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A COMPARISON OF THE GRADUATES OF ELECTRONICS PROGRAMS CONDUCTED BY COMMUNITY COLLEGES WITH GRADUATES OF ELECTRONICS PROGRAMS BY PROPRIETARY SCHOOLS IN MICHIGAN

By

Stephen Robert Matt

A DISSERTATION

Submitted to Michigan State University in partial fulfillment of the requirements for the degree of

DOCTOR OF PHILOSOPHY

Department of Secondary Education and Curriculum

ABSTRACT

A COMPARISON OF THE GRADUATES OF ELECTRONICS PROGRAMS CONDUCTED BY COMMUNITY COLLEGES WITH GRADUATES OF ELECTRONICS PROGRAMS BY PROPRIETARY SCHOOLS IN MICHIGAN

By

Stephen Robert Matt

The purpose of this study was to compare several aspects of Michigan proprietary schools and community colleges teaching electronics programs. They were made to determine if both types of schools were equally successful in preparing their graduates for the world of work. In addition, other comparisons were made to examine differences between the schools and their graduates.

The items compared were given the labels, Category One Information and Category Two Information. Category One covered the characteristics of the schools and included:

- 1. Ownership information.
- School populations.
- 3. Program offerings.

Category Two covered information on the graduates and included:

- 1. Background of graduates.
- Job placement and salary information after placement of graduates.

3. Job satisfaction and preparation of graduates.

4. Rating of the institutions by graduates.

5. Studies taken after graduation.

The Category One Information was compiled using non-school reference sources. These included reports from the Michigan Departments of Education and Labor, census reports, statistical abstracts, and the United States Department of Commerce.

The Category Two Information was compiled using a questionnaire which was mailed to the graduates of both types of postsecondary schools. As a final follow-up technique, the nonresponders still remaining after a second mailing were contacted by the telephone. Each item on the questionnaire was designed to provide information on various sub-hypotheses about the graduates.

Data were compiled for each sub-hypothesis and the responses were then analyzed for statistical significance using chi-square. The results were compared to the table value at an alpha level of .05.

As a result of statistically examining the responses to the juestionnaires, it was shown that the main hypothesis could not be 'ejected. There was no significant difference between proprietary chools and community colleges in preparing their electronics raduates for the world of work. Of all the items examined in his dissertation, only three proved to be statistically significant.

> The proprietary school electronics school graduates received more assistance from school placement officials than did community college electronics school graduates.

- Community college graduates had a higher incidence of job change than did proprietary school graduates.
- 3. Community college graduates rated their electronics training higher than did proprietary school graduates.

Category One Information highlighted several points. First, proprietary schools outnumbered community colleges in Michigan 182 to twenty-nine or by better than six to one. Second, community college enrollments, however, were 126,225 while total proprietary school enrollments numbered only 37,310. Finally, the vast majority of proprietary schools offered less than five types of programs while the majority of community colleges offered between twenty and forty programs.

There were several items of Category Two Information which did provide additional insight on electronics school graduates even though they were not statistically significant. The majority of the graduates were twenty-five and under, single, and attend full-time day school. All those in the study were male and with but one exception, all were high school graduates or better. Twenty-five per cent of those responding took work in another field while thirty-five per cent obtained work before graduation. Finally, ninety-five per cent of the graduates rated their training as average or higher. Only five per cent rated it "below average" and none rated it "very low."

This study highlighted the importance of the need for follow-up studies. Many of the graduates indicated problems existed in their programs. A continuous follow-up program could provide the schools with a source of feedback to meet the needs of their graduates.

A COMPARISON OF THE GRADUATES OF ELECTRONICS PROGRAMS CONDUCTED BY COMMUNITY COLLEGES WITH GRADUATES OF ELECTRONICS PROGRAMS BY PROPRIETARY SCHOOLS IN MICHIGAN

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CHAPTER I

INTRODUCTION

During the past ten years, public education has continued to draw criticism from the taxpaying public. One such complaint seems to revolve around the issue of public schools not educating enough of their students for careers. All too often the evidence seems to verify this complaint. Robert Calvert, Chief, Adult & Vocational Education and Surveys Branch, reports¹ that--

Adult education is growing at a much faster rate than both the total population and the number of full-time students in regular school--there was 30% more adult ed in 1975 than in 1969. In the same article, he also points out that 43 per cent of the

total adult education courses deals with occupational training

and that--

53.3 per cent were taking the course to improve or advance in their current job or to get a new job.

public two-year colleges or vocational technical institutes have shown an 80 per cent increase in sponsoring such courses since 1969.

public elementary or high schools have shown an 8.3 per cent decrease in sponsoring such courses since 1969.

The argument here is not whether the public schools "should" or "should not" prepare their students for careers, but that they "do not." Thus critics say remedial action is necessary.

To help shield themselves from this barrage of criticism, some public schools established large numbers of new programs which their publics demanded. However, all too often these programs were lauded as the ultimate in the latest educational thinking and technology only to have been aborted at a later date. Obviously, some of these programs have had little or nothing to do with preparation for a career.

American education has the dubious distinction of appearing to operate under vast swings of a pendulum. A new idea may be blindly adopted and blindly followed regardless of its obvious shortcomings. Progressive education (with a capital P), the new math, modular scheduling, differentiated staffing, and schools without walls are a few examples of good ideas frequently misapplied because they are adopted without regard for individual differences in school districts and pupil population. We need to look carefully at every new idea that holds any promise of improving our programs, but we need to be highly selective in applying them. . . Polysyllabic words and recent research data have long been magic door-openers in education. . . We grasp at whatever nostrum is offered without really looking at it to see if it is new or merely a warmed-over version of something we have already tried.²

Despite criticism, many high schools have stood steadfast in their campaign to produce nothing but college preparatory graduates; while others have steered a middle-of-the-road course. The latter have tempered their decisions based somewhat on the demands of its citizenry. However, many high schools feel that they must not compromise their responsibility of preparing future leaders whom they also feel must, of necessity, attend college. Consequently, they have continued in their emphasis on the college preparatory programs with a lesser concentration on general or vocational programs.

Ironically, the comparative neglect of vocational education is inconsistent with the laudable social goal of equal



Figure 1.--School Attainment Ages Eighteen to Twenty-Four.

.



Figure

2.--School Attainment Ages

Twenty-Five and Over.

Median school years completed

educational opportunity. That is, wide variations in both student capabilities and interests are either ignored or given insufficient account. The almost singleminded dedication to maximum enrollment in college preparatory programs has the effect of concealing such realities as: (1) The relatively small number of students matriculated in colleges and universities; and (2) The considerably smaller number actually earning degrees.³

Data from the last census⁴ show that from the total of 1,016,653 people in the eighteen to twenty-four age bracket in Michigan, 68 per cent have four years of high school or more. However, only 5.5 per cent have four years of college or more in that some age category (Figure 1). A counter argument might be offered by saying that this age group is too young to have attained a substantial amount of college work. Yet, of the 4,594,461 people in this state twenty-five years of age or older, only 9.4 per cent have four years of college or more. The median school years completed by this same age group is 12.1 years. Figure 2 illustrates the actual spread. This indicates that the majority of them have graduated from high school, but have not completed a four-year degree.

Further examination of the Michigan census statistics on the people with vocational training substantiates yet another point. Of the people sixteen to sixty-four years old with less than fifteen years of school--

28.5 per cent from the male population of 2,206,360 and

21.2 per cent from the female population of 2,435,518 have had some form of vocational training. Consequently, by far the majority have not been prepared to enter the world of work

with skills obtained in a public vocational training program. Yet, our high schools continue to direct a major amount of their emphasis toward less than 9 per cent⁵ of the people of this state; those who will ultimately attain a college degree. The priorities are slanted toward those planning to enter college rather than those entering the world of work immediately after graduation.

The same census figures tend to indict the schools on another point about the schools in Michigan. A substantial portion of the male population has never completed high school. Of the 1,592,798 males twenty to forty-nine years old, over 528,000 have not graduated. This is another problem all by itself.

Upon completing high school, those wishing further education have a multitude of universities, colleges, community colleges and other post-secondary schools from which to make their selection. Narrowing these options to just the schools in the State of Michigan, an individual could attend any one of eleven universities, forty-four colleges or thirty-six junior/ community colleges. Despite the fact that there is an abundance of public post-secondary schools in existence in this state, private schools have also entered the mainstream of education at this same level. Of the three types of schools mentioned immediately above, forty-eight are classified as private.

Despite the existence of all these schools, both public and private, still another type of private school has emerged in the post-secondary education field. This has been in the form of the so-called proprietary school. A proprietary school can be

defined as a school conducted by private industry for profit. Here there is an ambiguity of terms.

They have been called proprietary, trade and vocational schools, but no one of these terms covers the entire area. All of them, however, are concerned with preparing students for a particular business position or industry, skilled trade, semiprofession, personal service, recreational activity or some other vocation or avocation. A recent study opines that this common characteristic suggests the utility of the generic term 'specialty school'... There are more than 35,000 specialty schools in the United States, with a current enrollment surpassing 5,000,000.⁶

Also, there is much confusion over how many of these schools are in existence. Some of this confusion centers around composite enrollment figures, but even the number of schools is not clear. Johnson claims that the Federal Trade Commission discovered in 1973 that--

There is a universe of some 10,000 different resident and home-study vocational schools that serve about 3.3 million students who pay anywhere from \$350 to more than \$2,000 for a program, and our knowledge of these schools, their operations and their students is practically nil.⁷

There are some states, however, which maintain excellent records on both the number of schools and composite enrollments. The Michigan Department of Education has been doing so for many years. In some states there are no requirements or restrictions placed on entry into the proprietary school market while others have just recently enacted laws governing proprietary school operations. Again to its credit, Michigan enacted such legislation dating back as early as 1943.

Proprietary schools gained entry into the educational field to help fill an unsatisfied need. As was highlighted earlier, a large number of people never finish high school. However, an even larger number do finish high school but do not pursue a four-year degree. Many are content to continue their education with adult education courses or programs at community colleges. However, despite these and other options, a void still remains. Since their inception proprietary schools have capitalized on learner's needs through the establishment of specialized courses. In Michigan, for example, this need covers a wide variety of subjects ranging from bartending to tutoring (Appendix 1). Some of the same programs are being taught at both the community colleges and proprietary schools. To some degree then, both types of institutions are competing for the same clientele.

Problem

Proprietary schools and community colleges both offer programs covering the same subjects to the same clientele. Are community colleges and proprietary schools in Michigan equally successful in preparing graduates for the world of work?

One method of evaluating their success is through a comparison of the graduates. Hence, this study is comprised of a list of variables from which a comparison of graduates is made. The variables are analyzed for statistical significance. In addition, other variables are examined to highlight any differences between the two types of post-secondary schools. Finally, only electricity/electronics programs are analyzed to keep the study manageable. All of these items are used to focus in on the main

problem. Are community colleges and proprietary schools equally successful in preparing graduates of their electricity/electronics programs for the world of work?

Objectives

Because of the variety of post-secondary training institutions, some effort must be expended toward analyzing them. However, with so little known about proprietary schools, it is obvious a benchmark is needed to make comparisons. Since most proprietary schools offer programs which are two years or less in length, the most obvious benchmark would be the community/junior college. Therefore, a comparison of the two types of post-secondary institutions serves as the thrust of this paper. Since there is limited information about the proprietary schools when compared with community colleges, some items which could be examined are course offerings, students, facilities, location and staff. There are numerous other aspects of both types of schools which could be scrutinized more closely.

The objectives are to gather and compare two broad categories of information on proprietary schools vs. community colleges and their graduates.

Category One covers characteristics of the schools and includes:

- 1. Ownership information.
- 2. School populations.
- 3. Program offerings.

Category Two covers the graduates and includes items such

as:

- 1. Background of graduates.
- 2. Job placement and salary information after placement of graduates.
- 3. Job satisfaction and preparation of graduates.
- 4. Rating of the institutions by graduates.
- 5. Studies taken after graduation.

Category Two covers a major portion of the data in this study and is also the portion which 'is analyzed for any significant differences. In addition, some open-ended questions for comments by the graduates are also included, but these are not analyzed statistically.

Hypotheses

The first six sub-hypotheses are posed to determine if there is any dissimilarity in normative data on the graduates of the two types of post-secondary schools. These are:

- 1. There is no significant difference in the ages of proprietary school and community college electronics school graduates.
- 2. There is no significant difference in the sex of proprietary school and community college electronics school graduates.
- 3. There is no significant difference in the marital status of proprietary school and community college electronics school graduates.
- 4. There is no significant difference between the proprietary school and community college electronics school graduates as to the type of student they were before graduation.

- 5. There is no significant difference between proprietary school and community college graduates in the amount of formal schooling they obtained before attending electronics school.
- 6. There is no significant difference in the type of high school program completed by proprietary school and community college electronics school graduates.

The major hypothesis is that there is no significant difference between proprietary schools and community colleges in preparing electronics school graduates for the world of work. In order to accept or reject that hypothesis the following subhypotheses are made with regard to the graduates of proprietary schools and community colleges. If fifty per cent or more of these sub-hypotheses are rejected, the main hypothesis will also be rejected.

- 7. There is no significant difference in the length of time required to obtain work in the electronics field by proprietary school and community college electronics school graduates.
- 8. There is no significant difference in the amount of assistance received from school placement officials by proprietary school and community college electronics school graduates.
- 9. There is no significant difference in whether jobs are obtained as a result of interviews by proprietary school and community college electronics school graduates.
- 10. There is no significant difference in the reason given for taking jobs by proprietary school and community college electronics school graduates.
- 11. There is no significant difference in the sources leading to the first job after completing electronics schools between proprietary school and community college electronics school graduates.
- 12. There is no significant difference in the starting salaries obtained by proprietary school and community college electronics school graduates.

- 13. There is no significant difference in how graduates from proprietary school and community college electronics schools rate their training as to preparing them for the work they are actually performing.
- 14. There is no significant difference in the number of proprietary school and community college electronics school graduates receiving salary increases since being hired.
- 15. There is no significant difference in how much of a raise proprietary school and community college electronics school graduates receive.
- 16. There is no significant difference in the number of proprietary school and community college graduates who have changed jobs since leaving electronics school.
- 17. There is no significant difference in the reason for changing jobs by proprietary school and community college electronics school graduates.
- 18. There is no significant difference between proprietary school and community college electronics school graduates in how they rate their satisfaction with their jobs.
- 19. There is no significant difference between proprietary school and community college electronics school graduates in how they rate their electronics training.

Then, three sub-hypotheses are made to determine if there

is any dissimilarity in studies taken after graduation.

- 20. There is no significant difference in the number of proprietary school and community college electronics school graduates taking additional studies.
- 21. There is no significant difference in the number of hours per week spent in school by proprietary school and community college electronics school graduates.
- 22. There is no significant difference in where proprietary school and community college electronics school graduates take additional studies.

Finally, each graduate is asked for information on job classification, recommendations for additional courses, and any additional comments.

Design of the Study

Limitations of Study

Since most proprietary schools concentrate their offerings in a very limited number (often just one) of vocational categories, this study is concerned only with those offering electronics programs. This study is also limited to populations in Michigan. It is considered as independent of the conditions of the present job market and subject to the usual limitations and criticisms of the questionnaire technique.

Correspondence schools are not covered in this report because of their very nature. There is nothing completely analagous to them being offered at the community college level. Many correspondence programs are sold from an out-of-state headquarters and, at best, are difficult, if not impossible, to compare.

Similarly, the related instruction phases of apprenticeship programs, although offered by community colleges, are not being considered. These offerings are not usually available to the paying public. They are generally reserved for those students sponsored by a specific company and, as such, not open for registration by the public.

With these delimitations, let it suffice to say that the proprietary schools and community colleges within this study are

those which are open to the public for registration. Their students attend classes on the premises of the teaching institution and are free to select the program of studies of their choice.

Sample

The population for this study has been selected at random from the total population of graduates within a three-year interval. In some cases, if the population is small, the entire population has been surveyed. The total population has been taken from geographical areas in Michigan offering both community college and proprietary school electronics programs. The schools have been chosen in conjunction with and based on the recommendations of selected personnel in the Michigan Department of Education.

Method of Investigation

Two categories of information are covered in this study. The first, Category One, includes descriptive data on the proprietary schools and community colleges in the State of Michigan. These data have been collected from reports published by various state and federal agencies.

The second, Category Two, deals with the graduates of proprietary schools and community colleges. This portion of the data has been obtained through the mailed questionnaire. Those not responding to the initial instrument have been followed up with another mailing. As a final follow-up technique, the nonresponders still remaining have been contacted by telephone where

possible. The results are tabulated based on the self-report of those individuals answering the questionnaire.

Initial Procedure

A pilot study has been run on the instrument used in Category Two by administering it to selected individuals who have also recently graduated. They have been chosen based on the employment data available but are not in the populations from which the random samples have been selected. Employers of graduates from other than the populations studied have been mailed an open-ended questionnaire to determine other pertinent questions which should be included in the final instrument.

Treatment of Data

As a result of these data collected, summary reports are made for the Category One items. The chi-square process is used to analyze Category Two sub-hypotheses for significant differences.

Terminology

- <u>Electronics School</u>--a school where a program of studies offers instruction which begins with the study of electricity and continues into solid state technology.
- <u>Proprietary School</u>--a school conducted by a corporation, partnership or individual whose motive is generating a profit.

The proprietary school label has been given to the 182 proprietary schools covered in the 1973 annual report of the Michigan Department of Education under the heading, "Private Trade Schools, Business Schools and Institutes."

This label is used to describe those schools designed to operate at a profit. It should be noted that some proprietary schools are called "non-profit" for tax purposes. This allows them certain benefits not ordinarily accrued by those without the label. This is an entirely legal practice analagous to the many companies incorporated in the State of Delaware (even though they are located in other states). These schools do generate a profit but distribute it in a different manner. Therefore, they are included for possible consideration in this paper.

> 3. <u>Community College</u>--two-year, state and/or public tax supported educational institution. This category includes junior colleges, but not colleges or universities which offer a baccalaureate degree.

The community college label is given to the twenty-nine public two-year schools listed in the 1970 Michigan Statistical Abstract under the heading of Accredited Institutions of Higher Education in Michigan. For initial population comparison with proprietary schools, the base year of 1970 is used. Data are available for both types of schools in that year and that year represents a date corresponding to the time when those in the study graduated.

As mentioned earlier, two-year public post-secondary institutions go under a variety of names such as community colleges, junior colleges, technical institutes, and technical schools.

Although there are a variety of names, for the sake of consistency, the schools analyzed in this report are labeled community colleges and proprietary schools.

Overview of Succeeding Chapters

Chapter 2 covers a review of the literature. A wealth of material exists on studies which were conducted on practically every aspect of community colleges and their students. The list could go on almost indefinitely as there are literally hundreds of entries in the major research indices. A reasonable crosssection of those available has been reported.

