____,____,____,____,____,____

4. If YES for DROPOUTS, what years? ____,____,____,____,____,____

5. Does the Career or Technical Education Division use a formal follow-up system for all career program graduates? ____Yes ____No

6. If No, do you use follow-up on certain career programs?
____Yes ____No

7. If you use follow-up surveys on selected career programs, which programs are they?

_____ _____ _____

_____ _____ _____

_____ _____ _____

8. Very few student follow-up surveys have been made in Tennessee community colleges, or in the other community colleges of other states. Will you evaluate the following statements by circling choice using SA=Strongly Agree, A=Agree, O=No Opinion, D=Disagree, SD=Strongly Disagree.

   A. Follow-up studies of graduates are of little value in improving career programs. SA A O D SD

   B. Construction of a good follow-up questionnaire is difficult. SA A O D SD

   C. Follow-up is important but there is not enough time or administrative help to do a good job. SA A O D SD

   D. All community colleges should do a comprehensive follow-up of all career students each year. SA A O D SD

E. From an administrative standpoint, the follow-up studies should be done only when there is a problem with a specific program. SA A O D SD

F. If an automated student follow-up and analysis system were available, the information would be of great value in program development. SA A O D SD

G. Follow-up studies are a very reliable supplement to career program evaluation. SA A O D SD

H. A follow-up study would be of more value if all career and academic full-time college students were surveyed together. SA A O D SD

I. Students who drop out of school with some career training should be included in the follow-up survey. SA A O D SD

Please rank 1 through 8 in order of importance the factors you believe most important in career program improvement and modification.

(1 most important input, 8 least important input)

____ College policies

____ On-campus students' evaluation of programs

____ Follow-up studies of graduates

____ Follow-up studies of dropouts

____ Advisory committees recommendations

____ Curriculum and Academic Standards Committee recommendations

____ Technical career education faculty recommendations

____ Other, please state _____

APPENDIX B

COPY OF LETTER MAILED TO NATIONAL AND INDIVIDUAL STATE VOCATIONAL DIRECTORS AND COMMUNITY COLLEGE CHANCELLORS REQUESTING FOLLOW-UP INFORMATION

CLEVELAND STATE COMMUNITY COLLEGE
Cleveland, Tennessee 37311

Division of Career Education

(To all State Directors of Vocational/Career Education
and Community College Chancellors)

SUBJECT: Follow-Up Studies on Vocational/Career Technical Students
From Secondary and Post-Secondary Public Institutions

This college is presently working on a research project in cooperation with the Research Coordinating Unit at the University of Tennessee in Knoxville, Tennessee. We are attempting to develop an effective follow-up system of the post-secondary career education graduates in this state that will give us an indicator as to the effectiveness of our varied career education programs. The comprehensive community college system in the State of Tennessee is the most rapid growing of our post-secondary educational systems. It is imperative that we determine how well our vocational/technical educational studies are meeting the career needs of the individual graduates and those who left prior to graduation with a marketable skill.

We would appreciate the loan of student follow-up material utilized in your educational system to evaluate. We are specifically interested in follow-up survey forms, procedures, and any published results of follow-up studies that you may have produced either on a local or state wide scale.

If you can assist us in this important study, we would greatly appreciate it and will happily forward to you a comprehensive abstract on the final follow-up system.

Thank you very much for your consideration and assistance.

Sincerely,

Matt H. Reiser
Director of Career Education

ed

APPENDIX C

SELECTED EXTRACTS FROM LETTERS RECEIVED FROM NATIONAL AND STATE VOCATIONAL ADMINISTRATORS

Eighty-seven directors of career education at state and/or community college levels were sent a letter asking for information on their state follow-up systems. The following are extracts from letters received by the researcher during the month of June 1974.

Department of Education, State of Louisiana

> We are currently using only the required U.S. Office of Education report system but find it to be most inadequate. Consequently we have decided to move forward in the development of a realistic and detailed report which will be used for planning, evaluation, and accountability.

Maryland State Department of Education

> Maryland State Board for Community Colleges and this Division has designed an evaluation system of postsecondary occupation programs to follow up graduates of occupational programs. Our system will be operational in the near future.

State Department of Education, Commonwealth of Virginia

> We have not made provisions for a follow-up of post-high-school graduates. We are working on a follow-up of preparatory adult completions which should be complete next year.

Department of Education, State of Florida

> Laws of Florida require (as of September 1974) each district to establish and maintain follow-up services for all students graduating or leaving the public school system.

Department of Education, Commonwealth of Pennsylvania

> We have an excellent computerized system of follow-up we call Vocational Education Management Information System (VEMIS).

Office of the Chancellor, California Community Colleges

> We have 69 community college districts, about 100 colleges, in California. Our basic problem is to generate common accurate data at the state level. [We used a system] called Project SAM as our initial statewide effort to improve

follow-up and reporting practices. This project was enthusiastically received and we will be implementing the new system in the community colleges during the coming year.

State Department of Education, The University of the State of New York

We recently implemented in New York State a follow-up system to evaluate postsecondary programs. The Reporting and Evaluation System for Occupational Education (RESOE) is part of a total management information system which has been designed to assist all persons at the local, state, and federal levels with the tools to improve the quality and effectiveness of occupational education.

State Board for Technical and Comprehensive Education, South Carolina

We are in the process of developing a survey which could provide more useful and relevant data.

Department of Education, State of New Jersey

The Vocational Division of the State Department of Education is presently developing a complete program which will do follow-up on a statewide basis.

Oklahoma State Department of Vocational and Technical Education

We recently did a Follow-Up Study of Graduates of our students in Oklahoma using a student accounting system.

Department of Education, The State of Wyoming

We are redirecting and renovating our system.

North Carolina State Board of Education

We attempted a statewide follow-up of students from the state level about eight years ago. We had such poor response that this was never attempted again.

Connecticut State Department of Education

One hundred and seventy-one Connecticut schools, colleges, and other educational institutions' graduates were surveyed from eight vocational fields; 15,070 high school graduates and 3,057 postsecondary graduates were sent follow-up questionnaires with 10,471 returns (58% return).

Vocational-Technical Education, Idaho State University

> Idaho State University is designing a unique follow-up system for our area vocational school at the State University. It is still in the planning stage.

Vocational Education Coordinating Council for Occupational Education, Washington State

> A number of [follow-up] projects have been conducted in our state and systems have been established as a result of these explorations. We have an on-going study at Cashmere, Washington.

State Board for Vocational Education, North Dakota

> We are presently conducting several in-depth follow-up studies through local educational agencies and RCU office.

Kansas State Department of Education

> We are concerned with the need for elaborating the follow-up of students but have not at this time any further studies in this area.

Bureau of Vocational Education, Kentucky

> All Kentucky schools providing vocational programs are cooperating in an annual survey of former vocational students. This survey is very important to the improvement of vocational education in our state.

