DOCUMENT RESUME

ED 329 748 CE 057 287

AUTHOR Garrity, Robert P.
TITLE A Comparative Analysis of Academic, General, and Vocational Education Graduates in Rural Northwest Pennsylvania.
INSTITUTION Venango County Area Vocational-Technical School, Oil City, Pa.
SPONS AGENCY Pennsylvania State Dept. of Education, Harrisburg. Bureau of Vocational and Adult Education.
PUB DATE Jun 89
CONTRACT 83-9002
NOTE 148p.
PUB TYPE Reports - Research/Technical (143)

EDRS PRICE MF01/PC06 Plus Postage.
DESCRIPTORS *Academic Education; Comparative Analysis; Educational Experience; *Education Work Relationship; Employment Patterns; *General Education; *Graduate Surveys; High School Graduates; High Schools; Job Satisfaction; Occupational Mobility; Outcomes of Education; Postsecondary Education; Rural Areas; Salaries; Surveys; *Vocational Education; *Vocational Followup
IDENTIFIERS *Pennsylvania (Northwest)

ABSTRACT

A study compared graduates from three high school curricula--academic, general, and vocational--to determine if there were any advantages for the respective graduates in the labor market. Surveys mailed to a sample of 1,266 graduates received 623 usable responses. Three research questions were asked that dealt with secondary educational experience, postsecondary educational experience, and selected labor market outcomes. Literature was reviewed about high school experiences and outcomes after graduation. The usual comparison was vocational and nonvocational curricular groups. Aspects of labor market outcomes that were examined included total employment, earnings, job stability, and job satisfaction. The study found that: (1) significant differences in secondary educational experiences with academic graduates having the highest grade point averages followed by the vocational and general graduates; (2) significant differences in the number of credits in science, mathematics, and vocational education courses; (3) associations, low through high, between curricula and postsecondary educational experiences, with over 60 percent of all graduates going to some type of postsecondary education; (4) higher earnings and more hours worked for vocational graduates; (5) no significant differences in total number of jobs since graduation or job satisfaction; and (6) very little mobility, with over 84 percent not moving or moving within the county. Replication and extension of the research were recommended. (48 references; 15 data tables) (YLB)

Pennsylvania Department of Education

Bureau of Vocational and Adult Education

Research Project 83-9002

A COMPARATIVE ANALYSIS OF ACADEMIC, GENERAL, AND VOCATIONAL EDUCATION GRADUATES IN RURAL NORTHWEST PENNSYLVANIA

by

Robert P. Garrity

Chief Researcher/Coordinator

Venango County

Area Vocational-Technical School

June 1989

ABSTRACT

The study compared graduates from three high school curricula--academic, general, and vocational--to determine if there were any advantages for the respective graduates in the labor market. To investigate if graduates from one curriculum had an advantage over those from another, three research questions were asked. The questions dealt with (1) secondary educational experiences, (2) postsecondary educational experiences, and (3) selected labor market outcomes.

The secondary education experiences examined were grade point average, total English credits, total mathematics credits, total science credits, and total vocational education credits.

The postsecondary educational experiences examined were attendance at two-year and/or four-year institutions of higher learning, program completion, and enlistment in the armed services.

Labor market outcomes examined were total salary per year, total hours worked per year, and total jobs held since graduation. Mobility and job satisfaction were also examined.

The findings were as follows: There were significant differences in secondary educational experiences with academic graduates having the highest grade point averages

followed by the vocational and general graduates; there were significant differences in the number of credits in science, mathematics, and vocational education courses; there were associations, low through high, between curricula and postsecondary educational experiences, with over 60 percent of all graduates going on to some type of postsecondary education; the vocational graduates earned more and worked more hours than either academic or general curriculum graduates; there were no significant differences in total number of jobs since graduation or job satisfaction; there was very little mobility, with over 84 percent not moving or moving within the county.

TABLE OF CONTENTS

LIST OF TABLES

ACKNOWLEDGEMENTS

I wish to express my appreciation to each committee member: Dr. Frederick Welch, Dr. Edgar Yoder, Dr. Susan Weis, Dr. James Slick, and Dr. Donald Evans. I am also very grateful to Dr. Frederick Welch and Dr. Edgar Yoder for the additional guidance and help they provided.

Appreciation is also extended to the administration, faculty, and staff of the Venar . County A.V.T.S., and the participating high schools for their efforts in the research.

I would especially like to thank my brother, Thomas Richard Garrity II, a Technical Analyst in Information Services with the Bethlehem Steel Corporation, for the valuable technical assistance and moral support he provided during the project.

CHAPTER 1

INTRODUCTION

The 1980s have not been kind to education. When President Reagan took office in 1980, he had a goal of eliminating the Secretary of Education position from his cabinet. Numerous educators viewed this as an attempt to weaken the influence and role of education (Welch, 1989). Our schools are presently in the middle of another "reform movement" which can be an expected periodic feature of our technological environment (Gardner, 1985). President Reagan's first Secretary of Education, Terrel Bell, created the National Commission on Excellence in Education on August 26, 1981, and directed the Commission to report on the quality of education in the United States (National Commission on Excellence in Education, 1983). The report, A Nation at Risk, was basically negative towards education, and it stressed standardized curricula and creative thinking courses, but it did not advocate creative teaching. The report also stressed the need for computer education, but ignored the capital investment required to accomplish this goal (Gardner, 1985).

The report started a wave of renewed emphasis on education that carried through the remainder of the Reagan era. This educational interest was also highly evident in the last election with both presidential candidates wanting

to be the "Education President" of the future. President Bush will maintain some of the previous administration's philosophies, at least for a while, and this will have influences on education through the rest of the century (Welch, 1989).

In the past, education appeared to have been less important in the lives of successful adults. George Washington only had seven years of formal schooling, yet he had an outstanding career and became our first president (Karwatka, 1988). Through the early 1950s, an eighth grade education was adequate for survival in society with technological advances; in the 1960s, a high school education became the minimum requirement for success in society. The 1970s placed increased emphasis on vocational education, and the 1980s and 1990s indicate that a high school education may not be adequate (Welch, 1989).