The number of articles written on proprietary schools, although considerable, do not nearly cover the same gamut as those on the community colleges. Only one major comparative study of these two post-secondary educational institutions was discovered and it has been completed just recently.

In Chapter 3, the design and methodology of the study are described. Methods of obtaining and comparing two types of data are explained. The first, labeled Category One Information, deals with a broad comparison of the two types of schools participating in the study. The second, labeled Category Two Information, deals with a specific comparison of the graduates of both types of schools.

The method used to select the participating schools is also described in detail. The selection of population, sample size, and method of statistical analysis are also explained. Finally, a sample of the questionnaire used is included. In Chapter 4, the data for the two categories of information are shown in detail. Only the Category Two Information is analyzed for statistical significance. Each of the first twenty-two subhypotheses are examined using chi-square at an alpha level of .05. The last three items are not examined using chi-square. All these responses are categorized using tables to display them.

In Chapter 5, the findings, conclusions and recommendations are listed. Three items of Category Two Information prove to be statistically significant. These findings are summarized together with others which have not proved to be significant yet are still meaningful. Conclusions reached based on the findings are then enumerated and followed by some recommendations. Suggestions are offered for those wishing to replicate or improve upon the research methodology used to investigate this problem. Finally, a series of observations are made about some of the sub-hypotheses even though they are not statistically significant.

Chapter I--Footnotes

¹<u>National Report for Training and Development</u>, American Society for Training and Development, Vol. 2, No. 13 (October 1, 1976), pp. 2-3.

²Gordon G. McMahon, <u>Curriculum Development in Trade and</u> <u>Industrial and Technical Education</u> (Columbus, Ohio: Charles E. Merrill Publishing Co., 1972), pp. 121-122.

³A. Harvey Belitsky, <u>Private Vocational Schools and Their</u> <u>Students: Limited Objectives, Unlimited Opportunity</u> (Cambridge, Ma.: Schenkman Publishing Company, Inc., 1969), p. 7.

⁴<u>General Social and Economic Characteristics, Michigan</u>, U.S. Department of Commerce, U. S. Census of Population, 1970, pp. 24-272.

⁵General Social and Economic Characteristics, loc. cit.

⁶Richard Fulton, <u>Proprietary Schools</u>, Encyclopedia of Educational Research, 4th Edition (London: The Macmillan Company, Collier-Macmillan Ltd., n.d.), p. 1022.

⁷Susan E. Johnson, <u>Proprietary Education, a Search of the</u> <u>Literature</u>, The Center for Research and Development in Higher Education, University of California, Berkley, 1974, p. 1.

CHAPTER II

REVIEW OF THE LITERATURE

Introduction

This chapter contains a representative cross-section of the articles and books concerned with community colleges and proprietary schools. First, some of the early history of both types of institutions is given. This serves to point out that proprietary schools preceded community colleges in the United States.

Next, the accrediting and licensing of both types of schools are highlighted. This is followed by some comparisons of instructors and program offerings. Some of the misconceptions about those enrolled in two-year programs are then described. The rationale for tuition charges and the profit motive of proprietary schools are also noted.

The works of some authors which describe the inroads made into public education by proprietary schools are then cited. This is followed by information about the number of proprietary schools and highlights the fact that few of them desire to be accredited. Finally, the importance of a school placement program is pointed out.

Early History

Joliet Junior College in Joliet, Illinois, established in 1901, is the oldest public junior college still existing in the

United States.¹ However, most of the historians of the junior college movement seem to accept the claim that The Lewis Institute, founded in Chicago in 1896, is the oldest junior college. Later it merged with the Armour Institute of Technology which is today known as the Illinois Institute of Technology. Susquehanna University, which opened in 1858 and is a missionary institute of the Lutheran Church, has also tried to claim being the oldest.²

The earliest instance of postgraduate work being added to the high school is to be found at Newton, Maryland, where the first Catholic college in what is now the United States was founded in 1677 . . . it might be called the earliest junior college, since in addition to secondary work it carried its students into the freshman year in college. Its students who wished further education were then set to St. Omer's in Belgium to compete their studies.³

Some people even claim that the term "community college" should not be substituted for junior college. Because the two have been used interchangeably, some claim that confusion and inconsistency have resulted.

While the community college is closely related to other twoyear colleges, including the junior college, it is still quite different in philosophy, purpose, and function. Due to its impact, the community college has already brought about a new interest in improved pedagogy, nontraditional study, external degrees, credit by examination, and other developments for mass education in a technological society.⁴

Although it is difficult to actually determine which has right to the claim that it is the oldest institution, these claims and counterclaims at being the oldest do provide historical information.

Rather than argue the differences between the two names and get into a battle of semantics, let it suffice to say that when use of the generic term, "community college" is made, it is meant to include both. The important thing is, however, that the junior/community college movement did get started in the latter half of the nineteenth century.

In these early days of the junior college movement many men can be singled out for their efforts to make it a successful beginning. Among them is Henry P. Tappan, former president of the University of Michigan, who called for the universities to reorganize their programs. It was his wish to reform

American higher education through the process of relegating the lower division courses to the high schools and admitting to the universities only students who had completed the fourteenth grade or its equivalent.⁵

William Watts Folwell, in his inaugural address at the University of Minnesota, reitereated this concept.⁶ Both men thought that our schools should be reorganized similar to the German system which includes completion of work in the "Gymnasium" before entrance into a university. Consequently, they were not proposing a community college but an addition of two more years of work for admittance to the university. "To them it was of little moment what happened to the freshman and sophomore years of the collegiate curriculum, so long as the university could be freed of them."⁷

Perhaps the efforts of William Rainey Harper, President of the University of Chicago, resulted in his being classified as the father of the junior college movement. He is credited with organizing the freshman and sophomore years at the University of Chicago into the "Junior College," a name which he gave it. He is also responsible for the University of Chicago granting the
award of Associate in Arts degree, a practice which has now spread throughout the United States.⁸

To find out how and when proprietary schools came into existence in the United States, it is necessary to trace the history of schools back to early colonial times. One of the early schools was the Dame School which was transplanted to the colonies from England.

This was basically a babysitting institution, but the lady in charge soon noticed that it was easier to keep children quiet and entertained by giving them something worthwhile to do . . . they relied upon fear to motivate the children and keep order in the classroom. The teachers included ministers, college students, indentured servants, mechanics, doctors, and even exported convicts and tramps.⁹

This type of schooling was meant to free parents of their children while they went about the tasks so necessary to scrape out an existence in those days. To compensate the teachers in the Dame School, a small fee was usually required. Hence, the first of the fee-paying schools run by a sole proprietory was established in this country.

In terms of learning a trade, however, another method of educating children was also used. This system was the apprenticeship.

Apprenticeship papers in America in the seventeenth, eighteenth and nineteenth centuries were virtually the same as they had been in the Middle Ages or even in the time of Hammurabi in the twentieth century B. C.¹⁰

The apprentice was schooled by the master for a period of approximately seven years in learning a trade. In some cases, this seven year period was exceeded, especially in the case of female apprentices. In essence, the apprentice became the property of the master. Apprentices have even been listed among the assets of

bankrupts. Some were taken personally by creditors as payment for a debt while others were sold to satisfy the obligation. The master was paid by being granted complete custody of the apprentice even so far as to be considered his property. Although many of the colonies attempted to protect the rights of the apprentices, early writers in this period pointed out that little in the way of rights actually existed. The fee paid at this type of school was in the form of labor rather than actual money, but again, to a sole proprietor.

Another early indication of a sole proprietor establishing a school can be noted:

As early as 1661, a Dutch schoolmaster in New Amsterdam was apparently taking in some evening pupils to add to his regular town school teaching. Evert Pietersen was permitted to charge 'a fair sum' for those 'who come in the evening and between times.' In 1690, there was apparently an English evening school in New York, since an apprenticeship indenture in that year specified that the apprentice was to have 'the privilege of going to the evening school.' Most of the seaport towns in the colonies appear to have had evening schools by the first years of the eighteenth century.'

The literature written today indicates that these schools varied in the number of course offerings and were usually dependent upon the expertise and experience of the master teacher. It has been noted that tuition was paid by the students "directly to the teacher and depended on how many subjects the student took."¹² However, Potter also claimed that these schools were private ventures established primarily in "the practical or vocational fields." The list of subjects included bookkeeping, navigation, surveying, shorthand, trigonometry and even contained languages of French, German, Spanish and others. These schools were the predecessors of perhaps the most famous of all the early private schools, the Academy, which was established by Benjamin Franklin in the 1700's.

Thus, it can be seen from some of the earliest histories that the proprietary school movement preceded community colleges in the United States by at least two hundred years. In spite of this early development, it was slow to grow for the same reason as many of the other various schools which followed; a tuition was being charged as part of the requirements for participation. This was a deterrent for those wishing to enter the program. Only those who could afford it or were willing to sacrifice funds otherwise needed to support their families were able to attend. It became evident to our forefathers that tuition charges were barriers to those who needed but could ill afford anything but the most meager education. It was this early dependence on the need for funds which sparked later movements for free education.

Early History and Objectives in Michigan

The search for a written historical record of the proprietary school movement in Michigan proved to be fruitless. Even the effort to find written objectives for proprietary schools was to no avail. Finally, as a last resort, a conversation was held with the Supervisor of Private Trade Schools of the Michigan Department of Education. It was found there were no objectives written by the Michigan Department of Education. Although a position paper has been started, as of this writing, it is far from completion.

Consequently, aside from some yearly summary reports on items such as total population and program offerings (Appendix I), no data on objectives and history are readily available.

By the time Michigan was organized as a separate territory on July 1, 1805, there were less than thirty colleges and universities in the United States. It was not until the early twentieth century, however, that the junior college movement really got started in this state. Dunbar¹³ reported on much of this early history. He indicated that in 1914 Grand Rapids began the first junior college and Highland Park started the second one in 1918. It was over thirty years later that the name "community college" was recognized by the state legislature.

Some fundamental changes in the state laws related to junior colleges were made in 1951. The act passed by the legislature that year recognized the new concept which had evolved, that of the community college serving not only the academic needs of students planning to transfer to other colleges or universities at the end of the second year, but also the needs of all youth and adults in a community for education beyond the high school level.¹⁴

The objectives of community colleges have been reported by several sources. Although they are somewhat varied in content, they can be condensed to just five. Shanahan identified these five major functions as follows:

(a) transfer function, (b) vocational and technical function, (c) the student personnel function, (d) the general education function, (e) the community service function.¹⁵

Several other sources made mention of programs for pupils still in high school, institutional research, and continuing education as roles for community colleges.

Restrictions, Opposition and Accreditation

Since their establishment, both the community college and proprietary school movements have met with some opposition. Efforts have been made to restrict their establishment, operation and expansion. Some of this opposition exists in the form of legislation, license regulations and accreditation requirements.

Probably no special act of a state legislature is really necessary to guarantee the legality of a junior college or community college established as an extension of the public school system. American high schools have legally offered work on the level of the thirteenth and fourteenth grades as far back as the 1880's without being seriously challenged, ordinarily designating such programs as postgraduate education. In order, however, to avoid any questions of legality and also to forestall effective opposition to the extension of low-cost or free education to older students, the founders of the taxsupported junior and community colleges have considered it highly desirable to obtain legislative sanction in advance. The easiest and probably the best method of securing this is through what has been called 'enabling' legislation.¹⁶

Once they are established the community colleges become subject to certain accreditation requirements. They are inspected periodically to insure that they meet certain standards. Although this is not opposition, it is a method to insure that these institutions live up to certain minimal standards. To ascertain whether or not these standards are met is determined by regional accrediting bodies such as Middle States Association.

Proprietary schools, however, are required to be licensed in some states. There is little information available which tells the number of states which require licensing. However, as a result of a poll of the fifty states which was conducted by Matt, it was found that of the thirty-eight responding, thirty-six required

some form of licensing or registration (Appendix 2). Many have only started this practice since 1970.

Most states are very quick to point out that this licensing in no way constitutes accreditation of any of the courses offered by the various schools. Part of the rationale behind the accrediting statement can be attributed to a suit which was initiated in 1969. In it, Marjorie Webster Junior College,¹⁷ a profit-making school, brought suit against the Middle States Association, a regional accrediting body, for refusal to to accredit the school. In this suit, the argument was made by the Middle States Association that profit-making schools should not be accredited because they divert funds and resources away from the school and its students. It is apparently their feeling that when this occurs, quality education cannot be obtained by students attending such institutions. The Junior College argued to the contrary and won its suit in District Court; however, the ruling was reversed in the Court of Appeals. Evidence shows that over 10 per cent of the proprietary schools in Michigan alone carry the nonprofit label. If such a suit had been introduced by a proprietary school labelled nonprofit, one wonders what the results might have been.

<u>Comparisons</u>

Some authors have made comparisons between community colleges and proprietary schools. Examination of a few of these comparisons illustrates that they compete for the same clientele. Other issues bring to light some of the claims, counterclaims and the rationale for a little of the bitterness expressed by certain

people. Finally, a few of the differences between the operations of both institutions are examined. It is through these issues and comparisons that one can come to a better understanding of both institutions as they are today. It also serves to highlight that the differences that exist between them are unlike those between other types of competing educational institutions of higher learning.

One of the first comparisons usually made is the one on program offerings. Agreement seems to exist that proprietary schools are usually first to initiate new programs.

Usually, new occupational education programs are introduced in the private schools first. Later, if a program thrives, it is introduced into the public schools.

Most private schools are more flexible than public schools in adapting to changed manpower needs. They depend on tuition for financial support, and if they cannot attract students, they must go out of business. Students are influenced to a certain extent by salesmanship, and by the availability of training in glamorous occupations; however, a private vocational school which does not place its students in good jobs will die eventually.¹⁸

There are several factors which influence the ability of proprietary schools to offer programs prior to the community colleges. For example, Evans stated,

One of the major factors which enables private schools to cope rapidly with changing manpower needs is the fact that their instructors are rarely on tenure. This means that if an instructor is no longer needed, he can be discharged with no difficulty, while many public schools prefer to continue an unneeded vocational program until the death or retirement of an existing instructor. Moreover, public schools are afraid to enter new occupational training programs until the long-term necessity for such training is clearly established, for they do not like to be saddled with unneeded teachers.¹⁹

With a lack of tenure at the proprietary school level, the question might arise as to the competence of its staff. It might be expected that since there is a lack of job security, a teacher in a proprietary school might be less qualified. Larkin reported the results of a study which compared proprietary and non-proprietary school teachers.

While the schools studied differed in the scope of their facilities and methods of teaching, the teaching staffs were remarkably similar. The ratio of full-time and part-time teachers, for instance, was the same in both types of schools though the teachers in non-proprietary schools were older and possessed a higher level of education. Despite these differences the teaching experience of the two groups was comparable.

The study concludes that 'both proprietary and non-proprietary schools typically employ teachers who are well qualified in terms of education, prior teaching, and other work experience.'²⁰

Several studies have been done on the community colleges located in Michigan. These studies examined many aspects of the schools, their staffs and their students. Three of these studies are briefly mentioned. First, Schmitt did a study to identify the problems of Industrial and Technical instructors. The purposes of his study were:

to identify problems of part-time and full-time industrial and technical instructors as perceived by their supervisors, the instructors themselves, and their students.²¹

The majority of his findings showed a need for pedagogical training

and other related information.

The Larson study did point out a deficiency that was

identified by the community college students.

With the exception of the placement function, the students were well satisfied with the manner in which the counseling and guidance functions were performed. Four of every 10 students indicated securing the first job through their own efforts and only 8 per cent through the college placement service.²²

Finally, the purpose of the Messerschmidt study was:

To determine the practices used by community colleges in the state of Michigan to recruit, hire, and prepare part-time instructors in vocational technical education, and to compare certain attitudes of part-time vocational technical instructors with full time vocational technical instructors on six selected variables.²³

Only 36 per cent of the 327 instructors polled responded to the initial mailing. Messerschmidt's findings did show, however, that the primary source of part-time instructors was from local business and industry.

Another study outside Michigan has been done to determine the qualifications of newly hired full-time community college teachers. The findings lend credence to the claim that very little is done to actually prepare teachers for this level of educational instruction.

In this study, Palichak and Moore²⁴ examine the qualifications of 1,310 newly hired community college teachers in California. The results show that less than 250 actually had experience at the educational level in which they were to teach. The breakdown of the top four categories show the following percentages:

Secondary	teaching	36%
Community	college teaching	20%
Four-year	college teaching	15%
Industrial	or commercial	10%

The remaining 19 per cent fell into several miscellaneous categories. Obviously the largest portion of the group were recruited from high school teaching.

Teachers in proprietary schools also have a variety of background experiences. Because their programs involve very limited curriculum offerings, however, the teachers must be well rounded in their specialized fields. This type of experience

can be best obtained through actual working in the field. Burch²⁵ reports that its

teachers are grounded in the real world of work. Most are craftsmen or professionals, and they know the demands their students will face on the job. The teachers are expected to keep up with what's going on in their specialties, and one school . . . regularly sends faculty members back to the factory on 'industrial sabbaticals.' At all the successful schools, proprietors and teachers make a determined effort to find out what the local employers are looking for in new graduates and how well recent graduates are doing.

The importance of having instructors who are craftsmen with work related experience has also been shown by the licensing requirements of some of the states. To insure that its clients get the instruction to which they are entitled, these states have established regulations whereby the schools are required to employ qualified instructors. Before instructors can be certified to teach in the school, they must be licensed by the state department. The schools, in turn, must look for those instructors meeting these requirements. In the past,

The assumption has been that it is better to convert a journeyman into a teacher than to have a teacher acquire the necessary job skills and related knowledge. Perhaps within the present situation this assumption is warranted, at least to the degree that shop-oriented instruction does require shop-oriented instructors, and that such instructors may have greater empathy with their students than the person who has never worked in a production job.²⁶

Program Comparisons

After comparing instructors, the next logical step is to do likewise with programs. Here again differences are noted. For example, Evans has noted that,

American education is designed for one basic purpose to prepare the student for subsequent schooling. Actual practice in elementary schools, secondary schools, junior colleges, and baccalaureate programs show far too little recognition of the role of the school in preparing students for citizenship and for employment. Only at the graduate school level are employability skills given careful attention by the majority of instructors, and anyone who drops out of the educational stream prior to graduate school is regarded as a failure.²⁷

Examination of the community college programs infers that this is true of those enrolled in two-year transfer programs; those going on for a four-year degree. After all, these students are not enrolled in the two-year technical program, and are not planning for immediate employment upon program completion. A transfer student must take these courses which are prerequisites for the degree. Without them, additional courses are required after transferring to a four-year institution.