Texas Education Agency, Austin, Texas

> We are currently in the process of developing a follow-up system which will be implemented statewide. Unfortunately, follow-up programs in Texas have been the responsibility of the local educational institutions. In any case, a really good follow-up system has not been in effect. Hopefully, the study we now have in progress will rectify the situation in Texas.

APPENDIX D

LETTERS REQUESTING ASSISTANCE AND AUTHORIZATION IN PERFORMING FOLLOW-UP RESEARCH OF CAREER STUDENTS IN COMMUNITY COLLEGES

CLEVELAND STATE COMMUNITY COLLEGE
Cleveland, Tennessee 37311

Division of Career Education

June 19, 1974

Dr. Cecil C. Humphreys
Chancellor
State Board of Regents
1 Park Plaza
Nashville, TN 37203

Dear Dr. Humphreys:

Enclosed you will find a copy of a proposal related to Career Education in Tennessee's community colleges. This proposed study would be the first major follow-up effort among our community colleges to find out how effective are the many career programs we have at the nine comprehensive community colleges from the former student's viewpoint. I would appreciate it if you or your staff would review it and make suggestions for improvement.

A survey of all 50 states has indicated that most states are trying to establish an efficient and effective technique for recovery and analysis of solicited data from former vocational and career students. Three of these states, California, New York, and Minnesota, are well advanced in the establishment of an automative system of career student follow-up. With the exception of three states, departments of Vocational/Technical Education are promoting revision or the establishment of vocational follow-up systems for post-secondary career training.

The objectives of the study are briefly to provide follow-up data on former career education students and to investigate the feasibility of establishing a statewide automated, comprehensive, follow-up system for community colleges career students.

Should you or your staff desire to discuss this project with me, I would be happy to visit you.

Sincerely,

Matt H. Reiser
Director of Career Education

ed

Enclosure

The State University
and Community College System of Tennessee
1 Park Plaza • Nashville, Tennessee 37203

June 27, 1974

Mr. Matt H. Reiser
Director of Career Education
Cleveland State Community College
Cleveland, Tennessee 37311

Dear Mr. Reiser:

A copy of your proposal prepared as a part of your doctoral studies has been received. I am asking Dr. Wray Buchanan, Vice Chancellor of Continuing Education and Public Information, and others in our office to review it and pass on to you any thoughts that they may have about this proposal.

I am sure that our people will find this interesting and that this study can be of real help in our career education programs in Tennessee.

Sincerely yours,

C. C. Humphreys,
Chancellor

CCH:bn

cc: Dr. Wray Buchanan

CLEVELAND STATE COMMUNITY COLLEGE
Cleveland, Tennessee 37311

Division of Career Education

August 8, 1974

Dr. Cuyler Dunbar, Chairman
Community College Presidents' Council
Roane State Community College
Harriman, Tennessee 37748

Dear Dr. Dunbar:

I have submitted a proposal to my doctorial committee at the University of Tennessee relative to a follow-up study of Tennessee community colleges career educational graduates and non-graduates. Enclosed you will find a copy of my basic proposal. I am working on this study in conjunction with the Tennessee Research Coordinating Unit located at the University of Tennessee in Knoxville.

During the last five years that I have been the Director of Career Education at Cleveland State Community College, I have encountered considerable difficulty in establishing a follow-up system for our career graduates. A follow-up study of all career graduates is required by federal and state legislation. Contacting the other directors I performed an informal survey to indicate the status of the follow-up systems in our Tennessee community colleges. I have enclosed a copy of the results of this survey. I have also attached to the proposal a copy of the questionnaire which was approved by the Research Coordinating Unit and my doctorial committee for use in this project.

I have contacted the directors of Vocational/Education in all of our 50 states and the commissioner or chancellor of each of the community college's systems in the United States. The response from each of these states has been extremely gratifying, producing approximately 100 pounds of material relative to follow-up of career students. Most of the states were actively engaged in producing a community college follow-up instrument which could be automated in order to simplify the retrieval of information from former students.

A copy of this follow-up study was submitted to the Tennessee State Board of Regents, Tennessee Higher Education Commission, State Advisory Council for Vocational/Technical Education and the Director of Technical Education in the State of Tennessee. All have suggested minor changes in the collection system which has been incorporated into this proposal. Each organization has endorsed the project.

Since this questionnaire should generate a considerable amount of information which may be of great use by the individual institution, each college participant will be furnished the raw data plus a computer analysis of the variables using the University of Tennessee's Statistical Package for Social Studies (SPSS).

We at this institution hope that the results of this study will develop an automative follow-up system for career students which would require the minimum amount of administrative effort.

Inorder to make this project comprehensive as well as successful, I will need the assistance of each of the community colleges. I would appreciate an opportunity to present a brief summary of this proposal to the Presidents' Council on the evening of August 14 or any time Thursday, August 15. I will have available a copy of the total proposal plus related literature upon which the study will be based for each of the college presidents. I personally believe this type of survey will be of great value to our individual institutions in the State of Tennessee and would greatly appreciate any assistance you could offer me.

Sincerely,

Matt H. Reiser
Director of Career Education

ed

Enclosures

cc: Dr. D. F. Adkisson

CLEVELAND STATE COMMUNITY COLLEGE
Cleveland, Tennessee 37311

Division of Career Education

August 22, 1974

(To Deans and Directors of Tennessee Community Colleges)

During the last five years I have worked at Cleveland State Community College, I found one of my most difficult task was establishing a workable follow-up procedure on career/technical students. Producing data each year for the State Department for Vocational Education's Office of Education report was a time consuming and often inaccurate method of reporting. During the last several years we have investigated systems used in other states. Unfortunately, of the 50 states that we have contacted there was little information relative to a follow-up of community college career students though several states had rather sophisticated systems for the follow-up of high school vocational students. One criteria that I feel is important to a good follow-up system is that is should require the minimum amount of administrative effort to follow-up and analyze the resulting data. Three states, California, Pennsylvania, and New York have developed completely automated community college follow-up systems which seems to meet this criteria.

This year I was requested by my doctorial committee at the University of Tennessee in Knoxville to produce a dissertation relative to former career students follow-up. I have contacted the State Advisory Council, the Tennessee Higher Education Commission, and the Board of Regents relative to the scope and type of information we should consider. I also contacted the Directors of Career/Technical Education in our Tennessee community colleges relative to the present status of Follow-Up of Career Students as well as opinions on the value of such a follow-up. I am enclosing a copy of the summation.

On the 15th of August I presented by request to each of the community college presidents for assistance in collecting data (names, addresses, and majors) of career students. Each president appointed a representative from his community college to work with me to implement a state wide study of former community college career students. I am extremely pleased that you were selected to assist me in this project.