A special section of Business Week on "Business and Education: The Demand for Partnership" (Business Week, 1988) estimated that by 1990 over 50 percent of the jobs are going to require education or technical training beyond high school. By the year 2000, from 5 to 15 million manufacturing jobs will require different skills, and an equal number of service jobs will become obsolete. Beyond the year 2000, it is predicted that the major employers will be small businesses employing less than 100 people, and these companies will not be equipped to provide training and remediation. Additionally, workers will be changing jobs

from five to six times during their lives (Business Week, 1988).

While a higher degree of education and future training is evident from these figures, the future labor force itself should be considered. Overall, the labor force will grow only 1.2 percent a year from 1986 to 2000, less than the growth rate of 2.2 percent from 1972 to 1986. This is the slowest since the 1930s, and it is created by the decrease in population growth and the maturing "baby-boom" generation cohorts. Until the end of the century, the smaller "baby-bust" generation cohorts will be providing the needed workers (Riche, 1988).

Between now and the year 2000, over half of the jobs will require postsecondary education of some type (Riche, 1988). The educational requirement may not specifically mean college, but it could include technical training on specific machinery or technological applications (Welch, 1989). However, the labor force may not be able to prepare for the future training needs. Over a million youths drop out of school each year and one in eight 17-year-olds is functionally illiterate (Business Week, 1988). Former U.S. Secretary of Labor, William Brock, stated that "we are building a tremendous group of permanently unemployed who lack the education and skills to hold jobs and they will bubble up through the demographic charts for the next 30 years" (Cook 1986, p.56).

While the loss of self-esteem and dignity of the drop-outs, unskilled, and unemployed cannot be calculated, the cost of the problems associated with supporting and training them can be calculated. Some of the costs of these problems are employers spending over $210 billion annually on training, $41 billion going to welfare yearly, businesses loseing $25 billion yearly in lost productivity and remediation costs, and the dropouts from each year costing America an estimated $240 billion in lost earnings and taxes in their lifetimes (Business Week, 1988). Assuming that the average working life of a person is 40 years, a yearly rate of the cost of dropouts could be calculated. If one million drop-out yearly and the estimated lifetime lost earnings and taxes is $240 billion, then the cost in lost earnings and taxes is $6,000 per year for each drop-out. This is a tremendous waste of human resources, earnings, and taxes.

There is a positive side to this problem. The estimates are that for every dollar used in early prevention and intervention a savings of $4.75 in remedial education, welfare, and crime can be realized (Business Week, 1988).

Since A Nation at Risk was published in 1983, there have been many changes in Pennsylvania's Educational System. With the implementation of Chapter 5 Curriculum Requirements and Chapter 6, the Regulations and Standards for Vocational Education, many vocational programs have experienced declining enrollments and budget cuts. In the 1983-84 school year there were 216,910 students in secondary vocational

education programs in Pennsylvania (Pennsylvania Department of Education [PDE], 1985). In the 1986-87 school year there were 168,535 students enrolled in Pennsylvania's secondary programs (PDE, 1988).

Vocational education frequently has image problems; few parents want to send their children to vocational programs, and industry sometimes views it as a terminal education. Only two choices of high school curricula were frequently offered in the past: (1) college prep for the college bound students and (2) vocational courses for students intending to work (Welch, 1989).

Vocational Education, as defined in the Pennsylvania Public School Code of 1949 (Office of Federal Regulations, 1984):

> (2) "Vocational education" shall mean any form of education of less than college grade, given in school or elsewhere, the purpose of which is to fit an individual to pursue effectively a recognized profitable employment, whether pursued for wages or otherwise. (p.180)

The State Board of Education, in Philosophy and Beliefs of Vocational Education, asserted that vocational education has a dual mission: (1) to help individuals obtain economic independence and (2) to help business and industry by providing a pool of competent workers (State Board for Vocational Education, 1986).

Helping individuals by teaching them how to become an integral, functioning part of society has also been one of the Goals of Quality Education as stated in Chapter 5 of the curriculum requirements (Fry, 1988). Under Section 5.13 (f)(8):

> Work. Quality education shall help every student acquire the knowledge, skills, and attitudes necessary to become a self-supporting member of society. Objectives are:
> (i) Development of career awareness.
> (ii) Development of personal career planning skills.
> (iii) Development of job seeking, job getting, and job keeping skills.
> (iv) Development of entry level occupational skills.
> (v) Development of an awareness of the dignity of work.
> (vi) Development of current labor market skills to foster economic development.
> (Fry, 1988)

Also included in Chapter 5, every school district and area vocational-technical school must submit a long range plan to the State Department of Education in which the Quality Goals of Education must be addressed.

Approximately half of the Pennsylvania public high school graduates are going on to college, 44.5 percent in

1982-83 (PDE, 1984) and 52.8 percent in 1986-87 (PDE, 1988). While the college preparatory curriculum is based on the assumption that its students are going to college, a large portion of the students drop out of college during the first year and less than 20 percent of the students graduate from a four-year college. These drop-outs may not be fully prepared to enter the labor force (Welch, 1989).

In 1985-86 approximately 61,068 of the 127,226 graduates from the Pennsylvania public high schools went to college (PDE, 1986) and there were 42,749 vocational completers that year (PDE, 1988). This leaves approximately 23,400 who took the college preparation, or general curriculum option and, subsequently, did not go to college. If they were not in a vocational curriculum, then one might argue that they were not sufficiently prepared by their schools to enter the labor force. If America is to regain its industrial economic status, then the high school graduates must be better prepared both academically and technologically for the labor force (Welch, 1989).

A standard use of education has been to provide students with the "tools" required for survival in our society. The "tool" orientation will be more critical in the highly technologically oriented future (Gardener, 1985). According to the "Goals of Quality Education," the public school programs shall help every student become self-supporting in society. One method of helping the student toward this goal is enrollment in vocational education.

Vocational education has a dual mission in Pennsylvania, both to help individuals become economically independent, and to provide business and industry with a pool of competent workers. We must know what, if any, benefits the academic, general, and vocational curricula provide to students so they can be offered the best options for success in society. In the future, it will be more important that each student gets the best possible education to allow him/her to succeed to the best of his/her ability.

Purpose of the Study

The study compared graduates from three high school curricula, academic, general, and vocational, to determine if there were any advantages for graduates in the labor market. To investigate if one curriculum had an advantage over another three questions were asked. The questions dealt with (1) secondary educational experiences, (2) post-secondary educational experiences, and (3) labor market outcomes.

Question One: What was the difference between the secondary school students grade point average, total credits in English, total credits in mathematics, and total credits in science, total credits in vocational education for the academic, general, and vocational program graduates?