Those attending a community college on a terminal technical program would be expected to be able to complete a specialized indepth program. After all, the courses they are taking are intended to prepare them for their life's work. However,

Even a cursory analysis of many two-year technical courses will show that either pressures from the academic committees which control higher education or the natural biases of the planners have loaded the curriculum with so many extras that there is not time enough left to offer all of the math, science, and applied technology that is required to turn out a properly prepared technician. High school technical courses, where extra work is confined to English and social studies, actually have more time to devote to the vocational aspect of the program and may turn out better gualified technicians in spite of the age differential.²⁸

Charges of this type have had their consequences. Some have led to comparisons being made between community colleges and proprietary schools. Charges and countercharges have been hurled back and forth. Part of the argument centers around the curriculum

itself. The proprietary school people claim that career related programs being combined with general education only result in the student taking longer to complete a program. This, in turn, increases the length of a student's dependence on parents, family, and school and delays his eventual entry into a career.

When asked what the distinction was between proprietary schools and community colleges, one proprietary school official replied,

The public community colleges just can't train a student in electronics or accounting as well as we can. They have so much pressure to make sure that their courses will transfer to a four-year college that their vocational courses wind up being diluted with general education required by the fouryear schools.²⁹

Although this point is subject to argument, it does point out one of the differences between proprietary schools and community colleges--the length of the school program. One of the claims made by proprietary schools is that they cut out the frills and concentrate on the technical aspects of the program. It is their contention that they want to get the student trained and out earning a living as soon as practically feasible. Consequently, they greatly curtail the number of general education courses. To compare the results of such a decision would necessitate additional research on many of the aspects of both programs. Again, Wilms has observed,

The small amount of research done on graduates of proprietary schools suggests quite clearly that they fare as well in the labor market as graduates of public schools, if not better. Furthermore, because these schools are concerned only with developing employment-related skills in their students, their programs are only about a quarter or a half as long as comparable programs in public institutions. Consequently, they are cheaper, especially when the students' time lost in the labor market is considered.³⁰

Arguments of this type are not just restricted to being between proprietary and community colleges. There are those who feel that any two-year program is an inferior one. However, some writers have keyed on the differences that exist between community colleges and the four-year institutions which they feed. Hillway, for example, indicated that some people seem to think that students attending a two-year college program cannot make the grade at a regular four-year college.

A misconception of this kind seems to arise from two natural but wholly mistaken attitudes on the part of some American educators. The first of these, unfortunately, is pure snobbery--the snobbery of the respected, long-established institution of learning toward the young upstart which has dared to assume some of the older college's functions. Time and the successful products of the junior college have almost, though not entirely, negated this point of view. The other attitude seems far more logical but is equally mistaken. This is the idea that every person should have as much education as his mental ability will permit him to acquire and that those who, for one reason or another, abandon their college careers before completion of the senior year necessarily indicate thereby their lack of real fitness for study.³¹

A natural question evolves from statements such as these. Why do people suffer from these misconceptions? That question is, at best, difficult if not impossible to fully explain. One also finds a number of different misconceptions about technical programs; however, in the case of technical programs, the question is less idealist.

In the case of technical programs, the misconception is not always directed at community colleges or its students for the same

reasons. It seems to be centered around the program itself and appears to be a lack of respect for the program and much of what it represents. Perhaps much of the disrespect can be summed up in one word,

Prestige. The problems in vocational and technical education are compounded by the present program's low prestige. Its students too often are the dropouts or castoffs of the academic curriculum. Its teachers, often less academically oriented, enjoy relatively low status within the teaching profession in many states. Its buildings are often the oldest, its facilities the poorest, its extracurricular programs the weakest. Its subject matter suffers from the general debasement of manual and blue-collar occupations in contemporary social values.³²

Whether it be in their technical or degree transfer program, it is obvious that not all people feel the same disrespect for community colleges. This is evident by the simple fact of their ever-increasing enrollment. The constant expansion of community colleges and their programs may have, in some degree, contributed to the snobbery noted by Hillway. However, there are others who are quick to come to their defense, claiming that the staff on the community college level devote themselves to their students. These defenders throw back the gauntlet to the accusers; those at the four-year institutions. They would not do this unless the

Advocates of the community college believe it can meet the challenge of providing quality education for low achieving, nontraditional youth by being a 'teaching institution.' This claim is reinforced by two-year colleges who proudly reject the idea of instructors becoming intensely involved in the research-and-publish activity so prevalent in fouryear institutions. Supporters of the community junior college take great pains to emphasize that teaching staffs in the two-year college devote full time to teaching.³³ Another writer characterizes the whole community college program when he says:

Those who are served by the community college best characterize its uniqueness. Yet, descriptive studies of the student clientele are often inconclusive and paradoxical. With the most diverse clientele in higher education, the community college serves people who are more representative of society than any other institution of higher learning: the many categories include young students, adults, veterans, skilled workers, the disadvantaged, blacks, and 'transfer' or 'terminal' students, among others.³⁴

Proprietary Schools/Community Colleges Profit-Loss Factor

Proprietary schools are also not without their detractors. However, the issues most often publicized in an effort to bring them to public attention revolve around money. It should be understood that proprietary schools charge a tuition for attendance in any of their programs. This tuition is used to defray operational costs and, at the same time, provides the owners with a profit after they have covered their expenses. It is that word, "profit," that causes much concern in the educational community.

Owners of proprietary schools insist that they must be provided with an incentive to develop and continue to operate educational programs. After-all, they must first obtain a building either through purchase or rental. The cost of these buildings is not covered by any school millage from which they can obtain funding. Next, they must provide an instructional staff capable of meeting licensing requirements of those states which demand it. The salaries and fringe benefits of the instructors, secretaries, and owners must also come out of tuition charges. The cost of

instructional equipment, office equipment, furniture, desks, etc., alone runs into thousands of dollars. Ultimately, these, too, must come from tuition charges. If, after all these expenses are met, there is no profit left over, why should the owners open a school in the first place? They ask, "Which of you would invest tens of thousands of dollars just to get it back on a break-even basis?" It would be much wiser and a safer investment to put the money in any bank with a guaranteed interest return. Profit provides the incentive to invest in the operation of a proprietary school.

However, profit also can lead to some abuses.

That there are abuses among the estimated 35,000 or so proprietary schools in the United States is understandable. Most of the schools depend on earned income for survival; they are confined to a market shrunken out of all proportion to its potential volume by the relatively high fees necessary to meet ever-mounting costs; and all are competing with alluring claims from the neighboring schools teaching the same or other vocations. Competition may be the life-blood of trade, but it is also a breeder of conduct not always a model of ethical behavior.³⁵

This concept of competition should not be sneered at; it is one of the pillars on which our country was founded. The real impetus to the proprietary school movement took place back in the era of the Civil War. It was about that time that most higher education was grounded in the classics. Consequently, there was a resultant lack of training in our country's growing commercial structure. This, in turn, provided the spark; the incentive needed in a competitive society. It is this same competition which exists even today. It can be seen that proprietary schools were established to provide an alternative to an existing classical education. They were intended to provide trade experiences and knowledge for those intent on working with their minds and hands. This premise exists as a carryover to the present because even now,

the proprietary entrepreneurs compete directly with junior colleges and community colleges that offer similar vocational education free of charge. That the proprietaries are able to survive against this kind of competition is the best possible evidence of their efficiency, the effectiveness of their training and the skill with which they respond to changing student needs.³⁶

However, with reference to unethical behavior, consider this point.

An axiom in this business is that no school can survive for long if it continues turning out students for whom there are no jobs. An irresponsible operator can keep students streaming in for a time with heavy advertising, but word from dissatisfied graduates sooner or later gets around--particularly in the smaller cities and towns where the majority of the successful proprietaries are located.³⁷

More is said about this concept later in this chapter.

A number of articles have been written on the competition between the various schools. However, the point about profit continues to reoccur. Several of the articles verify the existence of profit being a sore point between the competing schools. Perhaps the reason it is a sore point is the fact that community colleges do not make money, just spend it.

The major reason why we in the core have looked down so upon the proprietary schools has been the fact that they exist to make a profit. These days, it is clear that the distinction is blurred between proprietary and nonprofit institutions. For all practical purposes, most nonprofit institutions were delighted in the past to encounter excess of income over expenditure, ' and the finances of the two types are not very different. In fact, one of the problems of core colleges and universities today is that they don't make a profit.38

Why the profit issue is of such concern is never quite made

clear. As a matter of fact, some writers simply treat it as a ruse.

Proprietary schools are likely to compete seriously with twoand four-year colleges in training and labor force of the future. To exclude them just because they make a profit is to respond emotionally to a red herring. Profit making is not the issue. The question that should be asked to proprietary schools as well as public vocationally oriented schools is very simple: How well do they do what they say they are doing?³⁹

The profit ideal has even carried over into the stock market. A number of large companies have bought into the proprietary school market. In 1969, it was found that

major corporations such as Bell & Howell, ITT, Lear Siegler and Ryder System also own schools. . . With roughly 10,000 such privately owned schools, 2,000 of which opened in the 1960's, the gates are open for public ownership. It is inevitable, say industry leaders, that more corporations will go public and acquire schools, as has been the case lately.⁴⁰

This prophesy did not come true for a number of reasons. Many of these companies were interested in the profit aspect, but did not really know how to operate a school. Later many pulled out and left their operation to the small businessmen; however, it did start a new precedent for some of these companies entering into the schooling field. As a result, some have entered into the field on an even broader basis. They have expanded their internal programs to include some new activities. For example,

There are many other organized post-secondary activities that are showing expansion. Probably the most important is the area of industrial programs. Some companies have apparently discovered that they can train people more cheaply and quickly 'in-house' than by sending them away to graduate schools. Thus, IBM, Raytheon, Xerox, General Motors, Motorola and many more have set up their own training and personnel development programs. Data from the Syracuse Educational Policy Research Center indicate that about 21 million Americans are now engaged in such activity, not carried out in a college or university. Other activities, such as training managers for franchise agencies like McDonald's and Holiday Inns, are also done inhouse.⁴¹

The proprietary schools have also made other inroads into the educational field, some previously reserved for the public

schools. Recently,

California has begun a pilot program that amounts to a voucher system for vocational education. It offers scholarships to students who want to pursue job training and gives them the option of attending either public or proprietary schools. The agency that administers the program says that proprietary students have a considerably higher completion rate than the students in public schools.⁴²

One other program worth noting also took place in California. In it, the City of Oakland, under the sponsorship of the Comprehensive Employment Training Act (CETA), sought training for some hard-core unemployed. They turned to the Polly Priest Business College, a proprietary school, to begin training in 1971. The interesting aspect was the fact that,

The school guaranteed to place four out of five of its CETA graduates in jobs. For every student short of the mark, it promised to train another free. Last year, in the face of a regional unemployment rate of 12 per cent, the school missed its goal for the first time, and this year it is training fourteen extra students at no charge.⁴³

Burck sums up the feelings of many of the proprietary school owners on the money issue when he says,

Because they are operated with exemplary efficiency, they earn a modest profit doing something that many public schools cannot do at all--sending graduates into the world with a marketable set of skills. And because they are private, proprietary schools pay taxes rather than soak them up.⁴⁴

Accreditation

Like community colleges, the proprietary schools also have accrediting agencies. However, unlike their collegiate counterparts, there is no requirement that they be accredited. Analysis of the records shows that the majority of the proprietary schools, in fact, are not accredited. Accrediting is necessary for those schools wishing to register students being sponsored by vocational organizations or qualifying students for certain types of bank loans. However, because there are no regulations imposing penalties for not being accredited, most schools do not subject themselves to the tribulations needed to accomplish it.

The two accrediting agencies for these schools are the National Association of Trade and Technical Schools (NATTS) and the Association of Independent Colleges and Schools (AICS), formerly the United Business Schools Association. NATTS has a total of 390 schools on its list of accredited schools, and AICS has a total of 518. Obviously, the majority of proprietary schools remain unaccredited. This is not to be interpreted to mean that the schools do not meet the qualifications; many of them simply have not applied for accreditation for one reason or another.⁴⁵

The number of proprietary schools in existence is open to some disagreement, however, the general consensus seems to set their number at around 10,000. Based on this figure, it would indicate that less than 10 per cent of the schools are accredited.

Another movement was initiated to accredit proprietary schools together with those in the higher educational community; however, the Internal Revenue Service was quick to issue a warning about such a proposition.

A budding movement to give proprietary institutions greater status in the mainstream of higher education has been set back by the Internal Revenue Service.

Responding to a query from the Federation of Regional Accrediting Commissions of Higher Education, the IRS ruled this month that the federation's tax-exempt status 'may be jeopardized' if its member commissions admit proprietary institutions.

Policy Change Had Been Planned

The federation, which consists of the seven voluntary agencies that grant overall accreditation to colleges and universities, had been planning a major policy change to accredit proprietary institutions. Virtually all of the commissions' current members are public or non-profit private institutions.

The IRS ruling declared, however, that 'the admission of profit-seeking organizations into the membership of non-profit organizations is inconsistent with tax-exempt status under Section 501(c) (3)' of the Internal Revenue Code.

Aside from the exemption it provides, this status is essential to the eligibility of such organizations for foundation grants and other outside support. The category generally covers schools, churches, and charitable institutions and organizations.⁴⁰

As a result of rulings such as this and the outcome of the Marjorie Webster case cited earlier, accrediting of proprietary schools has been greatly curtailed outside their own accrediting organizations.

Differences in Program Length and Cost

Besides the differences in accrediting, there are also the basic differences in program length and cost. It is a generally accepted fact that proprietary schools charge much more in tuition than community colleges. Part of the rationale for this fact stems from one of their inherent differences. Community colleges offer liberal arts programs while proprietary schools do not. These liberal arts programs provide them with an edge in the distribution of tuition. The proprietary school cannot depend on a low-cost program to help subsidize a more expensive offering.

The community college offers a liberal arts program, sometimes to a majority of the students. The cost of operating this program is usually, though not always, less expensive than operating the occupational education program, so the college helps support the high-cost occupational program with this 'surplus' from the liberal arts students.⁴⁷

This fact should not infer that all the programs offered by community colleges are longer than those of proprietary schools. The latter do not just offer short programs. Some programs are of sufficient duration to qualify them to grant the Associate Degree.

The Commonwealth of Pennsylvania changed some of its regulations in 1969 which made it possible for proprietary schools to award two types of associate degrees. They had to meet standards established by the Commonwealth in order to qualify. Part of these standards included the scope and length of the programs. The length of the program equates out to approximately two years of formalized study. In his article, Shoemaker also reported that as of 1973, there were thirty-seven schools approved to grant this degree. However, he also stated that,

In many ways, the programs approved for the associate degree are similar in scope and length to programs offered by the community colleges, though there are some differences--the most important of which is the decreased emphasis on general education in the program of a proprietary school.⁴⁸

Again, the reduced offerings in general education becomes an issue. The proprietary schools are still keeping with their traditional role of teaching as much technical matter as possible at the expense of general educational content.

Most of the writers quoted so far give one side of an issue. They select either the community college or the proprietary school and expound to some degree on a particular aspect of their program. Very little has actually been written which compared both programs; however, one study has been done comparing them. It was done by the American Institute for Research in the Behavioral Sciences under a contract with the U. S. Office of Education.

Wilms compared twenty-one public schools, sixteen of which were community colleges, with twenty-nine proprietary schools. They were located in four locations around the United States and covered six different occupational areas; accounting, electronic data processing-programmer, dental assisting, electronic technician, secretarial and cosmetology. He found that,

The proprietary student brought fewer resources to school with him. He was more likely a high school dropout or graduate of a low-status general or vocational program.⁴⁹

Based on the results of the findings of the study, Wilms offered seven recommendations, six of which proposed federal or state government involvement. These recommendations were based on the facts that,

Eight out of ten graduates of professional and technicallevel, postsecondary vocational programs did not get the jobs they trained for; and, second, eight out of ten graduates from lower-level vocational programs got the jobs they trained for but with the exception of secretaries, barely earned the federal minimum wage.⁵⁰

In terms of an overall finding, Wilms stated that, "Graduates of public schools had about the same success in the labor market as graduates of proprietary schools."⁵¹

Upon examining the Wilms study, Larkin states that,

In terms of the people they serve, the study shows proprietary and nonproprietary school students to be quite similar in sex, age, education, prior work experience, and family background, though there is a somewhat higher percentage of minority group students enrolled in nonproprietary schools. Further, the educational profiles of nonproprietary and proprietary school students are almost identical. Four out of ten had been enrolled in academic programs before undertaking vocational studies, more than half had achieved grade point averages in the 'B' range, and another 35 per cent had 'C' averages.⁵²

Occupational Preparation

Some writers also allude to the importance of some type of occupational preparation. Their arguments are based on the necessity of having an adequately educated populace. It is their contention that every student must begin this occupational preparation in high school, even those enrolled in college preparatory programs. Once competition for positions in the job market begins, those less skilled are handicapped. Their handicap is the direct result of possessing inadequate skills.

All students outside the college preparatory curriculum should acquire an entry-level job skill, but they should also be prepared for post-high school vocational and technical education. Even those in the college preparatory curriculum might profit from the techniques of learning by doing. Some formal postsecondary occupational preparation for all should be a goal for the near future. Postsecondary enrollments are growing, and before many years have passed, the labor force entrant without advanced skills gained through postsecondary education, apprenticeship, or on-thejob training will be at a serious disadvantage.⁵³

Now it becomes apparent that some writers feel occupational preparation should not be neglected, but should be an integral part of the schooling process. They stress that Some type of formal occupational preparation must be a part of every educational experience. Though it may be well to delay final occupational choice until all the alternatives are known, no one ought to leave the educational system without a salable skill. In addition, given the rapidity of change and the competition from generally rising educational attainment, upgrading and remedial education opportunities are a continual necessity. Those who need occupational preparation most, both preventive and remedial, will be those least prepared to take advantage of it and most difficult to educate and train.⁵⁴

This attitude is not new; it has been in existence for hundreds of years. One merely needs to examine some of the history of apprenticeships in this country. With the changes in our early history, newer demands were placed on our labor force. No longer could small independent proprietors keep on competing. Schaefer and Kaufman noted that

As time passed, however, more and more masters relegated their educational responsibilities to society at large, maintaining that apprenticeship was a source of labor and that the obligation of educating the young in the basic elements should be assumed by the schools.