I have attached a copy of the basic questionnaire that has been designed and printed in the format necessary for rapid optical scan, completely eliminating the need for tallying individual responses. The follow-up data generated by the optical scanning system will be feed to the

University of Tennessee's IBM computer where it will be analyzed using the Statistical Program for Social Science. This is a very flexible program and will allow us to compare all variables with all fixed values and variables with other variables. I would like to refer you to the enclosed matrix indicating the areas that will be compared for the composite study.

The questionnaires mailed out to the colleges former career students will be coded in such a manner that the raw data can be sent to the individual institution for any special interest analysis desired by that institution. The purpose of my state-wide study is to look at the community colleges as a system. I am sure, and our presidents agreed, that a great deal of this data would be valuable to our individual institutions.

Basically I need data about two groups of students from your institution. These are:

1. The names, addresses, and majors of each of your career/technical education students who graduated from career programs during the years 1973 and 1974. I am defining these career educational students in a broad sense. The enclosed proof copy of the career programs could serve as a guide as to the type of programs. Graduates is defined as those students who have completed an Associate of Science Degree Program or a college level certificate program of approximately one year in duration where some type of formal award was used to recognize a level of completion.

2. The second student group relating to the dropouts will be more difficult to identify but should give us data well worth the extra effort. Many feel this is the most important area to investigate with the follow-up survey. I will need for the study the names, addresses, and majors of students accepted and enrolled in career educational programs between September 1971 and January 1974 who dropped out with out graduating.

Basically I need the following three items of information on both groups, the graduates and the dropouts.

1. The students' names

2. The students' last known addresses

3. The students' program majors prior to dropout or at graduation

If you can furnish me this data I will mail each student a copy of the enclosed questionnaire with an introduction letter and a stamped return envelope. This data will be returned directly to the Research Coordinating Unit (RCU) at the University of Tennessee at Knoxville to be optically scanned and feed into the computer for analysis.

I stressed to your president the importance of receiving the names, addresses, and majors of former career students as soon as possible. I am sure that you recognize the difficulties in performing this rather extensive task of data collection on a state-wide basis. I would appreciate your expediting the information to me as soon as possible. I would suggest that you furnish me the data on your graduates during the last two years first since it probably will be the simpler of the two tasks.

I am sure that you will have further questions and individual problems relative to furnishing the data on the career graduates and dropouts and I would appreciate it if you would write or call me at Cleveland State Community College as soon as individual problems develope.

May I sincerely thank you for your help. I believe this study will be worthwhile and valuable to us in the community colleges. Many of us in the fast growing career educational field feel it is imperative that we be well informed as to the effectiveness of our programs. Again may I thank you. I am extremely pleased that your president selected you to work with me on this project.

Sincerely,

Matt H. Reiser, Director
Division of Career Education

ed

Enclosures

THE UNIVERSITY OF TENNESSEE
COLLEGE OF EDUCATION
KNOXVILLE, TENNESSEE 37916

(Copy)

TENNESSEE RESEARCH
COORDINATING UNIT FOR
VOCATIONAL EDUCATION
909 MOUNTCASTLE STREET
615-974-3338

November 19, 1974

Mr. Matt Reiser
Cleveland State Community College
Cleveland, Tennessee 37311

Dear Mr. Reiser:

I am enthused and excited about the "Followup Study and Analysis of Tennessee Community College Career Education Graduates and Non-Graduates for 1973-74" (Project Followup) which you are proposing.

As you know, we at the RCU are trying to put together a total follow-up system for all of occupational education here in Tennessee. We have developed the secondary level and area-vocational technical school sub-systems and are currently working on a followup system for technical institutes. The project you are proposing for community colleges would help complete the total system here in Tennessee.

There is no doubt that when all systems are merged, a tremendous amount of valuable information would be available to educational planners and developers here in the State of Tennessee.

The RCU will cooperate with you in any way possible as you proceed with the proposed project.

Sincerely,

Garry R. Bice
Director

GRB:et

APPENDIX E

HIGH SCHOOL OPTICAL SCAN QUESTIONNAIRE AND LETTER OF ENDORSEMENT FROM THE GOVERNOR OF THE STATE OF TENNESSEE

STATE OF TENNESSEE

RAY BLANTON
Governor

EXECUTIVE CHAMBER
Nashville 37219

Dear Friend:

It is my pleasure to invite you to participate in a follow-up program to get "feed back" for the State on the quality of the vocational and technical education it provided for you. In addition to giving you an opportunity to express your frank opinions about your school, your teachers, and your educational program, the information obtained from you will help us to improve the quality of vocational and technical education in the State. I hope you will not hesitate to donate a few minutes of your time for this worthwhile effort.

Let me also assure you that this information will be treated as confidential, and your name will not be revealed in any of the reports.

This program is being conducted by the Research Coordinating Unit of the Tennessee State Department of Education. It has been sponsored by the Tennessee Manpower Council with active support from the Department of Economic and Community Development and many other state and local agencies.

Good luck in your present endeavors, and we wish you a successful year and do appreciate your help on this.

Sincerely,

Ray Blanton

Ray Blanton

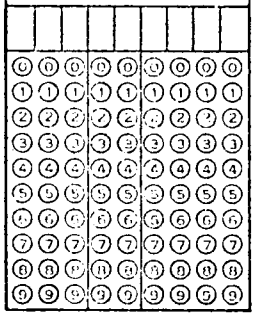
DIRECTIONS FOR MARKING ANSWERS

- Use black lead pencils (No. 2½ or softer).
- Make heavy black marks that fill circle completely.
- Erase clearly any answer you wish to change.
- Make no stray marks on this sheet.

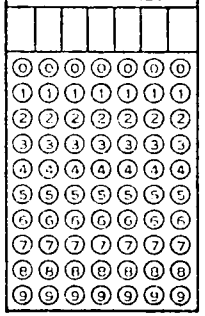
INCORRECT | CORRECT



SOCIAL SECURITY NO.



STUDENT I.D.



I. THIS SECTION FOR EVERYONE

1. Was this vocational program identified in the heavy box above your first, second, or third choice at the time you enrolled? (Mark one)

- First choice ○
- Second choice ○
- Third choice ○

If it was not your first choice, why didn't you enroll in the program you wanted?

- Courses were filled ○
- It was not offered at my school ○
- I didn't have the requirements ○
- Other (Please specify below) ○

_____

2. Were you ever placed on a waiting list to enroll in a vocational program of your choice?

- Yes ○
- No ○

3. Did you complete the vocational program identified in the box above?

- Yes ○
- No ○

If "No", please indicate the reason(s) for terminating the program before completion.