Question Two: What was the difference between the postsecondary education experiences of attendance at two-

year and/or four-year institutions of higher learning, program completion, and enlistment in the armed services for the academic, general, and vocational program graduates?

Question Three: What was the difference between the labor market outcomes of salary, total number of jobs held, total number of hours worked per year, job satisfaction, and mobility for the academic, general, and vocational program graduates?

Limitations of Study

The research was conducted on a geographic area of northwestern Pennsylvania that is rural. It was limited to the high school graduates that responded to the questionnaire. There are a few large manufacturers in the area and less than ten percent of the industries of the area employ over 100 employees (Oil City Chamber of Commerce, 1988). This may provide limited applicability of the results due to the rural location and small industrial base.

Significance of the Study

The need for factual data in decision making is very important.

> Vocational education, as all forms of education, has a multi-dimensional effect on the welfare of individuals and society. Determination of the economic performance of

> graduates of vocational programs is essential to the process of decision making over the allocation of a given set of scarce resources among numerous competing uses.
> (Ghazalah,1987, p. 47)

The findings of this study will provide data for future planning and program decisions. These results will assist the school boards and school administrations when considering curriculum development for the participating schools.

The Bureau of Vocational and Adult Education of the Department of Education of the Commonwealth of Pennsylvania has stated Goals and Objectives for Vocational Education. Goal IV involves the management of the state vocational education system in accordance with the Vocational Education Philosophy and Beliefs of the State Board of Education. There were four objectives in that goal.

> 6.1 Develop an information/reporting system aimed at public and policymaking understanding of the purposes, methods, and outcomes of vocational education.
> 6.2 Operate a system of research, evaluation, and planning to provide information on the benefits and outcomes of vocational education and meet federal and state reporting requirements.

6.3 Develop and administer a system for gathering and communicating information about vocational education.

6.4 Support the efforts of local and regional agencies to communicate vocational education outcomes (Bureau of Vocational and Adult Education, 1988, pp.7-8).

Definition of Terms

The following definitions were provided for terms used throughout the study.

Approved Program. A program certified in writing by the Pennsylvania Department of Education as meeting the state regulations and standards for vocational education. (PDE, 1988, p.34)

Completer. A student who completed a planned sequence of courses designed to meet the a vocational occupational objective. (PDE, 1988, p.34)

Curriculum. A series of planned courses that are coordinated and articulated with one another and implemented in order to teach specific knowledge, skills, attitudes, and behaviors in a systematic and cumulative manner.

CHAPTER 2

REVIEW OF RELATED LITERATURE

Introduction

The purpose of this study was to compare the high school curricula, academic, general, and vocational, to determine if there were any advantages in labor market outcomes. Toward this purpose literature was reviewed about high school experiences and outcomes after graduation. The high school experiences literature includes: local high school curricula, vocational education, and Pennsylvania's graduates. The literature following graduation includes transitions, socioeconomic status, postsecondary education, and labor force experience.

High School Experiences

Curricula

Upon entering high school, ninth grade students must decide which curricula to enter: either the academic, general, or one of the vocational courses including business education, agriculture education, health occupations, marketing and distributive education, technical education, trade and industrial education, and occupational home

economics education. Curricula decisions were based on the student's individual career choices. The curricula offered in the Oil City Area High School and the Rocky Grove High School were typical of what was offered in Pennsylvania. The Oil City High School offered five programs of study: Academic, Business Education, General, Vocational, and Academic-Technical. Three of the programs are Vocational Education programs: Business Education, Vocational, and Academic-Technical (Oil City Area High School, 1988). The following are the course descriptions.

ACADEMIC COURSE: The Academic Course is designed primarily as a college preparatory course of studies. Stressed in this program are mathematics, languages, natural science, social studies, and English. To graduate from the Academic course at least twelve "Academic" credits must be earned from courses taken in these areas. This is for grades 10 through 12.

BUSINESS EDUCATION COURSE: This course of studies is intended for students who expect to enter business, clerical, secretarial, or stenographic work. All students take the same subjects in 10th grade. In grade 11, students may choose among a clerical, secretarial, or accounting area of emphasis. Recommended students may do stenographic work in their senior year.

GENERAL COURSE: Students who do not expect to attend college and have no desire to enter business will find the General Course best suited to their needs. This program stresses English, social studies and permits a wider choice of electives than most other courses. All General students are directed into a three-year sequence in one elective area.

VOCATIONAL COURSE: The following areas of instruction School: autobody, auto trades, basic electronics, carpentry, cosmetology, distributive education and marketing, drafting, food preparation, home health management assistant, machine trades, petroleum production, and welding and metal fabrication.

ACADEMIC - TECHNICAL COURSE: Technical students take English and Social Studies at the Vo-Tech School. They must complete their academic load by taking special classes at their home schools (mathematics, foreign languages, etc.). Technical Data Processing requires Algebra I and Geometry. (Oil City Area High School, 1988, p. ii)

The decision of which curricula a student should enter was made by the student and their parents as stated in the Rocky Grove High School student scheduling booklet. The following scheduling suggestions listed described the

student options including two choices of vocational curricula.

Students who wish to prepare to meet entrance requirements to various colleges should schedule the ACADEMIC CURRICULUM - See Schedule A.

Those students who are interested in preparing to enter the business career field following graduation or to go to business schools should schedule the BUSINESS CURRICULUM - See Schedules B-C.

Students who wish to receive training in a specific occupational situation and who plan to enter the job field upon graduation should schedule the VO-TECH CURRICULUM - See Schedule D. (You must be selected for this curriculum through vo-tech application procedures.)

Any student who does not fit into the above catagories and who plans to either enter the job field or attend a trade school should schedule the GENERAL CURRICULUM See Schedule E. (Rocky Grove High School, 1988, pp.1-12)

Vocational Education

Vocational education, from its beginning, has always been considered controversial. The initial purpose of

vocational education in public schools was to meet the industrial revolution's ever-increasing need for skilled workers (Herr, 1972). While the educational system maintained its traditional academic orientation, it had a hard time coping with the challenges of the changes that were occuring in society. Early labor force leaders frequently stated their criticisms and believed the schools to be inadequate in training students for the trades. Samuel Gompers stated the position that no vocation was a dead end if it led to a fulfilling life (Herr, 1972).