Upon the demise of apprenticeship, attempts were made to fill the gap in the form of mechanics institutes and lyceums. Education became the by-word. As early as 1826, Josiah Holbrook published the manifesto of the American Lyceum Movement which called for the furnishing of a universal and practical education. 55

Time progressed and

by 1900, almost every professional occupation had one or more schools devoted to it. At present, almost every skilled, technical and professional occupation inducts at least part of its workers through formal school programs offered in high schools, community colleges, universities and private occupational schools.⁵⁶

Coming back to the issue of high schools, momentarily, sheds some additional light on the criticism of the post-secondary education movements. There are some critics who persist in saying that the high school student is not given the best advice when it comes to vocational selection. They emphasize that more should be done at the high school level rather than waiting until later. For example, McMahon states that

we must realize that we are again making arbitrary selection of career possibilities for many young people; and by emphasizing the post high school at the expense of the high school program, we may be depriving a very substantial number of students of ap education which could change their entire life experience.⁵⁷

Yet there are large numbers of students who do have the foresight to begin laying plans for their future. Some choose college propriatory programs and others narrow down a vocational choice in high school. Once they complete their programs, they are prepared to enter into the world of work. However, some of these students later change their minds and wish to continue their education. At that point, another problem compounds the situation. Consider what happens when students wish to expand on knowledge previously obtained in high school. They can enroll in either a college, community college, or proprietary school in a program which should continue the educating process. It would be natural for them to expect courses to build on knowledge already attained.

Some of these institutions grant credit for previous work. Some proprietary schools make the claim that they grant advance placement based on successfully passing a test indicative of the material covered in specific courses. There are community colleges which have similar programs while others work directly with students still enrolled in high school. A few even grant

advanced standing based on work completed in high school; however, this is not the case for all.

Too frequently they are given no credit for this earlier instruction and are forced to repeat courses which they completed successfully in the high school.⁵⁸

Placement Assistance

Upon completion of their programs, the students are ready to enter into the labor market. Some, in fact, do not wait until they graduate from the proprietary school or community college. Some are in such demand that they are offered positions by companies while they are still in training. Consequently, they leave without actually graduating. This is not the case in all fields. Those who are not as fortunate in finding a position have to wait for graduation and then look for placement assistance. A natural outlet instituted by some of the better schools is through the development of a well-organized placement office. There is a positive correlation between the existence of a placement office and the rating of the vocational program. It has been

shown clearly that schools which operate placement offices for their students have better vocational education programs than schools which do not offer such a service. The most likely reason for this finding is that the placement office serves as a feedback mechanism for adjustment in the content and methods of the vocational training program to meet local labor market needs.⁵⁹

Yet not all schools have put forth the effort needed to develop an extensive placement service. This same shortcoming can also be attributed to colleges and universities; however, the evidence of these findings must be pretty convincing because even some high schools with vocational programs have instituted a placement office.

One of the first authors to begin giving detailed information on proprietary schools is Belitsky. He notes that,

The placement ratio for all reporting NATTS schools in 1966 was estimated at 55 percent; a higher figure might have been expected in view of the fact that nearly every school had a placement service for graduates.⁶⁰

He, too, makes the observation about the importance of a placement service. He notes that,

Student follow-up is of course an important means of determining the effectiveness of a school's training and ultimately the student's occupational progress. More than 4/5 of the NATTS schools had some student follow-up procedures although the intervals varied widely.⁶¹

However, can this be attributed in the same proportion to all proprietary schools? This is open to question. It will be recalled that NATTS represented less than 10 per cent of the proprietary schools. Therefore, this follow-up procedure cannot, by inference, be generalized to be in existence in all schools.

To make matters worse, consider some of the testimony before a subcommittee of the House of Representatives studying proprietary vocational schools. Here it is stated that,

School followup of students after graduation is a crucial means of determining the percentage of students who secured training related jobs and their occupations progress over the years. Most schools follow-up their graduates for one year; but only about 20 percent of the schools gather information on their graduates' employment progress after the first year. It would seem, therefore, that private vocational schools--as well as most other educational and training institutions--could improve their follow-up procedures and, in turn, provide accrediting teams with additional important evidence for evaluating the schools.⁶² Whether the same statements are true about community colleges is not found in the work of any of the authors studied. However, it does pose a serious question about the degree to which students' needs have been met by their program of studies.

These same hearings saw testimony presented by many of the experts in the proprietary school field. Some final arguments made with regard to the placement by proprietary schools serve to illustrate the real importance of such a service.

Proprietary schools must meet the needs of their students and prepare them for occupations better than their competitors for any given cost; they must consider signals from output markets to survive; they are characterized by limited objectives and programs; they are single-purpose organizations to prepare students for successful employment; they recognize that their own success depends largely on the occupational success of their graduates and therefore they select students with a high probability for successful placement; they are characterized by flexible operations to accommodate the needs of students and employers.⁶³

In conclusion, the evidence presented by these writers shed light on some of the claims and counterclaims of both community colleges and proprietary schools. However, there is no hard and fast evidence as to which is doing better at the task of educating its students. The American fascination with being the best, being a winner, almost automatically leads to the conclusion that the other is a loser; however, this is not the case, nor should it be thought to be so. Both community colleges and proprietary schools meet needs imposed by those wishing to further themselves, their knowledge, and their skills. Because both have shown evidence that they are providing this service is proof enough that our society has a need for both.

Historically, the schools of this nation have had an unstated assignment--to pick out those who should not continue formal schooling. This was once necessary because the labor force in the past was made up mainly of unskilled workers. Muscle power had salability at one time, and someone had to decide who picked the cotton, who mined the coal, or who worked in the factories.⁶⁴

Can we afford to continue this process, or worse yet, should we pit our schools against one another only with the result that the student becomes the loser?

Summary

The review of the literature revealed several facts about the two types of post-secondary schools. Among the most important findings were first, there is a wide variety of articles and books written on community colleges. Practically every aspect of community colleges has been studied. On the other hand, proprietary schools have, by comparison, had very little written and practically no studies made on them. Secondly, and more importantly, the review of literature highlighted the fact that only one comparative study had been done. This study, just recently completed, was conducted under the auspices of the U. S. Office of Education. This served to illustrate the need and importance for additional comparative studies and forms the basis for this study.

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CHAPTER III

1

DESIGN AND METHODOLOGY

Introduction

This chapter is devoted to a detailed examination of the methodology used in gathering information for this study. The information is divided into two sections. The first section, labelled Category One, deals with information on the two types of schools participating in this study. The second is labelled Category Two and deals with information on the graduates from proprietary schools and community colleges. Finally, the method used to select the target student population and collect the data is described.

Statement of the Problem

Are community colleges and proprietary schools equally successful in preparing graduates of their electricity/electronics programs for the world of work?

Objectives

The objectives of this study were to gather and compare information on community colleges and proprietary schools in two broad categories. The first, labelled Category One, covers information on the two types of post-secondary schools. The second, labelled Category Two, covers information on the graduates of both types of institutions.

Category One Information

Within this category three types of data on the schools were sought using publications produced by non-school sources. They were:

- 1. Ownership information
- 2. School populations
- 3. Program offerings

Some of the comparisons of Category One Information were done using 1970 census data while the Category Two Information was obtained using a questionnaire to survey graduates from the early 1970's. Thus, the 1970 census data served as a benchmark for keeping the two types of information in perspective.

Category Two Information

A questionnaire was used to gather data for various subhypotheses. As a check against the records received from the schools, each graduate was asked to verify his graduation year. Then several initial factors about the graduates were examined for significant differences.

- 1. Age
- 2. Sex
- 3. Marital status
- 4. Full or part-time student
- 5. Amount of formal schooling
- 6. Type of high school program

Next, the placement program of each type of school was examined for statistical significance. Included here were the responses from the graduates concerning the following:
- 7. Time required to find a job
- 8. Assistance received from the school
- 9. Able to find a job
- 10. Reason for taking the job
- 11. Sources for first job

After obtaining work, each graduate was asked to respond to a series of questions about his job. These answers were then analyzed for statistical significance. They included the following:

- 12. Starting salary
- 13. Rate the training received as to its preparation for work actually performed
- 14. If they obtained a salary increase
- 15. Amount of increase
- 16. If they changed jobs
- 17. The reason for changing jobs
- 18. Job satisfaction
- 19. Rate the electronics training received

To get information on any additional schooling after graduation each participant was asked to respond to several additional questions. These were concerned with:

- 20. Taking additional studies
- 21. Hours taken
- 22. Where they are taken

The graduates were asked to answer three open-ended questions to provide some additional information. These questions were concerned with job classifications, additional courses, and additional comments. Their answers were to serve as guidelines for future recommendations.

Hypotheses

Category One Information was obtained for comparisons on the two types of post-secondary schools. Category Two Information, however, was obtained for purposes of comparing their graduates. The latter serves as the focal point for the major hypothesis of this study.

The main hypothesis was:

There is no significant difference between proprietary schools and community colleges in preparing electronics school graduates for the world of work.

Since the first six items of Category Two Information deal with normative data, they are not a part of the main hypothesis. They were sought to establish some basic facts for comparison of the graduates. Sub-hypotheses one through six are:

- There is no significant difference in the ages of proprietary school and community college electronics school graduates.
- There is no significant difference in the sex of proprietary school and community college electronics school graduates.
- There is no significant difference in the marital status of proprietary school and community college electronics school graduates.

- 4. There is no significant difference between the proprietary school and community college electronics school graduates as to the type of student they were before graduation.
- 5. There is no significant difference between proprietary school and community college graduates in the amount of formal schooling they obtained before attending electronics school.
- There is no significant difference in the type of high school program completed by proprietary school and community college electronics school graduates.

The next thirteen items of Category Two Information are used to determine significance of the main hypothesis. They deal with the electronics students after graduation. These were items which could be attributed back to the schools and their impact on the students. Sub-hypotheses seven through nineteen are:

- 7. There is no significant difference in the length of time required to obtain work in the electronics field by proprietary school and community college electronics school graduates.
- 8. There is no significant difference in the amount of assistance received from school placement officials by proprietary school and community college electronics school graduates.
- 9. There is no significant difference in whether jobs are obtained as a result of interviews by proprietary school and community college electronics school graduates.

- 10. There is no significant difference in the reason given for taking jobs by proprietary school and community college electronics school graduates.
- 11. There is no significant difference in the sources leading to the first job after completing electronics school between proprietary school and community college electronics school graduates.
- 12. There is no significant difference in the starting salaries obtained by proprietary school and community college electronics school graduates.
- 13. There is no significant difference in how graduates from proprietary school and community college electronics schools rate their training as to preparing them for the work they are actually performing.
- 14. There is no significant difference in the number of proprietary school and community college electronics school graduates receiving salary increases since being hired.
- 15. There is no significant difference in how much of a raise proprietary school and community college electronics school graduates receive.
- 16. There is no significant difference in the number of proprietary school and community college graduates who have changed jobs since leaving electronics school.
- 17. There is no significant difference in the reason for changing jobs by proprietary school and community college electronics school graduates.

- 18. There is no significant difference between proprietary school and community college electronics school graduates in how they rate their satisfaction with their jobs.
- 19. There is no significant difference between proprietary school and community college electronics school graduates in how they rate their electronics training.

If at least 50 per cent of these items are significantly different, the main hypothesis is rejected. This will indicate that either proprietary schools or community colleges are doing a better job of preparing graduates for the world of work.

Three additional sub-hypotheses are made to determine any dissimilarity in studies taken after graduation.

- 20. There is no significant difference in the number of proprietary school and community college electronics school graduates taking additional studies.
- 21. There is no significant difference in the number of hours per week spent in school by proprietary school and community college electronics school graduates.
- 22. There is no significant difference in where proprietary school and community college electronics school graduates take additional studies.

Finally, each graduate was asked to respond to three additional questions dealing with job classification, recommendations for additional courses, and any additional comments. They were not stated as part of the hypotheses but were included for additional information.

Research Methodology and Design

Several sources were used to establish the design and collect the information sought in this study.

Category One Information

This category of information was obtained from several sources. All of these reporting sources were selected from outside the realm of control of the two types of schools being examined. By selecting them in this manner, any bias from a self-reporting source could potentially be reduced as low as possible. The sources used were:

- Annual Reports of the Michigan Departments of Education and Labor
- 2. Census Reports
- 3. Michigan Statistical Abstract
- 4. United States Department of Commerce Reports

<u>Category Two</u> Information

This category of information was obtained using a questionnaire. Each item on it was designed to provide information on the various sub-hypotheses. The questionnaire was developed through the use of pilot instruments mailed to graduates and their employers. The finalized version of the questionnaire was mailed to each of the graduates selected for participation in this study. Data from these questionnaires returned were analyzed to determine the statistical significance of each of the sub-hypotheses. Thus, Category Two Information was a compilation of the responses of the graduates of the two types of post-secondary schools studied.

Selection of Participating Schools

As highlighted numerous times in the review of literature, placement of graduates determined the success or failure of proprietary schools. Since this served as a determining factor for proprietary schools, why not also use it with community colleges? An excellent measure of both schools could therefore be obtained by surveying the graduates from their electricity/electronics programs. Consequently, a comparative study of both types of post-secondary schools was in order.

Assistance was sought from members of the Michigan Department of Education to select the schools which were to participate in this study. The State of Michigan, under the provisions of Act 148 passed in 1943, serves as the regulating and licensing body for private trade schools, business schools and institutes in the state. Therefore, the Supervisor of Private Trade Schools was invited to help in the identification of the proprietary schools. The Supervisor of the Post-Secondary Unit volunteered to help identify the community colleges which would participate. By making the identifications in this manner, it was possible to consider all the schools in both categories within the state.

The selection of proprietary schools was made from a list which included all those licensed to do business within the state. Thus, all schools were included regardless of whether or not they were accredited by any of the four accrediting agencies recognized by the U. S. Commission of Education. It has been estimated that only 10 to 15 per cent of proprietary post-secondary schools are

accredited. Therefore, this method eliminated any potential problem of excluding any non-accredited schools doing business in the state.

Community colleges were selected from the list of twentynine operating in the state. Of the twenty-five Michigan counties in which community colleges were located, only three did not have an electricity/electronics program. Of the seventeen counties where proprietary schools were located, only four had an electricity/ electronics program. These latter four were Genesee, Kint, Midland and Wayne counties. It is noteworthy that all four of these counties were also served by at least one community college offering such a program. To check the amount of overlap, a comparison was made of those with electricity/electronics program offerings. A map showing the counties where community colleges and proprietary schools are teaching these programs follows.

Although there were other community colleges in the State which taught electronics programs, there were no other proprietary schools in the same county also offering such a program. A breakdown of the schools in those counties having both types of schools yields the following distribution:

Genessee County

<u>Community Colleges</u>: Charles M. Mott

Proprietary Schools: RETS Electronics Schools

Kent County

<u>Community Colleges</u>: Grand Rapids Junior College <u>Proprietary Schools</u>: RETS Electronic Schools United Electronics Institute

Figure 3.--Overlap of Michigan Counties with Community Colleges and Proprietary Schools Teaching Electricity/Electronics Programs.



Midland County

<u>Community Colleges</u> :	Delta
Proprietary Schools:	Dow Education Systems
Wayne County	
Community Colleges:	Henry Ford Schoolcraft
Proprietary Schools:	Electronics Institute of Technology
	RETS Electronic Schools

Wayne County is considered by many people to be a portion of the Detroit Metropolitan Area. It alone had slightly over 47 per cent of the population of the entire state. Genesee, Kent and Midland counties comprise an additional 10 per cent of the State's population. This means that about 57 per cent of the State of Michigan's population is concentrated where both a proprietary school and a community college teach electricity/electronics. Most of the remaining population is offered an electricity/electronics program solely by the other eighteen community colleges. These, however, serve most of the geographical area of the state.

Even though some schools had names which included the generic term "electronics," they were eliminated if they did not in fact meet the criterion of actually teaching electricity/electronics. Thus schools which taught computer programming, computer technology, computer operation, systems analysis, keypunch operator or other non-related electronics courses (broadcasting, FCC license or electro-hydraulic services) were ruled out of this study.

Prior to making the determination of which schools to survey, a letter was sent to the deans of the community colleges and

presidents or owners of the proprietary schools in these matched counties inviting their participation in the study. It was planned to narrow the study to just two counties--one being Wayne County for its metropolitan population and the second from either of the remaining three counties.

With the information supplied by the two Michigan Department of Education personnel, the schools were tentatively selected. Each school was then paid a personal visit for purposes of verification of the similarity of the programs being taught. Upon confirming the similarity of offerings, each school was asked to participate in the study and all four accepted. The names of the schools finally selected are not given because of the promise of confidentiality. Therefore the schools are listed as:

> Community College Number One (C. C. #1) Community College Number Two (C. C. #2) Proprietary School Number One (P. S. #1) Proprietary School Number Two (P. S. #2)

Selection of the Population

Once the participating schools were determined, the population had to be selected and the survey instrument constructed. The first decision was to have two population groups from each school location. The one group would be recent graduates and the second would be out of school at least two years, the feeling being that this latter group would not be influenced as much by the "halo" effect of having just completed school. Therefore, the two years, 1971 and 1973, were selected for the target population. Next, lists of the target populations were obtained from all four participating schools. At this time it was found that the number of graduates from both community colleges was extremely small. Therefore to increase the populations, their 1972 graduates also had to be included.

Selection of the Sample

Setting the sample size was determined in consultation with the Michigan State University Office of Research Consultation. Because of the small sample size of the community colleges graduates, their total population was surveyed. The proprietary school sample size was set at a percentage of their total population. That percentage is not given here so that no inference of schools or their populations can be surmized from this report.

The individual proprietary school participants were arrived at by using the following procedure. First, the 1971 subgroup for each school was listed in alphabetical order and assigned a number starting with one and continuing until the last name was assigned. The same procedure was used for the 1973 graduates. In this manner, all four proprietary school subgroups had numbers assigned. Next, using a table of random numbers, each subgroup was reduced to the desired sample size.

To construct the survey questionnaire, two pilot instruments were prepared. One was mailed to electronics graduates and the second to employers that hire them. Based on the information obtained from the pilot instruments returned, their responses were

used to formulate the questionnaire. The finalized form shown in Figure 4 was used to gather the Category Two Information. Although an additional year had to be added later to the community college subgroups, none of these additional subjects were in the pilot group.

Gathering the Data

After the survey instrument was pilot-tested and the population determined, the random sample was surveyed using the United States mail. A cover letter was attached to each questionnaire mailed, Figure 5. For those not responding, a second letter with an additional handwritten note, together with any new address information obtained, was mailed. Finally, using the telephone, efforts were made to trace all the non-responders still remaining. Only after they had given their permission, were their responses recorded an audio tape. Of all those contacted in this manner, only one refused. His answers were reported, but not recorded on audio tape. Those who agreed to the taping also had their responses added to the survey instrument.