- Change of occupational objective ○
- Work on a job ○
- Financial reasons ○
- Marriage ○
- Dislike for the school ○
- Transfer to another school district ○
- Poor health ○

4. Are you planning to enroll for more vocational or technical education within the next two years?

- ○ Yes
- ○ No

If "Yes", please specify the field(s) in which you want further vocational education (Mark all that apply)

- ○ Vocational agriculture education
- ○ Distributive education
- ○ Health education
- ○ Home economics education
- ○ Office or business education
- ○ Technical education
- ○ Trade and industrial education

5. Please rate the following services of your school by marking one of the circles in each case.

Very Good	Average	Poor	
○	○	○	Vocational instruction
○	○	○	All other instruction
○	○	○	Voc. shop or laboratory
○	○	○	Guidance and counseling
○	○	○	Job placement

II. THIS SECTION FOR THOSE NOW WORKING ON A JOB.

6. After leaving school, how much time did you spend looking for your first job?

- ○ Had the job before leaving school
- ○ Looked for two weeks or less
- ○ Looked for three to four weeks
- ○ Looked for one to two months
- ○ Looked for more than two months

7. Who helped you get your first job? (Mark all that apply)

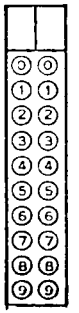
- ○ Vocational teacher
- ○ School job placement service.
- ○ Other school personnel
- ○ State employment agency
- ○ Private employment agency
- ○ Relatives and friends
- ○ Other (Please specify below)

_____

8. How many jobs - including the one you now have - have you had since leaving school?

- ○ One
- ○ Two
- ○ Three
- ○ Four
- ○ Five
- ○ Six or more

9. How many hours per week do you usually work on your present job? (Mark number of hours)

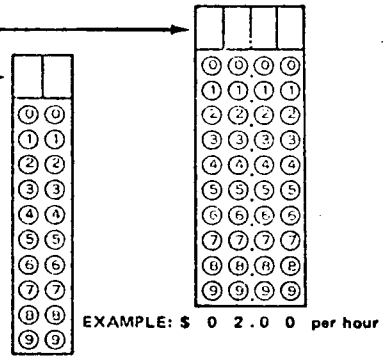


SECTION II Continued

10. What is the wage rate per hour of your present job excluding overtime? ——

Note: If you are paid weekly, bi-weekly or monthly, please divide your salary by the number of hours in your pay period.

11. How far is your place at work from your present residence? (Mark number of miles) ——



12. If you are currently working less than 35 hours per week, please mark the reason(s) for doing so.

- Cannot find full-time job ○
- Full-time work week less than 35 hours ○
- Temporary cut-back by the employer ○
- Enrolled in school or college ○
- Do not want full-time work ○
- Other (Please specify below) ○

_____

13. Which of the following statements best describes the relationship between your present job and the training program in question one? (Mark one)

- Job same for which trained ○
- Job highly related to the training ○
- Job only slightly related to the training ○
- Job not related to the training ○

14. Have you moved away from where you were trained?

- Yes ○
- No ○

15. How do you feel about your present job?

- Like it very much ○
- Like it somewhat ○
- Neither like nor dislike it ○
- Dislike it somewhat ○
- Dislike it very much ○

16. How often on your present job do you use the knowledge and skill acquired from your training?

- Frequently (use most of the time) ○
- Occasionally (use only some times) ○
- Seldom (use only rarely) ○
- Never (never use it) ○

III. THIS SECTION FOR EVERYONE

17. What is your present status? (Mark only one)

- ○ Employed
- ○ Not employed
- ○ Employed and attending school
- ○ Attending school or college

18. Why did you enroll in a vocational program?

- ○ To get a job
- ○ To upgrade my job skills
- ○ For a hobby
- ○ For other high school credit
- ○ Other (please specify below)

_____

IV. THIS SECTION FOR THOSE NOW ENROLLED IN SCHOOL OR COLLEGE

19. What is the type of institution in which you are presently enrolled? (Mark one)

- ○ Vocational high school
- ○ Public high school
- ○ Two year junior or community college
- ○ Public post-secondary technical institute
- ○ Four year college or university
- ○ Private vocational or business school
- ○ Area vocational school
- ○ Other

20. How related is your present educational program to the vocational course you took in high school?

- ○ Same field
- ○ Highly related
- ○ Only slightly related
- ○ Not related

V. THIS SECTION FOR THOSE NOT NOW WORKING

21. Are you looking for a job?

○ Yes ○ No

22. If "Yes" how long have you been looking?

- ○ Less than a month
- ○ More than one but less than two months
- ○ More than two months

23. What have you done most recently to look for a job? (Mark all that apply)

- ○ Checked with school placement service
- ○ Checked with public/private emp. agency
- ○ Checked directly with employers
- ○ Checked with friends or relatives
- ○ Placed or answered newspaper ads
- ○ Other

APPENDIX F

COMMUNITY COLLEGE OPTICAL SCAN QUESTIONNAIRE AND LETTER OF ENDORSEMENT FROM THE CHANCELLOR OF THE TENNESSEE STATE BOARD OF REGENTS

State Board of Regents
SBR
Tennessee

The State University
and Community College System of Tennessee
1 Park Plaza • Nashville, Tennessee 37203

Dear Friend:

You are cordially invited to participate in a very vital research project. The community colleges of the State Board of Regents System of Tennessee are undertaking a study to find out how you feel about the community college you attended, your teachers, and the educational program you experienced. This type of information can only be obtained from former students as yourself. I hope you will not hesitate to give us a few minutes of your time for this worthwhile and meaningful effort.

Let me assure you that this information will be treated as confidential and your name will not be revealed in any of the reports.

Good luck in your present endeavors.

Sincerely,

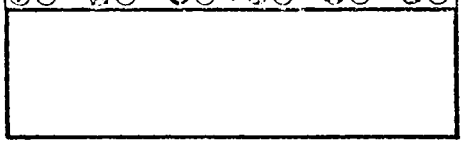
C.C. Humphreys
Chancellor

CCH:rds

DIRECTIONS FOR MARKING ANSWERS

- Use black lead pencils (No. 2½ or softer).
- Make heavy black marks that fill circle completely.
- Erase clearly any answer you wish to change.
- Make no stray marks on this sheet.