Prossner (1949) believed in the practical skill aspect of vocational education, as well as the economic advantage of job acquisition and job advancement. Others felt that vocational education continued the status quo of the children from poorer backgrounds and therefore restricted their social mobility (Herr, 1972).

John Dewey, one of the most renowned educators, originally protested that vocational education was too narrow in focus (Boydston, 1979). However, Dewey also believed that if children's knowledge was created by performing, vocational education presented the possibility of satisfying the exploratory needs. "Education through occupations consequently combines within itself more factors conducive to learning than any other method" (Dewey, 1916, p. 361).

Presently, the State Board For Vocational Education views vocational education as an integral part of Pennsylvania's educational system.

> Vocational education can provide individuals with the skills they need to be economically self-sufficient, and business and industry with the skilled employees they need to remain competitive.
>
> Vocational education has, therefore, a dual mission: (1) helping individuals through broad based occupational education achieve economic independence and (2) helping business and industry improve productivity by developing a pool of competent workers and when appropriate, by providing job-specific training (State Board of Vocational Education, 1986, p.3)

Pennsylvania's Graduates

The Pennsylvania Department of Education completes a statistical report on education in Pennsylvania yearly. The report, Status Report on Education in Pennsylvania, is a statistical summary of the previous school year. These reports cover students, staff, finances, schools and facilities, and libraries. Table 2.1 contains the reported figures for the number of public school graduates and the percent that went to college for some selected years. Approximately half of the graduating students go on to

Table 2.1

Distribution of Selected Years of Pennsylvania Public High School Graduates

Year	N	%
1982-83		
College bound	61,184	44.50
Vocational	56,923	41.40
Non-college, non-vocational	19,387	14.10
Total	137,494	100.00
1984-85		
College bound	60,909	46.00
Vocational	52,700	39.80
Non-college, non-vocational	18,803	14.20
Total	132,412	100.00
1985-86		
College bound	61,068	48.00
Vocational	48,346	38.00
Non-college, non-vocational	17,812	14.00
Total	127,226	100.00
1986-87		
Academic	64,004	52.80
Vocational	40,774	33.60
Non-college, non-vocational	17,456	14.40
Total	121,219	100.00

Sources: Pennsylvania Department of Education (1984). Status report on education in Pennsylvania: a statistical summary. Harrisburg, PA: Author.

Pennsylvania Department of Education (1985). Status report on education in Pennsylvania: a statistical summary. Harrisburg, PA: Author.

Table 2.1

Continued

Sources: Pennsylvania Department of Education (1986). Status report on education in Pennsylvania: a statistical summary. Harrisburg, PA: Author.

Pennsylvania Department of Education (1988). Status report on education in Pennsylvania: a statistical summary. Harrisburg, PA: Author.

Pennsylvania Department of Education (1985). Vocational education statistics, 1983-84. Harrisburg, PA: Author.

Pennsylvania Department of Education (1986). Vocational education statistics, 1984-85. Harrisburg, PA: Author.

Pennsylvania Department of Education (1987). Vocational education statistics, 1985-86. Harrisburg, PA: Author.

Pennsylvania Department of Education (1988). Vocational education statistics, 1986-87. Harrisburg, PA: Author.

Pennsylvania Department of Education (1985). Secondary vocational education statistics, 1983-84. Harrisburg, PA: Author.

college each year. The school systems should therefore be helping the remainder of the students learn some type of entry level skills for employment and self-sufficiency. However, from 34 to 41 percent, less than half of the graduates, are enrolled in vocational programs.

Over 17,000 students who graduate each year were not accounted for in the college bound graduates or vocational completers (see Table 2.1). While these students were not listed offically as general curriculum participants, it was the only option left for consideration.

Vocational education has served the special education segment of our student population at an increasing rate. While the overall number of vocational completers has decreased, the percentage of special education students, (handicapped, disadvantaged and limited English proficient) served by vocational education has increased (see Table 2.2).

After Graduation

Transition

It would be wrong to say that the transition between school and the work world is the "weakest link" in our educational and training system--wrong because this assumes there is a link at all. For the students not going on to college or to further training, school ends one day and the

Table 2.2

Distribution of Selected Years of Pennsylvania Special Education Students in Vocational Education

Year	N	%
1982-83		
Special education:		
handicapped	17,929	
disadvantaged	54,536	
limited English proficiency	1549	
Total	70,017	30.00
Total vocational education enrollments	233,242	100.00
1984-85		
Special education:		
handicapped	18,425	
disadvantaged	57,355	
limited English proficiency	1596	
Total	77,376	39.10
Total vocational education enrollments	197,996	100.00
1986-87		
Special education:		
handicapped	15,896	
disadvantaged	49,036	
limited English proficiency	1287	
Total	66,219	39.30
Total vocational education enrollments	168,535	100.00

Sources: Pennsylvania Department of Education (1984). Status report on education in Pennsylvania: a statistical summary. Harrisburg, PA: Author.

Pennsylvania Department of Education (1986). Status report on education in Pennsylvania: a statistical summary. Harrisburg, PA: Author.

Pennsylvania Department of Education (1988). Status report on education in Pennsylvania: a statistical summary. Harrisburg, PA: Author.

search for a job, not a career--begins the next (William T. Grant Foundation, 1988, p.39).

Recent decisions on the graduation requirements of high schools have been based on generalizations of what was needed to prepare the graduates for transition to later life. Campbell and Puleo (1986) have been studying the actual lives of students as they were moving from school to the labor force. Data obtained in the National Longitudinal Survey of Labor Market Experience-New Youth Cohort were utilized. In their general outcomes they found out that 19 percent would graduate from four-year colleges, 16 percent would complete other types of post-secondary education or training, 38 percent went to work, and 27 percent were either unemployed or out of the labor force. Their information showed that vocational graduates fared much better in postsecondary education than was generally believed.

The William T. Grant Foundation recently completed a report on the non-college youth in America, The Forgotten Half, Non-College Youth in America, Interim Report (1988). They listed some of the many declining fortunes of young Americans:

* In 1986, young males who had high school diplomas and had jobs earned 28 percent less in constant dollars than the comparable group of youth in 1973.
* While earning power among young youth has declined, more of these young people also report no earnings. In

1984, 12 percent of all 20-24 year-old males said they had no earnings, up from 7.3 percent in 1973.