<u>Processing the Data</u>

A code number was added to the mailed survey forms so that each respondent could be identified as to year of graduation and school attended. All the responses were then transferred to a master data sheet. These data were then keypunched into coded cards. The keypunching was done by an experienced operator and verified on a separate machine. As an additional precaution to

As of ____ date What is your age? 2. Sex 3. Marital Status ____ Divorced Under 20 Female Male 20-25 Married 26-30 Widow **Over 30** Widower 4. How long ago did you graduate from 5. Were you a full time day student the electronics program you attended? part time day student Less than 1 year full time evening student 1-3 years _____ 4-6 years ____ part time evening student More than 6 years How long after graduation did it take 7. How much assistance did you receive from school placement to obtain work in the electronics field? officials? ____ Before graduating None ____ Immediately upon graduation Did not require assistance Less than 1 month Had a number of interviews Other (please specify) arranged by the school ____ months (please specify) years Obtained work in another field (please specify) 8. As a result of the interviews were you 9. Reasons for taking job? able to find a job? ____ Advice of friend or relative _Yes ____ Close to home ____ Fringe benefits No More chances for advancement Not applicable, went into military, college, etc. (please specify) Reputation of company Salary Other (please specify) 10. After obtaining a position, how would 11. What was your starting salary you rate your training as to preparing (before taxes)? ____ Under \$100/week you for the work you are actually \$100 - 149/week performing? _____ \$150 - 199/week _Did not prepare me adequately ____ Prepared me for most requirements Over \$200/week Trained me for all requirements ____ Overtrained me for tasks required Other (please specify)

Figure 4.--Questionnaire Used to Collect Category Two Information.

- 12. Did you receive an increase in salary since your hiring? No Yes (if yes, answer 13)
- 14. Have you or are you in the process of taking additional studies? Yes ____ No
- 16. Where are you taking additional training? ____ College or university Company training program Community college program Correspondence school Proprietary school Self study ____Other (please specify)
- 18. What kind of high school program did you complete? ____College prep ____Did not complete high school General (neither college prep nor technical)
 - Vocational or technical
- 20. If you have changed jobs, for what reason?
 - _ Dislike old job
 - _ Got a better job
 - Laid off or fired Military service
 - Promotion
 - Other (specify)
- 22. How would you rate your electronics training? Very high
 - Above average
 - Average
 - Below average
 - Very low

- 13. How much of a raise per week? Less than \$15 \$15 - 30 More than \$30
- 15. If yes to 14, how many hours per week are spent in the classroom? Less than 3 hours _ 3-6 hours 7-9 hours More than 9 hours
- 17. Amount of formal schooling before attending electronics school? _____1-6 years

 - 7-9 years 10-11 years High School graduate
 - ____ Less than Bachelor's degree
 - Beyond Bachelor's degree
- 19. Have you changed jobs since leaving electronics school? __ No Yes
- 21. What were the sources leading to your first job after completing electronics school? ____ Employment agency
 - ____ Friend or relative
 - <u>Newspaper</u> or magazine ad
 - ____ Previous employer
 - School official
 - Other (specify)
- How would you rate your satis-faction with your job? 23. ___Very_high
 - ____ Above average

 - Average Below average
 - Very low

- 25. What additional courses would you recommend an electronics student take to improve their job skills?
- 26. Please make any additional comments you feel are important.

THANK YOU FOR YOUR HELP.

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Stephen R. Matt Michigan State University Room 330 Erickson Hall East Lansing, Michigan 48823

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Figure 5.--Cover Letter Mailed with Questionnaire.

MICHIGAN STATE UNIVERSITY

COLLEGE OF FOULATION DEPARTMENT OF SECONDARY EDUCATION AND CURRICULUM ERICKSON HALL HAST LANSING . MICHIGAN - 48624

Dear Electronics Graduate:

Attached is a survey instrument which deals with items related to your satisfaction with your professional training. Would you take a moment from your busy schedule to check the appropriate boxes. Any additional comments you would care to make would be more than welcome.

After you have answered the questions, would you please return it today in the stamped, self-addressed envelope.

Your answers will be used to provide valuable information concerning training in the electronics field. Your assistance as a recognized graduate in this area is greatly appreciated.

Your reply will be kept confidential.

Sincerely,

flyphin R. Matt

Stephen R. Matt Electronics Instructor MSU

insure accuracy, each card had its contents printed out on the top. This information was then cross-checked against the master data sheet.

All the keypunched cards were then processed on a computer. Printouts of these data were obtained on the University of Manitoba computer using the Statistical Package for the Social Sciences (SPSS) program. This program is one of a standard series of online computer programs in daily use at the University. Results of these data are reported in the next chapter.

Statistical Treatment

The responses were then analyzed using chi-square and the results compared to the table value at an alpha level of .05. The degrees of freedom in the comparisons were dependent upon the number of cells. However, the chi-square treatment requires a minimum of five responses in each cell. It also requires discrete responses. Because of these restrictions, it was necessary to resort to pooling responses in some cases. Taking these restrictions into consideration, the individual hypotheses were compared with the table value to determine if any were statistically significant.

Summary

In this chapter, the process for selecting the schools to participate in the study was given. It was shown that only four counties in the State of Michigan had electricity/electronics programs conducted by both community colleges and proprietary schools. Two counties were selected from them. The data gathered by this study were broken down into two categories. First, Category One described data on both types of participating schools. Category Two Information described data on the graduates of the schools.

Next, the process used to develop the questionnaire was described. This involved the use of a pilot instrument and reducing its findings to the finalized instrument. Once finalized, the questionnaire was mailed to graduates of the electricity/ electronics programs of both types of schools. The responses were then keypunched and the results of the data compiled through the use of a computer. The responses were then analyzed using chi-square and compared to the table values at an alpha level of .05 to determine statistical significance.

CHAPTER IV

ANALYSIS OF THE DATA

Introduction

Two categories of data are collected in this study. Category One covers the schools and includes:

- 1. Ownership information
- 2. School populations
- 3. Program offerings

Category Two, the major portion of the data in this study, covers the graduates and includes:

- 1. Background of graduates
- Job placement and salary information after placement of graduates
- 3. Job satisfaction and preparation of graduates
- 4. Rating of the institutions by graduates
- 5. Studies taken after graduation

Data collected on the schools and from the graduates are then analyzed. The Category One and Two Information are first listed in raw data form. Thus the actual responses are shown before pooling; necessitated by the small sample population. Each item of Category Two Information is then analyzed for significance using chi-square at an alpha level of .05. Using this technique, the community college graduates are compared with the proprietary school graduates. The three open-ended questions of the questionnaire dealing with job classification, additional courses and additional comments are listed in a modified form. The responses are categorized into tables in an effort to show trends for both types of post-secondary institutions.

Category One Information

Ownership Information

This first category is concerned with data on the schools. An examination of the community colleges in Michigan shows that they can be subdivided into two categories:

7 private

29 public

A breakdown of the ownership of Michigan's 182 licensed proprietary schools shows the following distribution:

- 3 company owned
- 10 holding companies
- 11 partnerships
- 22 non-profit
- 58 educational corporations
- 78 individually owned

School Populations

Examination of the enrollment statistics for the twentynine public community colleges shows they had 126,225 students (Appendix 3). The seven private community colleges had an enrollment of only 3,313 which averages out to 473 students per school. The privately owned Davenport College of Business had the bulk of these with 1,316 while DeLima Junior College listed only two students. These private schools are not used in the comparisons which follow.

Proprietary schools had a reported total student enrollment of 37,310.¹ These figures indicate that, collectively, the community colleges had a population more than 333 per cent larger than that of the proprietary schools.

It should be noted that there were only twenty-nine public community colleges as compared to the 182 proprietary schools licensed in the State of Michigan. (Unlike some states reported earlier, in this State proprietary schools must be licensed to operate.) Yet, the community colleges averaged 4,300 students per school while proprietary schools had slightly under 270 students per school on the average. Comparing these figures, the average community college had nearly sixteen times as many students as did the average proprietary school.

Program Offerings

With this knowledge on population trends, the next step was to isolate the program offerings of both types of institutions. A summary of these offerings are shown in Figure 6. Appendix 4 highlights the fact that four programs were offered frequently by both types of schools. The offerings of greatest similarity were:

> Accounting Business Administration/Management Electrical/Electronics Related Secretarial Science



Figure 6.--Number of Program Offerings for Michigan Community Colleges and Proprietary Schools.

Only one of these four programs is directly related to the Industrial Education field, namely, the electrical/electronics programs. The review of the literature did not disclose any studies made exclusively on community college and proprietary schools in the electrical/electronics field. A portion of one study reported on by Larkin² did, however, include electronic technicians as part of its population base. This need inspired doing an entire study on comparing community college and proprietary school graduates in this field.

Category Two Information

Analysis of these data showed that of the 207 people in the sample, 108 filled out the survey instrument and two more responded that they had not yet graduated. These two are designated by the asterisk in Table 1. Based on the Cornfield Tukey argument for inference, 3 it is assumed that the non-responders would have answered in a manner similar to those who did respond.

Additionally, some of those responding also gave more than one answer for various questions. The chi-square statistical analysis demands discrete answers. All items having two or more answers checked were discarded and were not used in the calculations to comply with chi-square requirements. For that reason, the total number of respondents appears to fluctuate for each statement.

Finally, the data from the computer printouts were analyzed to determine whether or not any significant differences existed. The analysis was done at an alpha level of .05. Both the raw and

	1	971	1	972	1	973	Total	
	Sample	Response	Sample	Response	Sample	Response	Sample	Response
C. C. #1	2	2 (100%)	9	8*(89%)	3	3*(100%)	14	13 (92%)
C. C. #2	2	0 (0%)	12	7 (58%)	14	11 (79%)	28	18 (64%)
P. S. #1	25	8 (32%)	X	X	30	19 (63%)	55	27 (49%)
P. S. #2	50	22 (44%)	X	X	60	30 (50%)	110	52 (47%)
Totals	79	32 (41%)	21	15 (71%)	107	63 (59%)	207	110 (53%)

TABLE I.--Distribution of Responses to the Mailed Questionnaire by Electronics School Graduates.

Note: C. C. = Community College

P. S. = Proprietary School

* Of the 1972 and 1973 graduates, one from each year indicated that he had not yet graduated, even though his name was listed on the graduation list.

statistical data are shown. The very limited number of community college graduates necessitated pooling many of the sample groups for any meaningful analysis. One of the requisites of using chisquare is that the expected frequency should have cell sizes containing at least five responses. Therefore, pooling was the only way analysis could be accomplished. In some instances even this arrangement did not provide the necessary cell size. The limited number of graduates also necessitated doing additional computations without the aid of the computer.

Analysis

The responses to the questionnaire were compiled and organized for analysis. In Appendix 5, each sub-hypothesis was matched to its corresponding item on the questionnaire. Statistical significance was determined by using the chi-square test statistic.

$$T = r_{\Sigma} \qquad c_{\Sigma} \qquad \frac{(0_{ij} - E_{ij})^2}{E_{ij}}$$

where

$$E_{ij} = \frac{R_i C_j}{N}$$

Each item was compared to the table value at an alpha level of .05.

Normative Data

The first six sub-hypotheses deal with normative data. These sub-hypotheses were posed to shed some light on the type of students taking an electronics program. Each item is analyzed for statistical

significance to determine if any difference existed. Following is the breakdown of the responses for the various categories as they are related to each hypothesis.

> <u>Hypothesis 1</u>: There is no significant difference in the ages of proprietary school and community college electronics school graduates. The responses to Item 1 apply to this hypothesis and are shown in Table 2.

	Item	CC	PS	Total
1.	Age			
	Under 20	0	0	0
	20-25	19	64	83
	26-30	9	9	18
	Over 30	0	6	6
	Observed			
	Age			
	25 & under	19	64	83
	26 & over	9	15	24
	Total	28	79	107
	Expected			
	25 & under	21.7	61.3	83
	26 & over	6.3	17.7	24
	Total	28	79	107

These data had to be pooled for analysis using chi-square because the community colleges had no one in the Over-30 category. Therefore, by pooling, two categories could be constructed with cells containing more than five responses. Cells of five or more are a requisite for chi-square analysis.

Doing the chi-square analysis resulted in a value of 2.024. Comparing it to the table value at an alpha level of .05 with one degree of freedom (3.841) shows no significant difference exists in the ages of the graduates. Therefore, Hypothesis Number One cannot be rejected.

> <u>Hypothesis 2</u>: There is no significant difference in the sex of proprietary school and community college electronics school graduates. The responses to Item 2 apply to this hypothesis and are shown in Table 3.

TABLE 3.--Sex of Graduates.

	Item	CC	PS	Total
2.	Sex			
	Female Male DNR	0 28 0	0 78 1	0 106 1
	Total	28	79	107

These data did not have to be analyzed because all of the respondents were male. Therefore, Hypothesis Number Two cannot be rejected. There is no significant difference in the sex of the graduates.

<u>Hypothesis 3</u>: There is no significant difference in the marital status of proprietary school and community college electronics school graduates. The responses to Item 3 apply to this hypothesis and are shown in Table 4.

0 11 17 0	0 38 40	0 49
0 11 17 0	0 38 40	0 49
11 17 0	38 40	49
17 0	40	
0		57
	0	0
0	0	0
0	1	1
11	38	49
17	40	57
28	78	106
12.9	36.1	49
15.1	41.9	57
28	78	106
	0 0 0 11 17 28 12.9 15.1 28	0 0 0 0 0 0 0 1 11 38 17 40 28 78 12.9 36.1 15.1 41.9 28 78

TABLE 4.--Marital Status of Graduates.

All of those responding checked one of two categories, married or single. Doing the chi-square analysis results in a value of 0.705. Comparing it to the table value at an alpha level of .05 with one degree of freedom (3.841) shows no significant difference. Therefore, Hypothesis Number Three cannot be rejected as there is no significant difference in the marital status of the graduates.

> <u>Hypothesis 4</u>: There is no significant difference between the proprietary school and community college electronics school graduates as to the type of student they were before graduation. The responses to Item 5 apply to this hypothesis and are shown in Table 5.

	Item	CC	PS	Total
5.	Type of Student			
	Full-time day Part-time day Evening	20 3 0	51 7 16	71 10 16
	Ubserved Type of Student			
	Type of Student			
	Full-time day Part-time or evening	20 3	51 23	71 26
	Total	23	74	97

TABLE 5.--Type of Student Before Graduation.

"Again, the data had to be pooled for analysis using chisquare. Even after pooling, one of the cells still had fewer than five responses. This necessitated doing a Yates correction which is required for a 2×2 distribution when one of the cells fall below five.

Doing the Yates correction to the chi-square analysis results in a value of 2.063. Comparing it to the table value at an alpha level of .05 with one degree of freedom (3.841) shows no significant difference. Therefore, Hypothesis Number Four cannot be rejected because there is no difference as to the type of student they were before graduation.

> <u>Hypothesis 5</u>: There is no significant difference between proprietary school and community college graduates in the amount of formal schooling they obtained before attending electronics school. The responses to Item 17 apply to this hypothesis and are shown in Table 6.

	Item	CC	PS	Total
17.	Amount of Formal Schooling Before Attending Electronics School			
	1-6 years 7-9 years 10-11 years High school graduate Less than Bachelor's degree Before Bachelor's degree DNR	0 0 18 4 0 6	0 1 64 6 0 8	0 1 0 82 10 0 14
	Formal Schooling High School Graduate Less than Bachelor's	18 4	64 6	82 10
	Total	22	70	92

TABLE 6.--Formal Schooling of Graduates.

Only one man indicated that he was not a high school graduate. The remainder of those responding fall into two categories; high school graduate and less than bachelor's degree. Only four community college graduates checked the latter category. This necessitated doing a Yates correction which is required when a cell has less than five responses.

The Yates correction to the chi-square analysis results in a value of 0.758. Comparing it to the table value at an alpha level of .05 with one degree of freedom (3.841) shows no significant difference. Therefore, Hypothesis Number Five cannot be rejected because there is no difference in the amount of formal schooling before attending electronics school.

<u>Hypothesis 6</u> :	There is no significant difference in the type of high school program completed by proprietary school and community college electronics school graduates. The responses to Item 18 apply to this hypothesis and are
	shown in Table 7.

TABLE 7KING OT HIGH SCHOOL PROGRAM LOMPLETED DY GRAG	aduates	S.
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	Item	CC	PS	Total
18.	What Kind of High School Program Did You Complete?			
	College Preparatory Did not complete high school General (neither college	11 0	24 0	35 0
•	preparatory nor technical) Vocational or technical DNR	8 3 5	31 12 8	39 15 13
	Observed			
	High School Program			
	College Preparatory General or Vocational	11 11	24 43	35 54
	Total	22	67	89
	Expected			
	College Preparatory General or Vocational	8.7 13.3	26.3 40.7	35 54
	Tota]	22	67	89

Upon doing the first statistical analysis, the Expected cell for the vocational or technical programs by community college graduates was still less than five. Therefore, the responses had to be pooled to obtain resultant Expected cells being larger than five. This was necessary because the Yates correction cannot be done for $3 \ge 2$ cells. It can only be done for an analysis with one degree of freedom and consequently had to be ruled out in this instance.

Doing the chi-square analysis results in a value of 1.337. Comparing it to the table value at an alpha level of .05 with one degree of freedom (3.841) shows no significant difference. Therefore, Hypothesis Number Six cannot be rejected as there is no significant difference in the kind of high school program completed by proprietary school and community college electronics school graduates.

Main Hypothesis

The next series of sub-hypotheses deals with information on jobs obtained after graduation. This group of hypotheses (seven through nineteen) is used to ascertain whether or not the main hypothesis should be rejected. If 50 per cent or more of items shown by these hypotheses are rejected, then the main hypothesis is also rejected. This would indicate that a significant difference exists between proprietary school and community college electronic graduates in their preparation for the world of work.

> <u>Hypothesis 7</u>: There is no significant difference in the length of time required to obtain work in the electronics field by proprietary school and community college electronics school graduates. The responses to Item 6 apply to this hypothesis and are shown in Table 8.

	Item	CC	PS	Total
6.	How Long After Graduation Did It Take to Obtain Work in the Electronics Field?			
	Before Graduation Immediately upon graduation Less than one month Other Obtained work in another field DNR	6 0 3 11 8 0	32 5 15 19 3	38 5 8 26 27 3
	Observed			
	How Long After Graduation to Obtain Work			
	One month or less Other Obtained work in another field	9 11 8	42 15 19	51 26 27
	Tota]	28	76	104
	Expected			
	One month or less Other Obtained work in another field	13.7 7.0 7.3	37.3 19.0 19.7	51 26 27
	Total	28	76	104

TABLE 8.--Time Required To Find Work.

Because of the distribution of the responses, they had to be pooled to get the cell sizes large enough to be analyzed using chi-square. This results in a distribution containing six cells.

Doing the chi-square analysis results in a value of 5.424. Comparing it to the table value at an alpha level of .05 with two degrees of freedom (5.991) shows no significant difference. Therefore, Hypothesis Number Seven cannot be rejected as there is no significant difference in the time required by the graduates to obtain work.