INCORRECT | CORRECT



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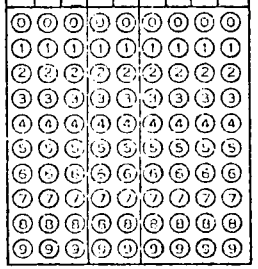

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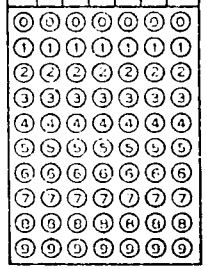


THIS SECTION FOR EVERYONE

1. Was this career program identified in the heavy box above your first, second, or third choice at the time you enrolled? (Mark one)
   - First choice ○
   - Second choice ○
   - Third choice ○

   If it was not your first choice, why didn't you enroll in the program you wanted?
   - Program filled ○
   - It was not offered at my school ○
   - Other ○

2. Were you ever placed on a waiting list to enroll in a career program of your choice?
   - Yes ○
   - No ○

3. Did you complete the career program in which you enrolled?
   - Yes ○
   - No ○

   If "No", please indicate the reason(s) for terminating the program before completion.
   - Change of career objective ○
   - Work on a job ○
   - Financial reasons ○
   - Marriage ○
   - Dislike for the program ○
   - Transfer to another program ○
   - Poor health ○

4. Are you planning to enroll for more career or technical education within the next two years?
   - ○ Yes
   - ○ No

   If "Yes", please specify where you expect to take that training. (Mark all that apply)
   - ○ The same community college
   - ○ Another community college
   - ○ 4-year institution (public)
   - ○ Area vocational technical school
   - ○ Technical institute
   - ○ Commercial school
   - ○ Other

5. Please rate the following services of your school by marking one of the circles in each case.

Very Good	Average	Poor	
○	○	○	Career instruction
○	○	○	All other instruction
○	○	○	Instructor advisement
○	○	○	Counseling service
○	○	○	Job placement

THIS SECTION FOR THOSE NOW WORKING ON A JOB

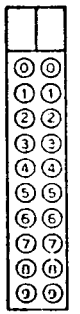
6. After leaving school, how much time did you spend looking for your first job?
   - ○ Had the job before leaving school
   - ○ Looked for two weeks or less
   - ○ Looked for three to four weeks
   - ○ Looked for one to two months
   - ○ Looked for more than two months

7. Who helped you get your first job? (Mark all that apply)
   - ○ Career instructor
   - ○ School job placement service
   - ○ Other school personnel
   - ○ State employment agency
   - ○ Private employment agency
   - ○ Relatives and friends
   - ○ Other

8. How many jobs–including the one you now have–have you had since leaving school?
   - ○ One
   - ○ Two
   - ○ Three
   - ○ Four
   - ○ Five
   - ○ Six or more

9. Please indicate how you are paid:
   - ○ Hourly
   - ○ Weekly
   - ○ Bi-weekly (check each 2 wk.)
   - ○ Monthly

10. How many hours <u>per week</u> do you usually work on your present job? (Mark number of hours)



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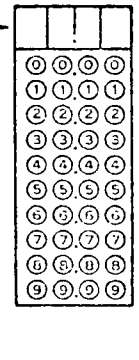
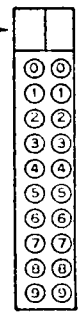
Continued

11. What is the wage rate per hour of your present job excluding overtime?



12. How far is your place at work from your present residence? (Mark number of miles)



13. If you are currently working less than 35 hours per week, please mark the reason(s) for doing so.

- Cannot find full-time job ○
- Full-time work week less than 35 hours ○
- Temporary cut-back by the employer ○
- Enrolled in school or college ○
- Do not want full-time work ○
- Other ○

14. Which of the following statements best describes the relationship between your present job and your career training? (Mark one)

- Job same for which trained ○
- Job highly related to the training ○
- Job only slightly related to the training ○
- Job not related to the training ○

15. Did you have to relocate to obtain employment?

- Yes ○
- No ○

16. How do you feel about your present job?

- Like it very much ○
- Like it somewhat ○
- Neither like nor dislike it ○
- Dislike it somewhat ○
- Dislike it very much ○

17. How often on your present job do you use the knowledge and skill acquired from your training?

- Frequently (use most of the time) ○
- Occasionally (use only some times) ○
- Seldom (use only rarely) ○
- Never (never use it) ○

THIS SECTION FOR THOSE NOW ENROLLED IN SCHOOL OR COLLEGE

18. What is the type of institution in which you are presently enrolled? (Mark one)

- ○ The same community college
- ○ Another community college
- ○ 4-year institution (public)
- ○ Area vocational technical school
- ○ Technical institution
- ○ Commercial school
- ○ Other

19. How related is your present educational program to the career program in which you originally enrolled?

- ○ Same field
- ○ Highly related
- ○ Only slightly related
- ○ Not related

THIS SECTION FOR EVERYONE

20. If you had it to do over, would you select the same career program?

- ○ Yes
- ○ No
- ○ Undecided

21. If revisions need to be made in career program, in which areas are these needs greatest?

- ○ Course content
- ○ Program requirements
- ○ Equipment
- ○ Facilities and building
- ○ Transferability of courses
- ○ Variety of courses
- ○ Availability of evening courses
- ○ School policy and regulation
- ○ Financial aid

THIS SECTION FOR THOSE NOT NOW WORKING

22. Are you looking for a job?

○ Yes ○ No

23. If "Yes" how long have you been looking?

- ○ Less than a month
- ○ More than one but less than two months
- ○ More than two months

24. What have you done most recently to look for a job? (Mark all that apply)

- ○ Checked with school placement service
- ○ Checked with public/private emp. agency
- ○ Checked directly with employers
- ○ Checked with friends or relatives
- ○ Placed or answered newspaper ads
- ○ Other

APPENDIX G

SELECTED CAREER EDUCATION PROGRAM CODES ESTABLISHED BY TENNESSEE HIGHER EDUCATION COMMISSION (THEC)

TABLE 67

TENNESSEE HIGHER EDUCATION COMMISSION (THEC) SELECTED CODES
RELATED TO COMMUNITY COLLEGE CAREER EDUCATION ASSOCIATE
OF SCIENCE DEGREE PROGRAMS AND OTHER AWARDS
LESS THAN A BACCALAUREATE DEGREE

THEC Code Number	College Program Career Area	Individual Group Number	Consolidated Group Number	Equivalent High School Program Code
05010	Business	1	1	04
05050	Business	2	1	04
05060	Business	3	1	04
08381	Public Service	4	2	NA
49991	Biology	5	3	NA
49010	Biology	6	3	NA
50010	Business & Commerce	7	4	04
50020	Accounting	8	4	04
50040	Marketing	9	4	04
50042	Marketing	10	4	04
50047	Marketing	11	4	04
50050	Secretary	12	5	14
50051	Secretary	13	5	14
50052	Secretary	14	5	14
50100	Management	15	4	04
51010	Data Processing	16	6	NA
51012	Data Processing	17	6	NA
51021	Data Processing	18	6	NA
52050	Medical Lab Technology	19	7	07
52070	X-Ray Technology	20	8	07
52080	Nursing (A. S.)	21	9	07
52160	Mental Health	22	10	07
52993	Other Medical	23	11	07
53010	Mechanical Engineering Technology	24	12	16
53040	Architectural Technology	25	13	17
53043	Architectural Technology	26	13	17
53050	Chemical Technology	27	15	16
53090	Civil Engineering Technology	28	15	16
53091	Civil Engineering Technology	29	15	16
53100	Electrical Technology	30	16	16
53110	Electronics Technology	31	16	16
53120	Industrial Technology	32	17	16
53123	Industrial Technology	33	17	16
53124	Industrial Technology	34	17	16
53150	Mechanical Technology	35	12	16
53160	Nuclear Technician	36	17	16
53170	Architectural Technology	37	13	17
53990	Other Technology	38	14	NA
54020	Agricultural Technology	39	18	01
54021	Agricultural Technology	40	18	01