* More young people are working in part-time rather than full-time jobs. The percentage of young male graduates under age 20 who were not in college and working full time fell from 73 percent in 1968 to 49 percent in 1986. Similarly, the percentage of young females who were not in college and working full time fell from 57 percent in 1968 to 42 percent in 1986. (William T. Grant Foundation, 1988, pp.2-3)

The William T. Grant Foundation concluded that vocational education reduced the drop-out rate, and that work-related learning experiences are effective ways to learn basic skills and retain academic concepts (William T Grant Foundation, 1988). The William T. Grant Foundation also believed that vocational education, if redirected, " can offer an even more valuable preparation: a unique and effective way for many students to acquire the basic skills and general abilities they will need to be successful in a wide range of endeavors" (p. 51).

John Goodlad, a noted educator, believes that properly devised and conducted vocational education deserved greater recognition than it is currently receiving from policymakers and educators (Goodlad, 1984). He stated that vocational education was for all students and not an alternative to academic studies. A balance of both programs, academic and vocational, should be used by all students for their

economic competence and satisfaction in life and work (pp. 47-48).

Socioeconomic Status and Occupational Prestige

Campbell, Elliot, Hotchkiss, and Laughlin (1987) studied three types of schools that offer vocational education. Their findings indicated that students from vocational education came predominately from lower socioeconomic backgrounds and that they have lower aspirations. Desy, Mertens, and Gardner (1984) reported that the job status of men from all vocational programs, except marketing, was higher than that of general curriculum graduates.

There has been a consensus that occupation is one of the best indicators of socioeconomic position, although there has not always been agreement on the characteristics of occupations used in the rankings (Powers,1982). There have been two major approaches to scales of socioeconomic and occupational status. One approach intrepreted occupational status as synonymous with prestige, or subjective evaluations individuals make of each other. The other was defined in terms of objective criteria as the level of education required for an occupation and the income associated with it (Powers, 1982). Duncan worked extensively and created the Socieoeconomic Index, SEI, for

classifing occupations based on education and income. The scale used was from 0 to 96 (Powers, 1982).

> Feathermar and Stevens, recommend a "socioeconomic" index over a prestige index for the study of mobility and attainment processes. Their research suggests "...that mobility processes are more clearly revealed by..." thc variots forms of the SEI than by pure prestige measures. (p.19)

Postsecondary Education

The post-secondary experiences of vocational education students were often overlooked. Campbell and Puleo (1986) reported that approximately 60 percent of the vocational graduates started some type of post-secondary schooling and 38 percent completed the schooling. General curriculum graduates attended at similar rates but had lower completion rates, and 90 percent of the academic students attended some type of school or training with a completion rate of approximately 60 percent.

There is a high degree of association with completion of four-year college or university and graduation from the academic curriculum . These completers also have a high soecioeconomic status (SES) background (Desy & Mertens, 1984). Also, women from trade/industry programs are more likely than their peers from the general curriculum to go on to and to complete proprietary school programs, and then use

the acquired skills on their jobs (Desy & Mertens, 1984). Rumbaugh (1986) reported that 64 percent of the vocational completers who were in postsecondary programs, were in programs related to their high school vocational programs.

Wagenaar (1986), in a report on terminal degree students, indicated those who do not continue with their education after high school, as opposed to those who seek post-secondary education, had numerous differences in their background, school, family, and work experiences. Approximately 34 percent of the high school graduates are terminal degree students, and this percentage has changed relatively little since 1972. These students were less likely to be in the academic curriculum and they have lower grade point averages. Terminal degree students were more likely to be married and working in clerical, operative, craftsman, and laborer jobs.

Labor Force Experience

Copa (1984) reported that the youth of America constituted approximately one-fourth of the labor force but they accounted for approximately one-half of the unemployed. This represented an immediate loss of productivity and the wasting of a valuable resource.

Brandt and Ferguson (1987) completed a longitudinal follow-up of the 1981 high school graduates in Missouri. They focused the study on the economic aspects of salary and

employment. Their study concluded with the findings: (1) vocational graduates earned more than non-vocational graduates,(2) vocational graduates had greater job stability than non-vocational graduates,(3) a greater number of vocational graduates were employed than non-vocational graduates,(4) vocational graduates had more full-time jobs than non-vocational graduates,(5) a majority of vocational graduates were employed in an area related to their training,(6) vocational graduates were more confident of their ability to compete for employment after graduation from high school than non-vocational graduates, and (7) graduates who worked while in school earned more after graduation than the ones who did not work (Brandt, 1987).

Brandt and Ferguson (1987) also reported the non-vocational graduates frequently continue their education. Additionally, the unemployment rates of the students were lower than the national averages and over half of the graduates learned of their jobs from personal contacts such as family or friends. A small portion of the graduates were self-employed, 13 percent in 1981 to 3 percent in 1985, and these figures were lower than the national rates. Over 75 percent of the graduates indicated they were satisfied with their current or most recent job (Brandt, 1987).

Desy, Campbell, and Gardner (1984) recognized that vocational program completers were more active in the labor market than non-vocationally oriented students. This was due to the fact that the most vocational program completers

go directly to work and not into postsecondary institutions. They reported that men and women who specialize in trade/industry programs earned more than general curriculum graduates and while the earnings of the first regular full-time job were determined primarily by education, in the most recent jobs vocational graduates earned higher wages than general graduates (Desy & Campbell, 1984). Kang and Bishop (1984) reported that the positive impact of vocational coursework on wage rates was higher for males than females.

Bishop (1985) found that an increase in vocationally oriented courses led to better wages, employment, and earnings. Rumbaugh (1986) reported that 55 percent of the vocational completers were employed in related fields.

Campbell, Elliot and Laughlin et al. (1987) found that vocational education provides a direct wage advantage in the short term for those with jobs related to their studies, and the advantage becomes indirect as time in the labor market increases. The advantage was mainly through increased hours of work and fuller employment rather than wage rates. When discounted lifetime earnings were considered, there appeared to be an optimum mix of vocational and academic courses when considering lifetime earnings. Academic courses taken at the exclusion of vocational courses had a negative association with discounted lifetime earnings when postsecondary attendance was controlled (Campbell et al., 1987, p.28).