<u>Hypothesis 8</u>: There is no significant difference in the amount of assistance received from school placement officials by proprietary school and community college electronics school graduates. The responses to Item 7 apply to this hypothesis and are shown in Table 9.

TABLE 9.--Assistance Given Graduates by School Officials.

	Item	CC	PS	Total	
7.	How Much Assistance Did You Receive From School Placement Officials?				
	None Did not require assistance	13 7	13 18	26 25	
	arranged by school DNR	7 1	48 0	55 1	
	Observed				
	Assistance from School Placement Officials				
	None Did not require assistance Had a number of interviews	13 7 7	13 18 48	26 25 55	
	Total	27	79	106	
	Expected				
	None Did not require assistance Had a number of interviews	6.6 6.4 14.0	19.4 18.6 41.0	26 25 55	
	Total	27	79	106	

Doing the chi-square analysis results in a value of 13.088. Comparing it to the table value at an alpha level of .05 with two degrees of freedom (5.991) means Hypothesis Number Eight is rejected. Community college electronics school graduates receive less help from school placement officials than do proprietary school graduates.

> <u>Hypothesis 9</u>: There is no significant difference in whether jobs are obtained as a result of interviews by proprietary school and community college electronics school graduates. The responses to Item 8 apply to this hypothesis and are shown in Table 10.

TABLE 10.--Graduate Responses on Interviews Leading to Job.

	Item	сс	PS	Total	
8.	As a Result of the Interviews, Were You Able to Find a Job?				
	Yes No	11 4	35 24	46 28	
	military, college, etc.) DNR	8 5	14 6	22 11	
	Observed				
	As a Result of Interviews Find a Job				
	Yes No Not applicable (military, etc.)	11 4 8	35 24 14	46 28 22	
	Total	23	73	96	
	Expected				
	Yes No Not applicable (military, etc.)	11 6.7 5.3	35 21.3 16.7	46 28 22	
	Total	23	73	96	
The Yates correction can be used only when the degrees of freedom is one and when one cell is smaller than five. This item has one cell smaller than five but the degrees of freedom are two. However, if the expected frequency is at least five, the chi-square analysis can still be used without having to pool responses.

Doing the chi-square analysis results in a value of 3.204. Comparing it to the table value at an alpha level of .05 with two degrees of freedom (5.991) shows no significant difference. Therefore, Hypothesis Number Nine cannot be rejected. There is no significant difference between proprietary school and community college electronics school graduates obtaining jobs as a result of their interviews.

<u>Hypothesis 10</u>: There is no significant difference in the reason given for taking jobs by proprietary school and community college electronics school graduates. The responses to Item 9 apply to this hypothesis and are shown in Table 11.

TABLE 11.--Graduates Reasons for Taking a Job.

	Item	CC	PS	Total
9.	Reasons for Taking Job			
	Advice of friend or relative	1	2	3
	Close to home	1	5	6
	Fringe benefits	0	2	2
	More chances for advancement	2	13	15
	Reputation of company	1	2	3
	Salary	1	5	6
	Other	2	15	17
	DNR	6	16	22

The responses from the community college graduates do not yield any cells larger than five. Due to that fact, the reason for taking jobs cannot be analyzed using chi-square and Hypothesis Number Ten cannot be rejected.

> <u>Hypothesis 11</u>: There is no significant difference in the sources leading to the first job after completing electronics schools between proprietary school and community college electronics school graduates. The responses to Item 21 apply to this hypothesis and are shown in Table 12.

TABLE 12.--Graduates Sources for First Jobs.

	Item	CC	PS	Total
21.	Sources Leading to First Job After Completing Electronics School			
	Employment agency Friend or relative Newspaper or magazine ad Previous employer School official Other DNR	1 4 8 0 2 3 8	3 10 7 4 20 13 21	4 14 15 4 22 16 29
	Observed			
	Sources Leading to First Job After Graduating			
	School official Non-school source	2 16	20 37	22 53
	Total	18	57	75

The Yates correction is applied to this hypothesis because the pooled responses result in a 2×2 table with one degree of freedom and one cell less than five. Doing the Yates correction to the chi-square analysis results in a value of 2.725. Comparing it to the table value at an alpha level of .05 with one degree of freedom (3.841) shows no significant difference. Therefore, Hypothesis Number Eleven cannot be rejected. There is no significant difference in the sources leading to the first job after completing electronics school between proprietary school and community college electronics school graduates.

<u>Hypothesis 12</u>: There is no significant difference in the starting salaries obtained by proprietary school and community college electronics school graduates. The responses to Item 11 apply to this hypothesis and are shown in Table.

TABLE	13Graduates	Starting	Salaries.
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	Item	CC	PS	Total
11.	What Was Your Starting Salary (Before Taxes)?			
	Under \$100/week \$100-149/week \$150-199/week Over \$200/week DNR	4 4 12 4 4	5 29 21 9 15	9 33 33 13 19
	Observed			
	Starting Salary			
	Less than \$150 \$150 or more	8 16	34 30	42 46
	Total	24	64	88
	Expec ted			
	Less than \$150 \$150 or more	11.5 12.5	30.5 33.5	42 46
	Total	24	64	88

Doing the chi-square analysis results in a value of 2.813. Comparing it to the table value at an alpha level of .05 with one degree of freedom (3.841) shows no significant difference. Therefore, Hypothesis Number Twelve cannot be rejected. There is no significant difference in the starting salaries obtained by proprietary school and community college electronics school graduates.

> <u>Hypothesis 13</u>: There is no significant difference in how graduates from proprietary school and community college electronics schools rate their training as to preparing them for the work they are actually performing. The responses to Item 10 apply to this hypothesis and are shown in Table 14.

TABLE 14.--Graduates Rating of Their Training for Work Preparation.

	Item	CC	PS	Total
10.	Rate Your Training as to Preparing You for Work You Are Actually Performing	u		-
	Did not prepare me adequately Prepared me for most requirements Trained me for all requirements Overtrained me for tasks required Other DNR	1 14 4 1 3 4	8 38 5 7 4 14	9 52 9 8 7 18
	Observed			
	Training Preparing for Actual Work			
	Prepared for most requirements or less Trained for all requirements or more	15 5	46 12	61 17
	Total	20	58	78
	Expected			
	Prepared for most requirements or less Trained for all requirements	15.6	45.4	61
	or more	4.4	12.6	17
	Total	20	58	78

The community college responses had to be pooled because the chi-square analysis requires cell sizes of at least five. Doing the chi-square analysis results in a value of 0.141. Comparing it to the table value at an alpha level of .05 with one degree of freedom (3.841) shows no significant difference. Therefore, Hypothesis Number Thirteen cannot be rejected. There is no significant difference in how graduates from proprietary school and community college electronics school graduates rate their training as to preparing them for the work they are actually performing.

> <u>Hypothesis 14</u>: There is no significant difference in the number of proprietary school and community college electronics school graduates receiving salary increases since being hired. The responses to Item 12 apply to this hypothesis and are shown in Table 15.

	Item	CC	PS	Total
12.	Did You Receive an Increase in Salary Since Your Hiring?			
	No Yes DNR	3 15 10	8 48 23	11 63 33
	Observed			
	Salary Increase			
	No Yes	3 15	8 48	11 63
	Total	18	56	74

TABLE 15.--Graduates Responses Concerning Salary Increases.

One cell of the 2 x 2 table is smaller than five. The Yates correction can be applied because only one degree of freedom is involved.

Doing the Yates correction to the chi-square analysis results in a value of 0.018. Comparing it to the table value of an alpha level of .05 with one degree of freedom (3.841) shows no significant difference. Therefore, Hypothesis Number Fourteen cannot be rejected. There is no significant difference in the number of proprietary school and community college electronics school graduates receiving salary increases since being hired.

> <u>Hypothesis 15</u>: There is no significant difference in how much of a raise proprietary school and community college electronics school graduates receive. The responses to Item 13 apply to this hypothesis and are shown in Table 16.

	Item	CC	PS	Total
13.	How Much of a Raise Per Week?			
	Less than \$15 \$15-30 More than \$30 DNR	6 5 4 13	15 16 19 29	21 21 23 42
	Observed Amount of Raise			
	Less than \$15 \$15 or more	6 9	15 35	21 44
	Total	15	50	65
	Expected			
	Less than \$15 \$15 or more	4.8 10.2	16.2 33.8	21 44
	Total	15	50	65

TABLE 16.--Amount of Raise Received by Graduates.

Doing the chi-square analysis results in a value of 0.573. Comparing it to the table value at an alpha level of .05 with one degree of freedom (3.841) shows no significant difference. Therefore, Hypothesis Number Fifteen cannot be rejected. There is no significant difference in how much of a raise proprietary school and community college electronics school graduates receive.

> <u>Hypothesis 16</u>: There is no significant difference in the number of proprietary school and community college graduates who have changed jobs since leaving electronics school. The responses to Item 19 apply to this hypothesis and are shown in Table 17.

Item	CC	PS	Total
19. Have You Changed Jobs Since Leaving Electronics School?			
No Yes DNR	7 14 7	41 27 11	48 41 18
Observed			
Changed Jobs Since Leaving Electronics School			
No Yes	7 14	41 27	48 41
Total	21	68	89
Expected			
No Yes	11.3 9.7	36.7 31.3	48 41
Total	21	68	89

TABLE 17.--Number of Graduates Changing Jobs.

Doing the chi-square analysis results in a value of 4,637. Comparing it to the table value at an alpha level of .05 with one degree of freedom (3.841) means Hypothesis Number Sixteen is rejected. Electronics graduates from community colleges have changed jobs significantly more than those from proprietary schools.

<u>Hypothesis 17</u>: There is no significant difference in the reason for changing jobs by proprietary school and community college electronics school graduates. The responses to Item 20 apply to this hypothesis and are shown in Table 18.

Ite	em	CC	PS	Total
20. I1 Fo	f You Have Changed Jobs, or What Reason?			
	Dislike old job Got a better job Laid off or fired Military service Promotion Other DNR	0 8 2 0 0 3 13	2 11 6 1 1 4 51	2 19 8 1 1 7 64
Ob	oserved			
	Reason for Changing Jobs			
	Better job Other reasons	8 5	11 14	19 19
	Total	13	25	38
Ex	pected			
	Better job Other reasons	6.5 6.5	12.5 12.5	19 19
	Total	13	25	38

TABLE 18.--Reasons for Graduates Changing Jobs.

The responses had to be pooled because the chi-square analysis requires cell sizes of at least five.

Doing the chi-square analysis results in a value of 1.052. Comparing it to the table value at an alpha level of .05 with one degree of freedom (3.841) shows no significant difference. Therefore, Hypothesis Number Seventeen cannot be rejected. There is no significant difference in the reasons for changing jobs by proprietary school and community college electronics school graduates.

> <u>Hypothesis 18</u>: There is no significant difference between proprietary school and community college electronics school graduates in how they rate their satisfaction with their jobs. The responses to Item 23 apply to this hypothesis and are shown in Table 19.

TABLE 19.--Graduates Rating of Job Satisfaction.

	Item	CC	PS	Total
23.	How Would You Rate Your Satisfaction with Your Job?			
	Very high Above average Average Below average Very low DNR	2 8 5 4 0 9	10 27 19 7 2 14	12 35 24 11 2 23
	Observed			
	Job Satisfaction			
	Above average or higher Average or below	10 9	37 26	47 35
	Total	19	63	82
	Expected			
	Above average or higher Average or below	10.9 8.1	36.1 26.9	47 35
	Total	19	63	82

The responses had to be pooled because the chi-square analysis requires cell sizes of at least 5.

Doing the chi-square analysis results in a value of 0.093. Comparing it to the table value at an alpha level of .05 with one degree of freedom (3.841) shows no significant difference. Therefore, Hypothesis Number Eighteen cannot be rejected. There is no significant difference in how proprietary school and community college electronics school graduates rate their satisfaction with their jobs.

> <u>Hypothesis 19</u>: There is no significant difference between proprietary school and community college electronics school graduates in how they rate their electronics training. The responses to Item 22 apply to this hypothesis and are shown in Table 20.

TABLE 20.--Graduates Rating of Training.

	Item	cc	PS	Total
22.	How Would You Rate Your Electronics Training?			
	Very high Above Average Average Below average Very low DNR	3 14 5 1 0 5	5 24 38 4 0 8	8 38 43 5 0 13
	Observed			
	How Would You Rate Your Training?			
	Above average or higher Average or lower	17 6	29 42	46 48
	Total	23	71	94
	Expected			
	Above average or higher Average or lower	11.3 11.7	34.7 36.3	46 48
	Total	23	71	94

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Again, the responses had to be pooled because the chi-square analysis requires cell sizes of at least five.

Doing the chi-square analysis resulted in a value of 7.483. Comparing it to the table value at an alpha level of .05 with one degree of freedom (3.841) means Hypothesis Number Nineteen is rejected. Community college electronics school graduates rate their training significantly higher than do proprietary school electronics school graduates.

Additional Studies

Next, three sub-hypotheses were asked to provide information on additional studies taken after graduation.

<u>Hypothesis 20</u>: There is no significant difference in the number of proprietary school and community college electronics school graduates taking additional studies. The responses to Item 14 apply to this hypothesis and are shown in Table 21.

Doing the chi-square analysis results in a value of 0.010. Comparing it to the table value at an alpha level of .05 with one degree of freedom (3.841) shows no significant difference. Therefore, Hypothesis Number Twenty cannot be rejected. There is no significant difference in the number of proprietary school and community college electronics school graduates taking additional studies.

> <u>Hypothesis 21</u>: There is no significant difference in the number of hours per week spent in school by proprietary school and community college electronics school graduates. The responses to Item 15 apply to this hypothesis and are shown in Table 22.

Item	CC	PS	Total
14. Have You or Are You Taking Additional Studies?			
Yes No DNR	8 15 5	25 45 9	33 60 14
Observed			
Have You or Are You in Process of Taking Additional Studies?			
Yes No	8 15	25 45	33 60
Total	23	70	93
Expected			
Yes No	8.2 14.8	24.8 45.2	33 60
Total	23	70	93

TABLE 21.--Graduates Taking Additional Studies.

TABLE 22.--Time Spent in School by Graduates.

	Item	CC	PS	Total
15.	If Yes, How Many Hours Per Week are Spent in School?			
	Less than 3 hours 3-6 hours 7-9 hours More than 9 hours DNR	2 2 1 3 20	8 5 2 4 60	10 7 3 7 80

Because of insufficient responses, this hypothesis could not be analyzed using chi-square.

<u>Hypothesis 22</u>: There is no significant difference in where proprietary school and community college electronics school graduates take additional studies. The responses to Item 16 apply to this hypothesis and are shown in Table 23.

TABLE 23.--Where Graduates Were Taking Training.

	Item	CC	PS	Total
16.	Where are You Taking Additional Training?			
	College or university	3	5	8
	Company training program	0	4	4
	Community college program	2	3	5
	Correspondence school	1	7	8
	Proprietary school	0	0	0
	Self study	2	6	8
	Other	ō	õ	õ
	DNR	19	49	68

Because of insufficient responses this hypothesis could not be analyzed using chi-square.

Three Additional Questions

Finally, each graduate was asked to respond to three additional questions. These dealt with job classification, recommendations for additional courses, and lastly, any additional comments they wished to make. The first question, Item 24, asked for job classifications. The responses were broken down into the categories of electrical related and non-electrical related fields. They are shown in Tables 24 and 25.

	Job Title	Community Colleges	Proprietary Schools
1.	Communications Specialist	1	
2.	Computer Operator		1
3.	Controls Designer		1
4.	Customer Engineering	1	1
5.	Customer Service Representative		1
6.	Draftsman		_
7.	Electrical Layout		2
8.	Electronic	_	1
9.	Electrical Engineer	1	•
10.	Electrician	1	3
11.	Electronic Computer Test		1
12.	Electronic Purchasing Agent		1
13.	Engineer		1
14.	A10e		1
15.	Field Teoreston		1
10.	Inspector Electronics		1
1/.	Electronics Inctmumont Calibration & Ponain		1
10.	Instrument calibration a Repair		1
20	Padio Operator		1
20.	Renair/Sales		'n
21.	Supervisor Flectrical Maintenance	1	•
23	Technical Representative	í	3
24	Technical Writer	•	ĩ
25.	Technician		5
26.	Audio	1	i
27.	Avionics	•	1
28.	Communications		1
29.	Electrical	1	·
30.	Electronic	5	13
31.	Emissions	1	
32.	Engineering	1	1
33.	Experimental		1
34.	Field Service		1
35.	Installation		1
36.	Medical		1
37.	Office Machine		1
38.	Product Test	2	_
39.	Quality Control		1
40.	Service	-	1
41.	Tester Analyzer	2	•
42.	TOII Testman		I
	Total	19	55

TABLE 24.--Job Classifications of Electronics Program Graduates Working in Electronical Related Field.

	Job Title	Community Colleges	Proprietary Schools
1.	Clerk	· ·	
2.	Drug Store		1
3.	Stock		1
4.	Custodian		T
5.	Factory Worker	ו	1
6.	Job Setter		1
7.	Laborer	1	
8.	Lathe Operator		1
9.	Machine Operator		1
10.	Maintenance		1
11.	Supervisor		1
12.	Mechanic		1
13.	Military		ו
14.	Printer		l
15.	Restaurant Worker	1	
16.	Sales Manager		1
17.	Servicing Office Equipment	1	
18.	Stockman	1	
19.	Student	2	
20.	Truck Driver		1
21.	Welder Repairman		ĩ
	Total	7	15

TABLE 25.--Job Classifications of Electronics Program Graduates Working in Non-Electrical Related Fields.

The next question, Item 25, asked, "What additional courses would you recommend an electronics student take to improve his job skills?" Again, because of the complexity of the responses, they are broken down into two categories. The first category, Table 26, gives the breakdown of the electrical courses recommended to improve job skills. The second category, Table 27, gives the breakdown of the non-electrical courses recommended to improve their job skills.

A number of those responding to this item of the questionnaire give more than one suggested course while others offer no response. For that reason the totals do not correspond to number of those responding.

Finally, Item 26, the last one on the questionnaire, asked for "Any additional comments you feel are important." A summary of the responses is shown in Table 28. Again, not all those responding give comments, while others offer several.

Summary

Category One Information highlighted several facts.

- The largest single category of ownership of proprietary schools is individually owned.
- Proprietary schools outnumber community colleges more than six to one.
- 3. Community college enrollments outnumber those of proprietary schools nearly sixteen to one.