TABLE 67 (continued)

THEC Code Number	College Program Career Area	Individual Group Number	Consolidated Group Number	Equivalent High School Program Code
54023	Agricultural Technology	41	18	01
54040	Food Service Technology	42	19	09
54081	Public Service - Health	43	2	NA
55030	Public Service - Education	44	2	NA
55040	Public Service - Foods	45	2	NA
55050	Law Enforcement	46	20	NA
55991	Child Care	47	19	09

APPENDIX H

AUTOMATED DATA COLLECTION SYSTEM RECOMMENDED BY RESEARCHER

A RECOMMENDED AUTOMATED DATA COLLECTION AND ANALYSIS SYSTEM FOR TENNESSEE COMMUNITY COLLEGES

The automated follow-up system must obtain two immediate objectives for the system to achieve maximum flexibility and effectiveness for its users. These are:

1. The establishment and maintenance of a flexible computerized record-keeping system that includes files of data on occupational education students and programs.

2. The generation of standardized reports and analysis based upon student data for use by the Administrators of Vocational/Technical Career programs, and State Educational and Legislative Agencies.

GUIDELINES FOR AUTOMATIC FOLLOW-UP SYSTEM

1. System must be adaptable to all Tennessee Community Colleges and career programs offered by the college.

2. Operation of system must be sufficiently simple and lend itself to automatic electronic data processing and optical scanning.

3. System must be a continuous process.

4. System must provide necessary information for Vocational Education enrollment and follow-up forms with high level of accuracy in an expeditious manner.

5. System must provide pertinent evaluation and planning information to occupational administrators and faculty.

6. Data collection instruments must be easily readable, require a minimum of time for completion and be in a format that is compatible to electronic data processing.

7. System should provide for long-term as well as short-term follow-up.

8. System should require a minimum of effort for colleges' staff and administrators.

9. System should automatically analyze variables for use at different levels of administrative and faculty educational structure.

10. System should adapt with minimum difficulty to changes in State and Federal reporting requirements.

11. System should provide career information useful to colleges' career education counselors, placement officials, and students.

ASSUMPTIONS AND INFERENCES

1. Colleges need a system such as proposed.
   Inference: Colleges will be committed to participation and support of the project by the Tennessee Community Colleges' Governing Body.

2. No system for identifying student majors can be 100% accurate.
   Inference: Project should determine what accuracy is reasonable and model should assure that accuracy.

3. Difficulty in student major identification decreases the longer the student stays in college.
   Inference: Target accuracy rates should vary with groups involved.

4. No sizable follow-up procedure can produce 100% response.
   Inference: Project should determine what response rates are acceptable and under what circumstances.

5. Difficulty in contacting former students increases the longer they are away from college.
   Inference: Target response rates should be expected to vary with groups involved.

6. A workable system requires input from those "close to the scene."
   Inference: Occupational faculty, department or division chairmen, and counselors should be involved in the system.

7. Follow-up information about students who have completed considerable work at the college is more useful in program evaluating and planning than that about students who have completed little or no work.
   Inference: While short-tenure students should certainly not be ignored, more effort should be expended on the follow-up of long-tenure students.

8. Student attitude is an important factor in follow-up response rates.
   Inference: Efforts should be made to prepare students for follow-up requests, preferably before they leave the college.

To meet these guidelines and assumptions, the model was envisioned as having two components: (1) the Student Accounting Component, in which career students are operationally defined and classified according to criteria which are both adequate and simple to apply, and (2) the Student Follow-up Component, in which career students no longer in college are categorized and procedures recommended for obtaining information about them, with details of procedure depending on the category.

STUDENT ACCOUNTING COMPONENT

In the Student Accounting Component, career courses are classified and student majors are defined according to the career courses in which they enroll.

A career course is defined as one which is:

1. intended to develop skills and related knowledge needed for job performance;
2. part of the course sequence of an occupational program; and,
3. designed primarily for job preparation and/or job upgrading or updating and not for general education purposes.

PREPARATION OF STUDENTS FOR FOLLOW-UP

Researchers who have performed follow-up studies consistently report that preparation of students while still in college provides measurable and significant improvement in (1) response rate to mailed questionnaires, and (2) completeness and accuracy of responses. Efforts

are apparently especially needed for young students and for non-completors.

It is possible to obtain considerable "follow-up" information before the student leaves college. Students who already have jobs lined up can provide information and thus be excluded from later mailings for that purpose.

DETERMINE SAMPLE SIZE

The next step in the study procedure is the determination of the number of students to be contacted -- whether all or only part of them. Several factors must be weighed in arriving at a decision regarding sampling: (1) the overall scope of the study; (2) resources available; (3) the degree of generalization envisioned; and (4) the number and variety of majors to be included.

PREPARE TARGET LIST OF NAMES

Categories of career students should be established identifying the career students within each community college. This information should be as current as possible. Storage of this data by electronic means allows an extensive, as well as a limited, follow-up study to be activated with a minimum of administrative effort in the shortest possible time. Data on career students should be able to be "called out" from master files in any combination of the following categories.

1. Name and Current Address
2. Social Security Number and Unique Student Identification Number
3. Career Training Program or Cluster of Career Courses
4. Number of Credit Hours of Career/Technical Courses and G.P.A.

5. Number of Credit Hours of Related Career Program Courses and G.P.A.

6. Age, Sex, Race

7. Status:

   a. Graduated Associate of Science
   b. Graduated Certificate
   c. Non-Graduate (All Career Course Requirements)
   d. Drop-out (No Attendance for Two Quarters and G.P.A. below 2.0)

SELECT OR CONSTRUCT INSTRUMENTS

At most community colleges, mailed questionnaires will be the most feasible vehicle for obtaining data from former students. Other possibilities are telephone or in-person interviews, or combinations of any of the three. Following are some suggestions, gleaned from the literature, for preparing instruments and conducting a follow-up study by mail:

1. Design the instrument to require the minimum possible time for respondent to complete and optical scan to tabulate.

2. Ask simple questions using clear format.

3. Phrase questions to avoid academically or socially acceptable responses.

4. Sequence questions to conform with respondent's way of thinking.

5. Plan method of automatically tabulating and analyzing results during questionnaire preparation.

6. Make directions brief but complete.

7. Don't ask a question unless it clearly relates to the needs of the study.

8. Endorsement of the questionnaire by someone held in high esteem by the recipient is desirable.

9. Test the questionnaire for readability on a representative group before its finalization.

10. Enclose an accompanying letter briefly explaining the project.

11. Enclose a self-addressed postage paid return envelope.

PREPARE TIME SCHEDULE

After the target list of names is prepared and methods and instruments are decided upon, it is suggested that a time schedule for the various steps in the study be established. Deadline dates can be set in accordance with the following time estimates.