Job Satisfaction

An important finding from recent research was that former vocational students are more likely to be satisfied than others with their jobs. Human experience in the workplace is important and job satisfaction should be important in any evaluation of the effects of vocational curricula. A lot of attention has been given to defining job satisfaction and specific factors of the job (Ponce, 1981). Consideration of overall satisfaction, the sense of having values and needs met on the job, is a useful starting point (Desy, Campbell, & Gardner, 1984).

Campbell et al. (1982) found there was a correlation between job satisfaction and the individuals personal on the job development. Working in smaller firms was associated with greater job satisfaction and while vocational education had no observable effects on this form of job satisfaction, it is likely to influence the vocational graduates because most of them selected small firms to start with. They also found out that satisfaction with working conditions was associated with job specific occupations such as crafts.

Desy and Mertens (1984) found former vocational students were more likely to be satisfied with their current jobs than non-vocational students. Wagenaar (1986) reported results about the terminal degree students. While they were less satisfied with their jobs than post-secondary students,

they were satisfied concerning their opportunities for promotion.

Summary

When comparative studies were done, the literature has shown that the curricula was a basis for the comparison. However, the usual comparison was vocational and non-vocational curricula groups (Brandt, 1987) and not academic, general, and vocational curricula. Postsecondary education is also a basis for comparison (Campbell & Puleo, 1986; Brandt, 1987; Desy & Mertens, 1984; Rumbaugh, 1986; Wagenaar, 1986). Comparative studies on aspects of labor market outcomes that were examined included total employment (Copa, 1984; Brandt, 1987; Desy, Campbell & Gardner, 1984), earnings (Bishop, 1983; Brandt, 1987; Desy, Campbell & Gardner, 1984; Kang, 1984; Campbell, Elliot, Laughlin, 1987), job stability (Brandt, 1987), and job satisfaction (Campbell, 1982; Desy & Mertens, 1984; Wagenaar, 1986). Table 2.3 denotes research findings (positive and negative) for vocational education graduates concerning selected research and selected research variables.

Table 2.3

Summary of Selected Research and Selected Research Variables

Research	SES	Postsecondary Education	Labor Force Experience
Campbell, Elliot Hotchkiss, Laughlin (1987)	-		+
Desy, Mertens, Gardner (1984)	+	+	+
Campbell, Puleo (1986)		+	
Rumbaugh (1986)		+	+
Wagenaar (1986)		-	
Copa (1984)			-
William T. Grant Foundation (1988)			-
Brandt, Ferguson (1987)			+
Bishop (1985)			+

Table 2.3

Continued

Research	Job Satisfaction
Ponce (1981)	+
Desy, Campbell, and Gardner (1984)	+
Campbell, Mertens, Seitz, Cox (1982)	+
Desy & Mertens (1984)	+
Wagenaar	-
Brandt (1987)	+

Note: (+) positive outcome of vocational education
(-) negative outcome of vocational education

CHAPTER 3

METHODOLOGY

Introduction

The literature review of studies closely related to this study included, the following labor market outcomes: salary, total number of jobs held, total number of hours worked per year, and job satisfaction. The purpose of this study was to compare graduates from three high school curricula (academic, general, and vocational) to determine if there were any advantages relative to the aforementioned labor market outcomes. This study compared and contrasted the experiences of various curricula graduates by focusing on their secondary school experiences, postsecondary educational experiences, and labor force experiences. The procedures of this study are outlined in the following major sections on Target Population and Sample, Instrument Development, Questionnaire, Transcript Data, Pilot Test, Questionnaire Administration, Variables, Data Analysis.

Target Population and Sample

The population for this study consisted of all high school graduates from 1984 through 1988 of the participating school districts of the Venango County Area Vocational Technical School. The participating districts were Cranberry, Forest Area, Frankl , Oil City, Titusville, and

Valley Grove. There were seven high schools in the districts: Cranberry Senior High School, East Forest High School, West Forest High School, Franklin Area Junior-Senior High School, Oil City Senior High School, Titusville Senior High School, and Rocky Grove High School.

While the school districts may have other vocational programs in operation, only state-approved vocational programs were used were used as a basis for the vocational graduates. The state-approved vocational programs were listed in the 1984 through 1988 Pennsylvania Vocational Education Management Information System (VEMIS), and their reports were used to identify the study's vocational curricula graduates. The academic and general curricula graduates were identified by the high school guidance departments.

There were a total of 4,769 graduates in the study years. There were 1,920 vocational curricula graduates, 978 general curricula graduates, and 1,871 academic curricula graduates. Proportional, stratified random samples were used for each year included in the study. Each high school's proportion of the yearly total of graduates was determined and used as their proportion of the entire sample. The strata were based on the curricula: academic, general, and vocational. The sample size for the vocational graduates were, 100 percent of the 1988 graduates, 60 percent of the 1987 graduates, 30 percent of the 1986 graduates, 20 percent of the 1985 graduates, and 10 percent

of the 1984 graduates. Subsamples of equal numbers of academic and general students were selected for each year.

The geographic area of the study was rural, and less than ten percent of the industry of the area employed over 100 people (Oil City Chamber of Commerce, 1988). While the unemployment rate of the area was only six percent, it was a deceptive indicator of the area. Fourteen point five percent of the population of Venango County, based on U.S. Bureau of Census Population Estimates, received benefits from the Pennsylvania Department of Public Welfare (Pennsylvania Department of Public Welfare, 1989). When ranked with the 67 other Pennsylvania counties, Venango County ranks fourth in Pennsylvania in medical assistance, sixth in cash assistance, and sixth in food stamp assistance. In the three years prior to the graduation of the 1984 class, the yearly average unemployment rates were very high at 13.7 percent in 1982, 19.0 percent in 1983, and 12.9 percent in 1984.

Instrument Development

Since the purpose of this study was to compare labor market and educational experiences of graduates from various curricula, an instrument had to be developed. Building on information gained from the review of literature, an instrument was constructed to collect information for factors which could have significant influences on the

graduates' labor market experiences. Additionally, personal information questions were included in the instrument.

The survey instrument consisted of three major portions: Section I, General Information, which included questions related to demographic information such as marital status, present employment status, military service, current residence, residence changes, and parents' educational attainment; Section II, Education Since High School, contained questions concerning post high school educational activities, locations of the schools, types of schools, and present program status of those who attended school beyond the secondary level; Section III, Employment History, consisted of questions for a maximum of four jobs since graduation and there were questions dealing with job title, job description, length of employment, hours worked, salary, job satisfaction, and self-employment. The "First Job" part of Section III of the questionnaire contained a question on how the first job was obtained. Questionnaire items were based on the review of the literature. The items from the review of literature that were judged appropriate for the purpose of the research were modified to a consistant format and additional items were developed to satisfy the research objectives.