	Courses	Community Colleges	Proprietary Schools
1.	Anything New in the Field	1	
2.	Application of Test Equipment		1
3.	Computers		1
4.	Computer Programming	1	1
5.	Computer Electronics		5
6.	Depends on the Job		3
7.	Digital Electronics & Logic Circuits	4	10
8.	Don't Know	1	1
9.	F.C.C. License	1	4
10.	Home Servicing & TV Repair		2
11.	Industrial Electronics		2
12.	Instrumentation		1
13.	Integrated Circuits & Chemistry for I.C.'s	1	6
14.	Job Related Courses	2	4
15.	Medical Electronics	1	
16.	Microwave	1	
17.	Operational Amplifiers	1	1
18.	Print Reading		1
19.	Printed Circuits		1
20.	Practical Repair Course		1
21.	Semiconductor Theory	1	
22.	Thin Film Semiconductors		1
23.	Servicing Related		1
24.	Servos		1
25.	Solid State	ו	9
26.	Specialized Training		3
27.	Troubleshooting	2	1
28.	Vacuum Tubes	1	
	Total	19	61

TABLE 26.--Electrical Courses to Improve Job Skills.

Courses	Community Colleges	Proprietary Schools
Accounting		1
Architectural Drafting	1	
Communications		1
Business Courses		2
English Composition		2
Management		2
Math	4	6
Mechanical Engineering		1
Mechanics	3	
Miscellaneous		4
Non-Technical Courses	1	
None/No Answer/No	4	23
Physics/Chemistry		3
Reading Skills	1	1
Public Speaking		1
Technical Writing	1	
Total	15	47
	Courses Accounting Architectural Drafting Communications Business Courses English Composition Management Math Mechanical Engineering Mechanics Miscellaneous Non-Technical Courses None/No Answer/No Physics/Chemistry Reading Skills Public Speaking Technical Writing Total	CoursesCommunity CollegesAccounting1Architectural Drafting1Communications1Business Courses1English Composition4Management3Math4Mechanical Engineering3Miscellaneous1Non-Technical Courses1None/No Answer/No4Physics/Chemistry1Reading Skills1Public Speaking1Technical Writing1Total15

TABLE 27.--Non-Electrical Courses to Improve Job Skills.

	Comments	Community Colleges	Proprietary Schools
1.	Better Equipment Needed		2
2.	Course Very Broad	_	1
3.	Co-op. Program Needed	1	1
4.	Course Layout is Logically Done	1	_
5.	Degree is Important		1
6.	Did not Prepare for Specialty Work		1
7.	Experience Required	2	5
8.	F.C.C. License a Must	_	4
9.	Improve Student's Logic	1	_
10.	Inadequate Training	_	1
11.	Job Does Not Require Training Received	2	-
12.	Jobs Scarce	_	2
13.	Low Paying Jobs	1	6
14.	Miscellaneous	2	6
15.	More Hands-On Training Needed	1	
16.	No/None	9	35
17.	Outdated		1
18.	Poorly Written Courses		1
19.	Practical Experience Needed	_	1
20.	Prepared well for Transfer to College	1	_
21.	Priority Given to Blacks		1
22.	Problems with Teaching Staff	-	2
23.	Repair of More Complex Equipment	I	_
24.	Satisfying Customer 50% of Job		1
25.	School 20/30 Years Behind		_
	Computer Field		1
26.	Self-Study Helpful		1
27.	Teachers not Qualified/Not		-
	Interested in Students		3
28.	Theory not Related to Actual		1
29.	Too Many Incompetents in Field; Ungrading Required		r
30	Too Much on Vacuum Tubes		2
30. 31	Too Abstract	1	E
32	Transfer Credit into Degree	•	
• -	Program Lacking	3	3
33.	Upgrade Requirements	ĩ	Ū
34	What Employers Expect Should	•	
.	Be Taught	1	
35.	Work-Study Program Needed	i	
36	Would not Recommend This School	-	1
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	Total	29	62

TABLE 28.--Responses of Electronics School Graduates to any Additional Comments You Feel Are Important.

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4. Community college program offerings greatly outnumber those of proprietary schools but four programs are offered by both institutions.

The majority of the questions involving Category Two Information did not show any difference. However, three subhypotheses did prove to be statistically significant. These were:

- Assistance received by graduates from school placement officials (Hypothesis Number Eight).
- Number of graduates who have changed jobs since graduation (Hypothesis Number Sixteen).
- 3. The rating of training received by graduates (Hypothesis Number Nineteen).

Chapter IV--Footnotes

¹<u>1971-72 Annual Report of Private Trade Schools, Business</u> <u>Schools and Institutes</u>, Department of Education, State of Michigan Adult and Continuing Education Service, Sept., 1973, pp. 3-4.

²Timothy Larkin, "Proprietary Schools: How Do They Measure Up," <u>Manpower</u> (March, 1973), pp. 20-21.

³J. Cornfield and J. W. Tukey, "Average Values of Mean Squares in Factorials," <u>Annals of Mathematical Statistics</u>, V. 27 (1956), pp. 907-949.

CHAPTER V

CONCLUSIONS AND RECOMMENDATIONS

Introduction

This chapter contains the conclusions and recommendations of the study. It covers both Category One and Category Two Information. Those data which prove to be significantly different are examined. In addition, other data which are not statistically significant are also examined for meaningful relationships. These latter comparisons which appear in the Observations section provide the bulk of the information on which the discussion presented in this chapter is based.

After the results are reported, some suggestions for future studies are presented. This section is also written to provide researchers with some insight into the potential pitfalls which await them.

Conclusions

The main hypothesis of this study was that no significant difference exists between proprietary schools and community colleges in preparing electronics school graduates for the world of work. In order to accept or reject that hypothesis, thirteen sub-hypotheses (numbers seven through nineteen) were made. If 50 per cent or more of them were rejected, the main hypothesis would also be rejected.

The responses to the questionnaire were examined statistically using chi-square. The results were compared with the table values at an alpha level of .05. Of the thirteen sub-hypotheses examined, only three proved to be statistically significant. Therefore, the main hypothesis could not be rejected. There is no significant difference between proprietary schools and community colleges in preparing electronics school graduates for the world of work. Three sub-hypotheses proved to be statistically significant.

<u>Hypothesis Number Eight</u>: There is no significant difference in the amount of assistance received from school placement officials by proprietary school and community college electronics graduates.

In the review of literature, one point was emphasized by several of the writers. It was the fact that placement had to be of paramount concern to proprietary schools that wanted to stay in existence. They indicated that the lifeblood of proprietary schools was their ability to find jobs for their graduates. This point also proved to be an issue of significant difference between the proprietary schools and community colleges in this study.

Forty-eight (61 per cent) of the proprietary school graduates reported in questionnaire Item 7 having "had a number of interviews arranged by school officials," while only seven (25 per cent) of community college graduates so reported. Using the number of interviews as a criteria for importance of placement, the point made in the review of literature on how important proprietary schools viewed placement was verified in this study. Hypothesis

Number Eight was rejected because proprietary school graduates received more assistance from school placement officials.

<u>Hypothesis Number Sixteen</u>: There is no significant difference in the number of proprietary school and community college graduates who have changed jobs since leaving electronics school.

The second significant issue was that of changing jobs. Community college graduates had a significantly higher incidence of job change. Fourteen (66 per cent) of community college graduates reporting indicated on questionnaire Item 19 that they "changed jobs" while twenty-seven (40 per cent) of the reporting proprietary school graduates had done so.

Eight of the fourteen community college graduates reporting job changes indicated that they did so for a "better job" (Item 20). Eleven of the twenty-seven proprietary school graduates reported that they also changed jobs because they found a better one. Although the number of community college graduates changing jobs was significantly greater than those from proprietary schools, the majority changed for a better job. The combined total of both types of graduates showed that nineteen of the forty-one left for a better job. This showed that the graduates had the potential for upward mobility after initial job placement. Speculation on other possibilities are described later in this chapter.

<u>Hypothesis Number Nineteen</u>: There is no significant difference between proprietary school and community college electronics school graduates in how they rate their electronics training.

The third item showing a significant difference was the rating the graduates gave to the training they received. Seventeen (74 per cent) of the community college graduates responding to questionnaire Item 22 gave their school an "above average or higher" rating while twenty-nine (41 per cent) of the proprietary school graduates also rated their training as "above average or higher." Community college electronics graduates rated their training higher than did proprietary school graduates.

However, another point which bears highlighting is the fact that only five per cent of the total of both institutions rated their training "below average." None of either the community college or proprietary school graduates rated their training as "very low." This would tend to lend credence to the fact that both types of institutions appear to be doing a good job of training in the eyes of its graduates.

This hypothesis should not be confused with Hypothesis Number Thirteen which was also related to rating of training by graduates. The responses to questionnaire Item 10 and their implications are discussed later in this chapter.

Observations

This section deals with information outside the main hypothesis. It includes sub-hypotheses one through six, twenty through twenty-two, three additional questions, and Category One Information.

Category One Information also highlighted several points. First, proprietary schools outnumbered community colleges in

Michigan 182 to twenty-nine or by better than six to one. However, even though they held this edge, total community college enrollments numbered 126,225 while total proprietary school enrollments numbered only 37,310.

Even though community colleges had a larger total enrollment, the number of graduates from electronics programs conducted by proprietary schools was much larger. Proprietary schools have been shown to be of a specialty nature. They conducted fewer different types of programs than did community colleges. By far the vast majority of proprietary schools offered less than five types of programs. The majority of the community colleges offered between twenty and forty programs. Only five community colleges offered as few as ten to fourteen programs. This definitely proved that when comparing program offerings, proprietary schools were more limited in scope than community colleges.

Finally, proprietary schools in Michigan were in business to make money. Of the 182 doing business in the State, seventyeight were owned by individuals and fifty-eight by educational corporations. This amounted to almost 75 per cent of the total. Only twenty-two of the total were classified as non-profit.

Outside the main hypothesis none of the Category Two Information sub-hypotheses show any statistical differences. This study does, however, provide additional information on electronics school graduates from both types of post-secondary institutions.

The majority of electronics school graduates are twentyfive and under, single, and attend full-time day school. If

comparisons were made of other curriculums this might not prove to be true.

Perhaps one of the reasons for these facts can be attributed to the curriculum itself. Electronics is a field which is going through an immense number of changes. Since the advent of the transistor, new discoveries have been made so rapidly in this field that information is growing by leaps and bounds. With information being in such a state of flux in this industry, there are many new and highly publicized opportunities. This has resulted in an attractive market for young people desiring jobs.

Electronics is traditionally thought of as a high school vocational subject. However, of the participants reporting in this study, only 17 per cent of the total indicated that they had been enrolled in a vocational or technical high school program (Sub-hypothesis Number Six). The supposition that college preparatory students cannot take vocational courses in high school because there is no way to fit them into their schedules is substantiated by this study.

The names of those who were in the random sample were all examined as a result of the responses on the question of sex (Subhypothesis Number Two). All of those who responded indicated they were male. Examination of the names of the non-responders showed that they, too, had names which appeared to be masculine.

It should also be noted that with but one exception, all those responding from both institutions were high school graduates or better (Sub-hypothesis Number Five). Proprietary schools drew

some criticism in the review of literature with regard to their enrolling unqualified candidates. They allegedly enrolled many candidates who had never completed high school. The results of this study indicate the contrary to be true.

Another observation worth noting is the fact that a total of twenty-seven graduates (eight from community colleges and nineteen from proprietary schools) obtained work in another field (Sub-hypothesis Number Seven). It is ironic that 25 per cent of those responding had taken other work after having prepared for the electronics field. One possible explanation could be the hiring cycle in industry which could reflect a downturn in the economy. This is, however, speculation and could be a focus of interest for future studies.

On the question of starting salary (Sub-hypothesis Number Twelve), forty-two (49 per cent) out of eighty-six responding indicated that they made less than \$7,000 per year. Only thirteen (15 per cent) indicated that they made more than \$10,000 per year. This would tend to verify one of three things:

- Low paying jobs for those entering the electronics field.
- 2. Reluctance to divulge salary information.
- More concern over long-range advancement possibilities rather than starting salary.

The latter rationale for job acceptance (Sub-hypothesis Number Ten) was given by some of the respondents. This might indicate that it was at least partly responsible.

Examination of the reasons for taking the job show some other interesting statistics. Those taking a job because of fringe benefits, reputation of the company and salary total eleven. Six of the eleven checked money as their reason for taking the job. The single category, "More Chances for Advancement," was checked by fifteen respondents. This is an indication that there is more long-range interest on the possibility of future advancement rather than an emphasis for starting salary.

Even though salaries are not high, a demand trend appears to exist. Of the 104 responding to the question on the time required to get a job (Sub-hypothesis Number Seven), thirty-eight indicated that they obtained work before graduation. This might seem a strange paradox; thirty-eight placed before graduation and twenty-seven obtained work in a different field. However, the salaries being what they were could have been the motivating factor on this decision to shift vocation after training. Analysis of Item 24, in which respondents report their job classifications, shows no discernable trend. It strongly suggests that a wide variety of jobs were available, but the salary was not high enough to attract the graduates at that time.

There were nine people who indicated that school did not prepare them adequately for the work performed (Sub-hypothesis Number Thirteen). On the other hand, almost an equal number (eight) indicated that they were overtrained for the tasks required. The vast majority fall into between these two extremes. This would tend to indicate that both types of post-secondary schools are

preparing their graduates to handle the majority of the tasks they will encounter. This response also helps illustrate the importance of the points mentioned with response to Item 25. Offering their suggestions on other courses, thirty-six proposed that students in school should take courses related to solid state electronics. Because the trend in industry is toward miniaturization, this lends credence to those suggestions. Solid state electronics provides the capacity for comprehension of how miniaturization is both feasible and practical.

Of those who changed jobs, approximately 50 per cent (nineteen) did so because they got a better job. Only two people changed jobs because they disliked their old jobs. However, when asked to rate their present job satisfaction (Sub-hypothesis Number Eighteen), thirteen people rated it below average or lower. With that kind of rating, it is natural to expect a number of additional job changes will occur in the future. Because of the number of responses to the question about additional courses needed, it would be a natural expectation to see this reflected in Item 14. Approximately one-third of the graduates (thirtythree) indicated they were taking additional studies. None of them said they were attending a proprietary school. This illustrates the fact that proprietary schools have such limited course offerings that little can be gained from further attendance after completing the initial program. If graduates from such a program want to continue their education or upgrade their knowledge they must seek other sources to meet their needs.

The last of the checkoff questions (Sub-hypothesis Number Nineteen) asked the graduates to rate their electronics training. Not one rated their school as "very low" and only five (five per cent) rated it "below average." It would be an interesting comparison to see if other schools, from high school to universities, would get such a rating. This tendency toward high ratings speaks very highly of the training received at both these institutions. To the question which asked for "additional comments thought to be important" (Item 26), the vast majority of responses dealt with deficiencies in program, school, staff or needs discovered after graduation. Only two people responded with any positive comment about their training.

Recommendations

Schools should establish a viable follow-up program on its graduates. The products of their programs should be tapped as a viable feedback source. All too often, schools continue their program offerings with little or no modification. This is why some have become stagnant or lost contact with the present needs of the industry they serve. If they would contact their graduates on a regular basis, negative comments could be put into context and perhaps used to effect some needed changes. The follow-up studies should be sequential in nature, such as, three, five, and ten years after graduation.

Placement assistance proved to be significantly different for the two types of schools. Proprietary school graduates received

sore assistance from placement officials than community college graduates. The claim about placement being the lifeblood of proprietary schools was substantiated in this study. Their placement record was one of the items which allowed them to compete with community colleges. Since placement techniques are one of the pillars of strength for proprietary schools, why not examine them more thoroughly? The results of such an investigation could prove to be helpful to placement officials in the public school sector.

The number of community college electronics graduates who changed jobs was significantly higher than proprietary school graduates. This significance might have been attributed to several factors, yet, some of the possibilities would have been pure speculation. Sub-hypothesis Number Eight indicated that community college graduates received less placement assistance. A strong possibility exists that entry-level jobs obtained by them were less desirable. This was further substantiated by the fact that more than 50 per cent of the community college graduates changing jobs indicated that they changed for better jobs. More assistance should be given to community college graduates in finding their jobs. If they were better matched with their jobs during the initial phase of job placement, perhaps fewer job changes would result.

Community college graduates rated their electronics training significantly higher than proprietary school graduates. Neither group, however, gave their institutions low ratings in this category. As a cross-check and to gain added insight to this question.

Sub-hypothesis Number Thirteen (Item 10) was made. Here the graduates were asked to rate their training for the work actually performed. One community college and eight proprietary school graduates indicated that they were not prepared adequately, while over 90 per cent of the combined graduates indicated that their schools trained them for most requirements. One way to improve on that percentage was shown in the responses to Item 25.

There were thirty-six responses to that item suggesting additional solid state electronics courses. Both types of schools should, therefore, examine their curriculum offerings. Since graduates said they needed more solid state courses, these should be added to those programs where deficiencies are noted.

A complete lack of females enrolled was noted on the question dealing with the sex of graduates. This lack of females should be a matter of concern since Title II of the Vocational Amendments of 1976 emphasize the elimination of sex bias and stereotyping. The registrars, counselors, and recruiters should pay close attention to that fact. Most electronics firms employ women to assemble components because of their dexterity skills, yet, when it comes to training electronics technicians, none were found in this study. Active efforts should be made to recruit women into this field.

Future Studies

The results of this study have just touched the tip of the iceberg. The proprietary school market, the schools, their management and finally, their graduates are a little known commodity. So little

is known about them by the general public that, in fact, most people not attending one are not even aware of their existence. This study attempted to shed some light on the graduates of proprietary schools through a comparison with community college graduates. The products of both programs have many similarities; however, more research is still needed and only then will good comparisons be possible.

Whenever a study involving proprietary schools and/or community colleges is undertaken, several items should be carefully observed. First, it is important that the list of proprietary schools is one which has been approved by the State Department or similar state regulating agency. If there is no regulating agency, as is the case in some states, the pitfall of selecting only from a list published by the self-regulating accrediting agencies should be avoided. The majority of proprietary schools are not members of these accrediting agencies. This simple precaution then eliminates one of the major pitfalls--that of selecting from a list containing only 10 per cent to 15 per cent of the schools operating in a state.

In the case of community colleges, preliminary investigation should be done to insure that adequate numbers of students are available for the study. One of the surprises encountered in the process of conducting this study was the limited number of community college electronics graduates from the two participating schools. Figure 6 pointed out that community colleges offered a range of ten to fifty-five programs. Proprietary schools, on the

other hand, offered somewhere between one and nineteen programs with over 80 per cent offering less than five. Therefore, even though the average population of proprietary schools in Michigan is only 205 students, these are concentrated in fewer fields of study. Community colleges, however, may have sparse numbers in certain curriculums even though their total population might seem large.