	Activity	Days
1.	Mail questionnaire.	1
2.	Mail letter to non-respondents asking for completion and return of the questionnaire.	7
3.	Mail letter to non-respondents asking that the enclosed questionnaire be completed and returned	14
4.	Collect optical scan responses.	20
5.	Build master file on tapes, dispacks, or punch cards	1
6.	Analyze data.	30 - 40
7.	Prepare and disseminate reports	60

COLLECT DATA

Using the target list of names of former career students in the categories desired, the computer is used to address envelopes which are stuffed with the optical scan questionnaire, special instructions, letter of endorsement by suitable official and return stamped self-addressed envelope. Student returns are substracted from a second and third mailing to target population.

Returned questionnaires are manually inspected for use of proper marking technique as required by the optical scan machine. Inspector may complete a substitute questionnaire using proper marking techniques

as long as answers are the same.

Questionnaires are optically scanned and data stored in a master data bank until a cut-off time is reached for receipt of questionnaire.

ANALYZE DATA

1. What does the data tell us about our program(s) that we didn't already know?
2. What should be done as a result of the responses?

There are several possible approaches to analyzing the data. Again, the specific purposes of the study, its scope, limitations on time and resources are factors which must be considered. A simple tally may suffice one time, while a sophisticated analysis such as the SPSS program may be appropriate another time. A thorough analysis in one office may be best at one time, while sending relevant questionnaires to specific program heads for their analysis may be more appropriate at another.

DISSEMINATE FINDINGS

As in other phases of follow-up, there are no hard and fast rules about dissemination of findings -- other than data in a desk drawer or reports on a shelf are not very useful in evaluating or planning programs. Persons in a position to make or influence program modifications, the instructional staff, counselors, and the students, should know the results of the study. For some, formal reports are preferred; for others, brief memoranda; for still others a simple presentation of the data in tabular or graphical form.

RECOMMENDED CHANGES IN COMMUNITY COLLEGE OPTICAL SCAN QUESTIONNAIRE USED IN THE STUDY

The researcher suggests the following changes be made in the optical scan questionnaire.

Delete the following questions

Question 1a	"Was this career program identified above in the heavy box your first, second, or third choice? If it was not your first choice, why didn't you enroll in the program you wanted?"
Question 1b	"Were you ever placed upon a waiting list to enroll in a career program of your choice?"
Question 3	"Did you complete the career program in which you enrolled?"
Question 6	"After leaving school, how much time did you spend look for your first job?"
Question 8	"How many jobs, including the one you now have, have you had since leaving school?"
Question 9	"Please indicate how often you are paid?"
Question 10	"How many hours do you usually work per week on your present job?"
Question 12	"How far is your place of work from your present residence?"
Question 21	"If revisions need to be made in your career program, in which area are these needs the greatest?"
Question 22	"Are you looking for a job?"
Question 23	"If 'yes', how long have you been looking?"
Question 24	"What have you done recently to look for a job?"

The following questions would be included in the questionnaire to replace the deleted questions listed above.

Add the following questions

Question 1 "If the career program identified in the heavy box above is not correct, write in the correct title."

Question 2 "Did you graduate with an AS or AA degree from the program?"

Question 3 "If you did not graduate, did you complete all required career/technical courses?"

NOTE: Question block number two, student I.D. (number), should be modified by deleting the center column and using spaces 1 and 3 for question 6 and spaces 5 to 7 for question 8.

Question 6 "How many quarter hours of 'career' courses have you satisfactorily completed?"

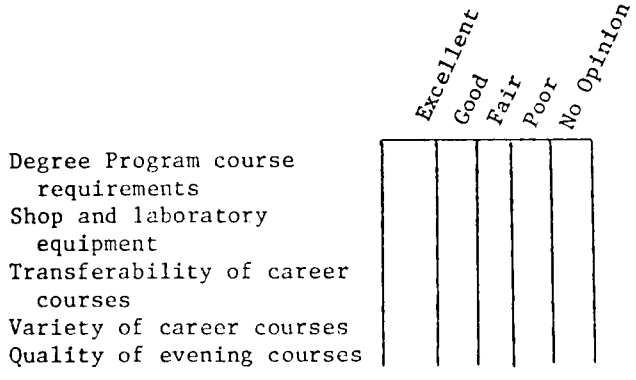
Question 8 "How many total quarter hours of college instruction do you have?"

Question 9 "If you graduated with a degree from a community college, how many additional quarter hours have you earned?"

Question 10 "If you have not graduated from a community college, do you plan to graduate from a community college?"

Question 12 "If you have completed at least nine quarter hours of Continuing Education (evening) career courses, please compare them to your previous day-time classes. (1) much better, (2) better, (3) about the same, (4) poorer, (5) much poorer."

Question 21 "Please evaluate the following educational services:



Question 22 "Since leaving school, have you received certification, registry, or a professional license related to your career training? Yes___ No___ NA____
TYPE_____."

Question 23 "Is the address in the heavy block correct? If it is not, please correct in the space below."

Question 24 "We appreciate your time and effort in completing this questionnaire; the information will help us in improving this community college. We would like to stay in touch with you if this is acceptable? Yes ___ No___."

APPENDIX I

MINIMUM REQUIREMENTS OF COMMUNITY COLLEGE CAREER STUDENTS' INFORMATION DATA BANK

MINIMUM DATA BANK INFORMATION FILE ON ALL
COMMUNITY COLLEGE CAREER STUDENTS

1. Reporting Community College's THEC Code Number
2. Student's Name
3. Permanent Address (include county)
4. Telephone Number (include area code)
5. Social Security Number
6. Birthdate
7. Sex
8. Initial College Major Field of Study
9. Current College Major Field of Study
10. Total Cumulative Courses by THEC Course Code, and Current Quarter Enrollment (quarterly updated)
11. Identifiers for the following:
    (a) disadvantaged (economic/financial/social)
    (b) handicapped
    (c) minority group by race
    (d) year of Associate Degree and Major Area of Study
    (e) dates certified registered/licenses (if applicable)
    (f) year and type of college certificate award
    (g) cooperative work experience (quarter hours)
    (h) veteran
12. Credit hours completed successfully (cumulative, quarterly updated)
13. Exit Interview Date
14. Cumulative Educational Institution Identification Code (include HS)
15. Follow-up Survey Dates (response/no response)
16. Employment: Full, part-time, or unemployed
17. Employment—related, or not related, to Career Training
18. Driver's License Number