Questionnaire

A questionnaire was constructed to accomplish the purpose of this research. The Dillman (1978) Total Design Method (TDM) was partially utilized in the questionnaire construction and data collection phases. Most of the questions were closed-ended with answer choices (ordered and unordered). These include questions related to graduation year, age, marital status, military service, residence, mobility, parents' education level, postsecondary education attendance, location of postsecondary school, status in program, self-employment, and job satisfaction. Some questions (partially closed-ended) related to what the respondents were presently doing, type of school they attended, hours worked per week, length of time a job was held, salary, and how the first job was obtained. Two questions were open-ended: job title and a brief description of job duties.

Transcript Data

Since part of the purpose of this study was to compare graduates from the three curricula on three sets of experiences, data was obtained concerning the core requirements of each curriculum. These data were obtained from the subjects' secondary school transcripts. After the sample was drawn, every identified graduate's transcript was

reviewed for data concerning their graduation year, curriculum, GPA, mathematics credits, science credits, English credits, vocational education credits, race, gender, and special needs classification.

Pilot Test

The questionnaire was submitted for evaluation by the Office for the Protection of Human Subjects at Penn State University. When the review of this office was completed, a pilot test of the questionnaire was conducted to evaluate the questionnaire for data entry purposes. The questionnaire was administered to two sections of classes in the Speech Communication Department at Penn State University. The class is required of all Penn State undergraduate students before they graduate and it provided a heterogeneous group of students for pilot testing the questionnaire.

Questionnaire Administration

Before the transcript data were obtained, approval was needed from the school districts. The superintendents were contacted for their approval, and they contacted their solicitors. Upon the solicitors' approval, work was start on obtaining lists of the graduates for the sampling purpose and the gathering of the transcript data. Mailing lists were constructed for mailing the questionnaire.

When the pilot test results were incorporated, the questionnaire was mailed out via first class postage to the subjects. The questionnaire packets contained:

1. A cover letter from the graduates' high school guidance counselors asking for their voluntary participation in the study.
2. The questionnaire.
3. A pre-addressed, postage guaranteed envelope for returning the questionnaire.

The questionnaires were sent from, and returned to, The Pennsylvania State University. A total of 1,458 survey forms were mailed in the first mailing. There was a postcard reminder sent via first class postage after three weeks to 1,050 nonrespondents. After five weeks another mailing of 848 survey questionnaires was sent to nonrespondents. There were 192 people who could not be contacted due mainly to the expiration of forwarding addresses. There were also two deaths among prospective subjects. The final possible total for the sample was 1,266.

A telephone follow-up of non-respondents was conducted to ensure that they were random and free of bias. There were 623 usable returned questionnaires and the response rate for the entire survey was approximately 50 percent.

Variables

The three research questions and their respective variables are discussed separately.

Question One: What were the differences between the secondary experience variables of grade point average, total credits in English, total credits in mathematics, total credits in science, total credits in vocational education for the academic, general, and vocational program graduates?

Dependent variables:

GPA (Interval Scale)

Total credits in English (Ratio Scale)

Total credits in mathematics (Ratio Scale)

Total credits in science (Ratio Scale)

Total credits in vocational education (Ratio Scale)

Independent variable:

Curricula (Nominal Scale)

Question Two: What were the differences between postsecondary education experiences of attendance at two-year and/or four-year institutions of higher learning, program completion, and enlistment in the armed service for the academic, general, and vocational program graduates?

Dependent variables:

Type of postsecondary school attended (Nominal Scale)

Program completion (Nominal Scale)

Service in the armed services (Nomina. Scale)

Independent variable:

Curricula (Nominal Scale)

Question Three: What were the differences between the labor market outcomes of salary, total number of jobs held since graduation, total hours worked per year, job satisfaction, and mobility for the academic, general, and vocational program graduates?

In question three, there were five dependent variables and nine independent variables. When calculating the salary and hours per year, a uniform time period of ten months was used. Since the 1988 graduates had only been out of school up to ten months, this time period was the basis for the calculation.

Dependent variables:

Salary, which for this study is defined as total dollars earned per year based on the last ten months (Ratio Scale)

Total number of jobs held since graduation (Ratio Scale)

Total hours worked, which is a result of calculating the total number of hours worked in the previous ten months. (Ratio Scale)

Job Satisfaction (Nominal Scale)

Mobility (Nominal Scale)

Independent variables:

The major independent variable was Curricula (academic, general, or vocational) (Nominal Scale)

The eight control variables included:

Gender (Nominal Scale)

Age (Ratio Scale)

Race (Nominal Scale)

SES ((Nominal Scale-father's and mother's education levels)

Location (Nominal Scale-rural or urban)

Marital status (Nominal Scale)

Special needs classification (Nominal Scale)

Self-employment (Nominal Scale)

Analysis of Data

SAS Full-Screen Edit was used for the data entry and statistical analysis. Data were analyzed for research questions one and two through descriptive statistics. Question three used descriptive statistics and multiple regression (GLM Procedure) for analyzing the labor market outcomes of salary, total number of jobs held since graduation, and total hours worked:

Salary = f (curriculum, gender, age, race, SES, location, marital status, special needs classification, and self-employment);

Total number of jobs held since graduation = f(curriculum, gender, age, race, SES, location, marital status, special needs classification, and self-employment);

Total hours worked = f (curriculum, gender, age, race, SES, location, marital status, special needs classification, and self-employment).

CHAPTER 4

DATA ANALYSIS

Introduction

The study compared graduates from three high school curricula, academic, general, and vocational, to determine if there were any advantages for respective graduates in the labor market. To investigate if one curriculum had an advantage over another three research questions were asked. The questions dealt with (1) secondary educational experiences, (2) post-secondary educational experiences, and (3) labor market outcomes.

Question One: What were the differences between the secondary school students grade point average, total credits in English, total credits in mathematics, total credits in science, total credits in vocational education for academic, general, and vocational program graduates?

Question Two: What were the differences between the postsecondary education experiences of attendance at two-yesr and/or four-year institutions of higher learning, program completion, and enlistment in the armed services for the academic, general, and vocational program graduates?