Another problem in dealing with comparative studies on proprietary schools revolves around their desire to keep information confidential. Because it is a highly competitive business, they do not wish classified information to become public knowledge. They especially do not wish to share student population information with their competitors. For that reason, every effort must be made not only to comply with this wish, but to guarantee it. Therefore, when setting the size of the sample, one thing should be remembered--the percentage used should not be specified in the final report if confidentiality is to be maintained. It is a simple matter to backtrack and actually determine the size of the population in question and thus give away confidential information.

Community colleges are public institutions and, as such, are plagued with another problem. Because they are "studied to death," they are sometimes very reluctant to participate in any new studies. Therefore, it is imperative that any new research investigation be carefully thought out, well documented, and truly justified. Otherwise, support and cooperation will be painfully difficult to extract even though it meets a need.

If this study were to be repeated, the telephone would be the main information gathering tool. However, even then the researcher should be forewarned; graduates are highly mobile. Participants in this study moved to many locations in the United States and one even moved outside this continent. Some families are willing to disclose new address information or phone numbers only after a lengthy explanation by the caller. Finally, still others, often ranging above 50 per cent of the sample, cannot be located with any reasonable effort. Unless one has access to a WATS line (Wide Area Telephone Service) a costly phone bill should be anticipated.

Additional studies should be done to compare other aspects of both types of post-secondary schools. These studies could include additional items on the graduates, curriculum, teaching staff, dropout rate, reasons for leaving school, and the types of students entering their programs. There has been some speculation on the part of educators that students leaving programs (dropouts) prior to graduation might really be advance placements. Future studies could be done to verify or discount that line of reasoning and determine the real needs of dropouts.

Another possible study could be done on the whole question of military schools preparing electronics technicians, or for that matter any other specialists, for civilian jobs. No attempt was made in this study to ascertain whether or not any of the graduates participated in military programs before or after attending electronics school.
Personal Observations and Their Implications

Although this study was done in Michigan, there are two implications for other locales around the United States. The need for follow-up studies cannot be emphasized strongly enough. There is some doubt about the value of returns the first year after graduation because of the "halo effect" of just completing their program. The importance of returns three, five, and ten years after graduation, however, would seem to be more meaningful because of the absence of the threat of intimidation.

The lack of females enrolled in the electronics programs studied indicates a problem of sex stereotyping. Women have traditionally been employed for assembling because of their dexterity and manipulation skills with electronic components but they are not employed as technicians. The Vocational Amendments of 1976 have taken a strong stance against such sex bias. Examination of electronics programs should be undertaken to determine the extent of the bias.

Summary

The results of examination of Category One Information, open-ended questions, and statistical analysis of twenty-two subhypotheses resulted in several findings. First, there was no significant difference between Michigan proprietary schools and community colleges in preparing electronics school graduates for the world of work.

In this dissertation, of all the items examined, only three proved to be statistically significant.

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- The proprietary school electronics school graduates received more assistance from school placement officials than did community college electronics school graduates.
- Community college graduates had a higher incidence of job change than did proprietary school graduates.
- Community college graduates rated their training higher than proprietary school graduates.

Category One Information highlighted the fact that proprietary schools outnumber community colleges in Michigan 182 to twenty-nine; had 37,310 enrollments compared to 126,225 for community colleges; and the majority offered less than five types of programs compared to between twenty and forty for community colleges.

The majority of the graduates in this study were twentyfive and under, single and had attended full-time day school. All those in the study were male and, except for one respondent, all of them were high school graduates or better.

This study highlighted the importance of the need for follow-up studies to identify problems with the school and its curriculum. Since the graduates themselves were in the best position to specify requirements after completing their programs, why not tap them as a viable feedback source?

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APPENDICES

APPENDIX I

PROPRIETARY SCHOOLS IN MICHIGAN

Type of School	Number Teaching <u>This Field</u>
Bartending	0
Bible	0
Broadcasting	3
Business	31
Data Processing	20
Dog Grooming	3
Floral Design	4
Income Tax	7
Keypunch Only	13
Medical - Related	2
Hiscellaneous	9
Modeling	10
Motel Management	2
Real Estate	9
Sales Training	7
Security	0
Sewing & Tailoring	6
Truck Driver Training	2
Trade - Industrial	38
Tutoring	6

Total 172

Note: 1971-72 Annual Report of Private Trade Schools, Business Schools and Institutes, Department of Education, State of Michigan.

APPENDIX II

LICENSE REQUIREMENTS OF PROPRIETARY SCHOOLS IN THE UNITED STATES

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Cba b a		Date Approval
State	License Required	or Law Passed
Alabama	Did Not Reply	
Alaska	Yes	1964
Arizona	Yes	1971
Arkansas	Yes	1965
California	Yes	1964
Colorado	Yes	1966
Connecticut	Did Not Reply	
Delaware	Yes	1972
Florida	Yes	No Date Given
Georgia	Yes	1972
Hawaii	Yes	1955
Idaho	Yes	1963
Illinois	Yes	1955
Indiana	Yes	1971
Iowa	Yes	1972
Kansas	Yes	1972
Kentucky	Yes	1972
Louisiana	Yes	1972
Maine	Yes	No Date Given
Maryland	Did Not Reply	
Massachusetts	Did Not Reply	
Michigan	Yes	1943
Minnesota	Did Not Reply	÷-
Mississippi	Yes	1972
Missouri	No	÷ -
Montana	Did Not Reply	
Nebrasks	Yes	1943
Nevada	Yes	1963
New Hampshire	Did Not Reply	
New Jersey	Yes	1973 (Rev.)
New Mexico	Did Not Reply	
New York	Did Not Reply	
North Carolina	Yes	1935
North Dakota	Yes	1943
Dhio	Yes	1970
Oklahoma	Yes	1970
Dregon	Yes	1937
Pennsylvania	Yes	1947
Rhode Island	Did Not Reply	

State	License Required	Date Approval or Law Passed
South Carolina	Yes	1971
South Dakota	Yes	1966
Tennessee	Did Not Reply	~ -
Texas	Yes	1972
Utah	Yes	1921
Vermont	No	••
Virginia	Yes	1971
Washington	Did Not Reply	••
West Virginia	Yes	No Date Given
Wisconsin	Did Not Reply	
Wyoming	Yes	1957

Note: The above represents the summary of responses to a poll of the 50 State Department's of Education conducted by Stephen R. Matt in March, 1974.

APPENDIX III

COMMUNITY COLLEGES IN MICHIGAN

School Name	Enrollments of Full and Part-time Students
Alpena Community College	903
Bay DeNoc Community College	904
Concordia Lutheran Junior College	511
Davenport College of Business [*]	1,316
DeLima Junior College	2
Delta Colleg:	6,004
Genesee Community College	8,659
Glen Oaks Community College	861
Gogebic Community College	645
Grand Rapids Junior College	5,357
Henry Ford Community College	11,982
Highland Park College	3,558
Jackson Business University*	372
Jackson Community College	3,635
Kalamazoo Valley Community College	2,996
Kellogg Community College	3,203
Kirtland Community College	515
Lake Michigan College	2,533
Lansing Community College	7,242
Macomb County Community College	17,160
Michigan Christian Junior College	211

School Name	Enrollments of Full and Part-time Students
Mid Michigan Community College	610
Monroe County Community College	1,691
Montcalm Community College	686
Muskegon Business College	509
Muskegon Community College	3,496
North Central Michigan College	734
Northwestern Michigan College	1,712
Oakland Community College	15,001
St. Clair County Community College	2,842
Schoolcraft College	5,296
Southwestern Michigan College	941
Suom1 College	392
Washtenaw City College	4,009
Wayne County Community College	12,500
West Shore Community College	550

Total Enrollment 129,538

Note: Michigan Statistical Abstract, 9th Edition, pp. 129-134.

These are two-year institutions which are classified as private.

** This is now the Charles Stuart Mott Community College.

APPENDIX IV

COMPARISON OF PROGRAM OFFERINGS BY PROPRIETARY SCHOOLS AND COMMUNITY COLLEGES IN MICHIGAN

	Number of Programs	
Program	Community College	Proprietary Schools
Accounting	23	15
Advertising Design/Sales Promotion	2	1
Aerospace Studies	ī	••
Agriculture Related	10	
Air Conditioning/Refrigeration	4	1
Aircraft/Airline Related	13	5
Appliance Repair/Service	3	••
Applied Fower Technology	1	
Architectural Construction	2	**
Architectural Design/Drafting	9	1
Art Design	1	
Assessment Administration	1	
Audio-Visual Communications	2	••
Automation		1
Automotive Related	39	7
Banking and Finance	1	••
Bartending		2
Bible Missionary Related	• •	4
Billing Clerk - Trucking	••	1
Blueprint Reading	* •	10
Boiler Operation		1
Bookkeeping Related		11
Bridal Headware and Millinery		1
Broadcasting		4
Broker License Preparation	••	2
Business Administration/Mgt. Related	31	15
Building Construction/Maintenance	10	
Calculating Machine		2
Cartographic Drafting	1	
Cashier-Checker		1
Cast Metals Technology	1	**
Chainman (Surveying)		1
Chef Training		1
Chemical (Lab) Technology	9	
Child Care Related	4	
Church Related		3
Civil Technology	4	••
City Planning	1	1

Number of Programs

Program	Community College	Proprietary Schools
Clerical/Clerk Typist Climate Systems Technology Clothing/Textile Design Commercial Art Commercial Cooking & Baking Commercial & Industrial Security Communications Media	18 1 1 8 1 1 1	4
Community Service/Health Computer Related Concrete Technology Construction Estimating Corrections Corrision Cosmetology	2 2 1 1 2	36 1
Cost Control Court Conference Reporter Credit Specialist Criminal Laboratory Technology Crown & Bridge Prosthetics (Dental) Culinary Arts Cytotechnology	 1 1 1	1 5 1 1
Data Processing Dental Related Design Engineering Technology Dictaphone Die Design Diesel Related Dimensional Metrology & Calibration Discovery (Charm)	17 18 1 1	2 4 1 2 4 4
Dispatcher (Trucking) Distributive Education Dock Personnel (Trucking) Dog Grooming Drafting & Design Drama Drama Drapery Making Dressmaking & Design	1 30 	1 1 5 8 2 1 5
Electrical/Electronics Related Electro-Hydraulic Services Electro-Mechanical Technology Elevator & Farm Supply Engineering Assistant Engineering Technology	24 4 1 1	22 1 2

Number of Programs

Program	Community College	Proprietary Schools
Environmental Related	A	
English		1
Estimating Construction	••	i
-		-
Fashion Merchandising		6
rashion Modeling	••	1
FCC License		2
Fire Protection Technology	1	
Fire Science	9	
Fisheries Technology	1	
Floral Related	1	4
Fluid Power Technology	4	
Food Service Related	11	
Foremanship-Supervision/Development	I	1
Forestry Technology	1	
Furniture Design	••	1
Furniture Refinishing		1
Gospel		1
Graphic Arts	••	i
Graphic Reproduction Technology	1	
	•	
Health Services Related	2	
Hermeneutics & Christian Ethnics		1
Highway Technology	2	••
Home Catering		1
Homiletics	••	2
Horseshoeing		1
Horticulture Management	1	
Hospital Unit/Ward Manager	1	
Hotel Motel Related	1	2
Hymnology		1
Illustration		1
Income Tax Preparation		8
Industrial Arts Education	1	
Industrial Design	i	
Industrial Drafting Technician	i	
Industrial Electricity/Electronics	3	
Industrial Engineering Technology	2	1
Industrial Machinery Repair	ī	
Industrial Management/Supervision	6	1
Industrial Mathematics		Ĭ
Industrial Production	2	
Inductrial Safaty	1	
Industrial Sculpture Technology	i	 + •
theast ist scathence reculated	•	

	Number o	f Programs
Program	Community College	Proprietary Schools
Industrial Security	1	
Industrial Supervision	1	
Industrial Technology	6	
Inhalation Therapy	6	÷=
Inspection		2
Instrumentation Technology	3	
Insurance	3	1
Interior Design		1
Janitorial		1
Journal1sm	2	
Keyed Tape		3
Keypunch Related		35
Lab Assistant		1
Labor Studies	3	**
Language		1
Landscape Related	3	1
Law Enforcement	2	*-
Leadership		Ĩ
Legal Secritary Related	. 4	4
Library Assisting	5	
Machine Calculation	1	
Machine Drawing		1
Machine Operator	1	
Machine Shop	1	
Machine Technology	2	
Machine Tool Related	8	ļ
Male Orderly Medical		1
Management		12
Manufacturing Technology	4	
Marketing/Merchandising Kelated	25	/
Marine Technology		* •
Maritime Training	1	
Massage		ſ
Materials Technology	3	
Meat Cutting		1
Mechanical Dratting and Design	/	3
Mechanical Engineering		3
Mechanical (econology	13	
Medical Lad Assistant Kelated	<i>22</i>	U A
Medical Secretary Medical Keelth Techtology	۲ 2	4
mental nealth lechnology	£ £	1
metallurgy kelated Mållånamu	0	1 9
millinery		E

	Number o	r programs
Program	Community College	Proprietary Schools
Ministry Related		4
Modeling		10
Motel Management		1
Multigraph		ו
Natural Resources Technology	2	
Needle Trades		1
Numerical Control Related	4	1
Nursing Related	29	4
Occupational General	1	
Occupational Therapy	1	
Office Machine Related	5	3
Office Management	1	**
Papermaking Technology	1	
Party Chief (Surveying)	* *	I I
Pastry Baking		
Personal Development		. I
Pesticide lechnology	ł	
Pharmeceutical Lab rechnology		
Photo Modeling		
Physical Inerapy Related		2
Plantice Technology	2	
Proumatology	E	1
Police Science Belated	19	
Power Plant Mechanic		1
Preacher Prenaration Related		3
Printing		ī
Product Orafting & Design	1	
Professional Modeling		2
Property Evaluation Assessment	2	
Psychology		1
Public Adjusting		1
Public Works Technology	1	
Publications/Printing	2	
Quality Control	3	1
Radio TV Broadcasting	4	1
Radio TV Communications		1
Radio TV Repair	4	1
Radiology	7	
Real Estate Related	4	13
Receptionist		4
Recreational Related	D	

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ProgramCommunity CollegeProprietary SchoolsResidential Construction1Resort Management1Rodman1Sales Related8Secretarial Science2833Security Training Related3Security Training Related5Shop Mathematics1Shop Mathematics1Social Health Services1Social Health Services1Survey of Modern Missions1Survey of Modern Missions1Surveying1Switchboard Related2Tailoring2Teacher Aide6Technical Illustrating/Writing1Theacter Aide2Transission1 <td< th=""><th></th><th colspan="2">Number of Programs</th></td<>		Number of Programs	
Residential Construction1 resort ManagementRodman1Sales Related8Secretarial Science2833Security Training Related3Semi-Truck Driving2Sewing Related5Shoe Repair1Shop Mathematics1Shorthand1Small Business Operation1Small Engines Related6Soli Technology1Speed Writing5Stenography Related4Systems Analyst4Tailoring4Techer Aide6Tailoring4Techer Aide6Traffic Engineering Technology1Theater-Acting2Turegrass Management1Truck Driving Related12Urban Professional Assistant1Urban Technology1	Program	Community College	Proprietary Schools
Sales RelatedBSecretarial Science2833Security Training Related3Semi-Truck Driving2Swing Related1Shop Mathematics1Shop Mathematics1Shorthand1Small Business Operation1Small Engines Related6Social Health Services1Soli Technology1Speed Writing5Stenography Related4Supervision12Survey of Modern Missions1Surveying1Surveying2Tailoring4Technical Illustrating/Writing1Theater-Acting1Theater-Acting2Time Study Engineering Technology1Traffic Engineering Technology Related27Traffic Engineering Technology Related1Traffic Engineering Technology Related1Traffic Engineering Technology Related1Upholstery12Upholstery1Urban Professional Assistant1Urban Technology1Urban Technology1Urban Technology1Urban Technology1Urban Technology <td< td=""><td>Residential Construction Resort Management Rodman</td><td>1 1 </td><td> 1</td></td<>	Residential Construction Resort Management Rodman	1 1 	 1
Tailoring4Teacher Aide6Technical Illustrating/Writing1Temperature Engineering Technology1Theater-Acting1Theology Related2Time Study Engineering2Tool & Die Related27Traffic Engineering Technology Related2Traffic Engineering Technology Related2Truck Driving Related12Turfgrass Management1Typing Related12Ucholstery1Urban Professional Assistant1Urban Technology1	Sales Related Secretarial Science Security Training Related Semi-Truck Driving Sewing Related Shoe Repair Shop Mathematics Shorthand Ski Hill Management Small Business Operation Small Engines Related Social Health Services Soil Technology Speed Writing Stenography Related Supervision Survey of Modern Missions Surveying Switchboard Related Systems Analyst	28 1 6 1 1 6 1 1 4 1 1 	8 33 2 5 1 1 1 1 1 1 1 1 1 1 5 16 2 1 1 4 2
Upholstery 1 Urban Professional Assistant 1 Urban Technology 1	Tailoring Teacher Aide Technical Illustrating/Writing Temperature Engineering Technology Theater-Acting Theology Related Time Study Engineering Tool & Die Related Traffic Engineering Technology Related Transmission Truck Driving Related Turfgrass Management Typing Related	6 1 2 2 1 1 1 1	4 1 2 2 7 2 7 2 12
	Upholstery Urban Professional Assistant Urban Technology Verifier	 1 1	1 1

	Number of Programs	
Program	Community College	Proprietary Schools
Water Treatment Related Welding Related	3 13	1 2

Note: "Related" refers to program offerings which are in a closely allied area which approximates the one listed.

Lawrence Borosage, <u>Community Colleges in Michigan, Identified</u> by <u>County, Preliminary Report</u>. Prepared for: Michigan BOS/CEP Planning Project, Department of Labor, 1973.

Lawrence Borosage, <u>Private Schools in Michigan, Identified by</u> <u>County, Preliminary Report</u>. Prepared for: Michigan BOS/CEP Planning Project, Department of Labor, 1973.

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APPENDIX V

SUB-HYPOTHESES MATCHED TO QUESTIONNAIRE ITEMS

Sub-Hypothesis Number	Item	Questionnaire <u>Item Number</u>
1	Age	1
2	Sex	2
3	Marital Status	3
4	Day/Evening Student	5
5	Formal Schooling	17
6	High School Program	18
7	Time Obtaining Work	6
8	Placement Assistance	7
9	Find Job	8
10	Reason Taking Job	9
11	Sources First Job	21
12	Starting Salary	11
13	Rate Work Training	10
14	Raise	12
15	Amount Raise	13
16	Changed Jobs	19
17	Reason Change	20
18	Job Satisfaction	23
19	Rate Training	22
20	Additional Studies	14
21	Hours Additional Studies	15
22	Where Additional Studies	16
	Job Classification	24
	Additional Courses	25
	Additional Comment	26