APPENDIX J

TENNESSEE COMMUNITY COLLEGES
CAREER EDUCATION PROGRAMS

Career Education Programs
Tennessee Community Colleges

KEY

2=2 Year Certificate Program
1=1 Year Certificate
S= Special Less Than 1 Year

	Cleveland State Community College	Columbia State Community College	Dyersburg State Community College	Jackson State Community College	Motlow State Community College	Roane State Community College	Shelby State Community College	Volunteer State Community College	Walters State Community College	Chattanooga State Community College
I. BUSINESS										
1. Accounting	2	2	s		2,1,s	2	2	2	2	2,1
2. Advertising	s		s							2,1
3. Agriculture		2	2	2					2	
4. Banking/Credit			s				2			
5. Business (Administration)	2	2	2			2	2	2	2	2
6. Business (Education)	2					2	2	2		
7. Business (General)	2	2	2	2	2	2	2	2	2	
8. Clerical	2	1	2	2,1	2,1,s	2,1	1	2,1	1	1
9. Commerce/Transportation							2,1			2,1
10. Communication (Media)	2							2		
11. Computer Science				2	2,s			1		2
12. Data Processing	2,1	2,1	2			2	s		1	2,1
13. Journalism	2									
14. Legal Assistant	2		2							
15. Legal Secretary	2		2				2	s		2
16. Management (Business)							2	2,1	2	2,1
17. Management (Food Service)	s					2	2	1	1	
18. Management (Hospital)	s						2			2,1
19. Management (Industrial)	2	2			2,1,s	2	2		2	2,1
20. Management (Motel)						2				2,1
21. Management (Police)							2			
22. Marketing (Merchandising)	s	2	2	2	2,1,s		2,1	2,1		
23. Medical Secretary	2						2	s		2
24. Real Estate	s	1	s		1,s			s		s
25. Retailing (Sales)	s	2	s		1,s		1	s		2,1
26. Secretarial Science	2	2	2	2,1	2,1,s	2	2,1	2,1	2,1	2,1
27. Life Insurance	s	s					s			2
II. HEALTH CARE										
1. Animal Hospital Technology		2								
2. Behavioral Training Technician							2	2		
3. Dental Hygienist							s			2
4. Dental Laboratory Technician	2									
5. Emergency Medical Service							2,1			
6. Food Service							2,1	2,1		
7. Medical Records Technician						2		2		
8. Medical Laboratory Technician	2	2		2			2			
9. Nursing (AD)	2	2			2			2	2	2
10. Orthopedic Technician										2
11. Physical Therapy Technician							2	2		
12. Prosthetics Technician							2			
13. Radiological Technician		2		2			2		2	2
14. Respiratory Therapist	2,1			2				1		

Tennessee Community Colleges,
Career Education Programs

KEY

2=2 Year Certificate Program
1=1 Year Certificate Program
S= Special Less Than 1 Year

	Cleveland State Community College	Columbia State Community College	Dyersburg State Community College	Jackson State Community College	Motlow State Community College	Roane State Community College	Shelby State Community College	Volunteer State Community College	Walters State Community College	Chattanooga State Community College
III. ENGINEERING TECHNICIANS										
1. Architecture Engineering										
2. Biomedical Engineering							2			2
3. Chemical Engineering						2				
4. Civil Engineering		2				2				2
5. Computer Engineering										
6. Electrical Engineering						2				2
7. Electromechanical Engineering										
8. Electronic Engineering		2,1								2
9. Environmental Engineering										
10. Industrial Engineering				2						
11. Instrumentation Engineering										s
12. Mechanical Engineering						2				2
13. Pre-Engineering	2	2	2					2		
14. Surveying Engineering	s							2		s
IV. INDUSTRIAL TECHNICIANS										
1. Aero Space (Aviation)	2				2			s		2
2. Agriculture (Farm/Ranch)		2		2					2	
3. Architecture Building Construction	2	2,1							2	s
4. Automotive Technician	1									
5. Chemical Technician							s			2
6. Drafting Technician	s	1					s			s
7. Electrical Technician	2									
8. Electronic Technician	2		2			2,1				2,1
9. Graphic Arts Technician	2,1						2			
10. Industrial Technician	2								2	
11. Mechanical Technician	2									
12. Metals Technician							s			
13. Nuclear Technician										2
14. Photographic Technician	2						s			
15. Police Science Technician							2			
16. Safety Technician	s						2			
V. HUMAN SERVICES										
1. Child Care							2,1	1	2	2,1
2. Corrections Rehabilitation							2	s	2	
3. Courts Personnel							2			
4. Environmental								2	2	
5. Fire Service						2	2		2	2
6. Law Enforcement (Criminal Justice)	2,1		2,1			1	2		2	2
7. Mental Health							s	2,1	2	
8. Teacher Assistant	1						2	1	1	
9. Social Service								2,1		
10. Vocational-Technical Education						2				
11. Recreation		2				2	s		2	2,1

VITA

Matt Harold (von) Reiser, son of Master Sargeant Harry Reiser, United States Army, and Ada Elizabeth (Cunningham) Reiser, was born at Camp Grant, Rockford, Illinois, in 1920.

He attended elementary schools in the northeast United States and graduated from Ringgold High School, Catoosa County, Georgia, in 1938.

He joined the Army Air Corps in 1939 as a private and was discharged as a first lieutenant in 1945 having served as a photographic reconnaissance officer at air bases in Labrador, Africa, India, Burma, China, Okinawa, and Japan.

In 1946 he established an industrial motion picture company called Alcan-American which produced movies in Florida, Canada, and Alaska.

He was recalled to active duty with the Air Force during 1950 and served in Korea, Japan, and Taiwan as an aerial reconnaissance officer.

He is a graduate of Lowry Photographic School (1941), Keesler Avionics (air electronics) School (1957), Lowry Armament and Missile School (1960), Squadron Officer School (1961), Air Force Command and Staff College (1963), and received a Baccalaureate degree in military science from the University of Nebraska in 1965.

He retired from the Air Force in 1965 as a major and established Sebring American Corporation, a recreation vehicle manufacturing plant, at Sebring, Florida.

During the period from 1968 through 1969, he earned a second Baccalaureate degree and a Master of Science degree in industrial education at the University of Tennessee, Knoxville.

He accepted a position as Director of Technology and Career Education at Cleveland State Community College, Cleveland, Tennessee, in the fall of 1969.

He is a member and past president of the Tennessee Technical Education Council. He is also a member of the American Technical Education Society; Association of Community and Junior Colleges, Occupational Division; senior member of the Instrument Society of America; Air Force Association; Phi Kappa Phi; and Kiwanis Internationl.

He married Nancy Ellen Gentile of Lewiston, Maine, in 1961 and has two children—Erich Wilhelm and Ellen Elizabeth (von) Reiser.