Question Three: What were the differences between the labor market outcomes of salary, total number of jobs held, total number of hours worked per year, job satisfaction, and

mobility for the academic, general, and vocational program graduates?

The Sample

Selected Personal Characteristics

The respondents were over 99 percent white. Over 55 percent of the returns were from females, and 19-20-year-olds accounted for over 58 percent of the returns. Slightly over 81 percent reported their fathers' education levels were at least high school graduate, while over 88 percent reported their mothers' education levels were at least high school graduate (see Table A-1).

Selected High School Characteristics

The original sample was 50 percent vocational graduates, 25 percent academic graduates, and 25 percent general graduates. The returns were over 46 percent vocational graduates, 35 percent academic graduates and 17 percent general graduates, and approximately 40 percent were 1988 graduates. The respective individual high school responses generally reflected the proportions in the population, with the exception of Oil City which was lower than the original proportion (see Table A-2).

The special needs population, handicapped, disadvantaged, and limited English proficient, accounted for 11.23 percent of the population. No special needs graduates were reported in the academic curriculum and only ten graduates (1.7 percent) were in the general curriculum. The majority of the special needs students were in the vocational curricula (see Table A-2).

Question One

What were the differences between the secondary school students grade point average, total credits in English, total credits in mathematics, total credits in science, total credits in vocational education for the academic, general, and vocational program graduates?

All of the high schools grade point averages were converted to a 4.00 scale for the data analysis purposes. The academic graduates had the highest grade point average at 3.10 followed by the vocational graduates at 2.53 and the general graduates at 2.16. The modes of both the academic graduates and vocational graduates were 3.00, and the mode of the general graduates was 2.00. There were significant differences, at $p \leq .05$, in grade point averages from the different curricula. The were significant differences in grade point averages between the academic curriculum and general curriculum graduates, and between the academic

curriculum and vocational curriculum graduates (see Table 4.1).

There were no significant differences between the total number of credits in English completed by graduates from the different curricula. The means were all close to 3.00 and the modes were all 3.00 (see Table 4.1).

There were significant differences, at $p \leq .05$, in the total number of mathematics credits completed by the graduates from the different curricula. The mean of the mathematics credits were academic 2.65, general 1.89, and vocational 1.54. The modes were 3.00 for the academic, 2.00 for the general, and 1.00 for the vocational. There were significant differences in mathematics credits completed between the academic curriculum and general curriculum graduates, between the academic curriculum and vocational curriculum graduates, and between the general curriculum and vocational curriculum graduates (see Table 4.1).

There were significant differences, at $p \leq .05$, in the total number of science credits completed by the graduates from the different curricula. The mean science credits were: 2.86 for the academic, 1.80 for the general, and 1.24 for the vocational. The modes were 3.00 for the academic, 1.00 for the general, and 1.00 for the vocational. There were significant differences in science credits completed between the academic curriculum and general curriculum graduates, betwee the academic curriculum and vocational

Table 4.1

Means, Standard Deviations, and Modes of Selected High School Characteristics

Variables	n	Mean		s	Mode
Grade point average					
Academic	217	3.10	A	0.57	3
General	111	2.16	B	0.64	2
Vocational	285	2.53	C	0.73	3
Total	613	2.66		0.75	3
English credits					
Academic	221	3.00	A	0.07	3
General	111	2.99	A	0.09	3
Vocational	291	3.00	A	0.10	3
Total	623	3.00		0.09	3
Mathematics credits					
Academic	221	2.65	A	0.62	3
General	111	1.89	B	0.80	2
Vocational	291	1.54	C	0.69	1
Total	623	2.00		0.85	1
Science credits					
Academic	221	2.86	A	0.87	3
General	111	1.80	B	0.84	1
Vocational	291	1.24	C	0.56	1
Total	623	1.91		1.04	1
Vocational education credits					
Academic	221	1.18	A	1.55	0
General	111	2.87	B	2.35	0
Vocational	291	6.89	C	1.70	6
Total	623	4.15		3.18	0

Note. Means of groups followed by the same letter are not significantly different from each other based on the Scheffe Multiple Range Test, $p \leq .05$.

curriculum graduates, and between the general curriculum an vocational curriculum graduates (see Table 4.1).

There were significant differences, at $p \leq .05$, in the total number of vocational education credits completed by the graduates from the different curricula. The mean vocational credits were 1.18 for the academic, 2.87 for the general, and 6.89 for the vocational. The modes of the academic curriculum and general curriculum graduates were zero, and the mode of the vocational curriculum graduates was six. There were significant differences in the number of vocational credits completed between: the academic curriculum and general curriculum graduates, the academic curriculum and vocational curriculum graduates, and between the general curriculum and vocational curriculum graduates (see Table 4.1).

Question Two

What were the differences between the postsecondary education experiences of attendance at two-year and/or four-year institutions of higher learning, program completion, and enlistment in the armed services for the academic, general, and vocational program graduates?

Over 60 percent of the graduates fron 1984 through 1988 went on to some form of postsecondary education. Approximately half of the graduates who went on to school were academic curriculum graduates while about one-third of

the graduates who went to school were vocational curriculum graduates (see Table A-3). These figures represent over 91 percent of the academic curriculum graduates, over 48 percent of the general graduates, and over 40 percent of the vocational curriculum graduates. Over 82 percent of those attending postsecondary education attended schools in Pennsylvania (see Table A-3).

The majority, over 61 percent, of those attending some type of postsecondary education went on to four-year colleges or universities. Private business, technical or trade schools or institutes accounted for another 19 percent. Over half of those attending school, were academic graduates who went to these two catagories of schools (see Table A-3).

Approximately one-fifth of the graduates completed their respective programs, and approximately seventy percent were still enrolled either full-time or part-time (see Table A-3). Only 10 percent were no longer attending their postsecondary programs.

Only 53 respondents, approximately 9 percent of those reporting, indicated that they had been in the military (see Table A-4). This was approximately 15 percent of the general graduates, 8 percent of the vocational graduates, and 7 percent of the academic graduates.

There was a low association, Cramer's V = 0.098 at $p \leq .05$, between curricula and whether or not the graduates entered the armed services. General curriculum graduates

(14.41 %) went into the armed services at twice the percentage rate of academic curriculum graduates (6.85%), and almost twice the percentage rate (7.64%) of vocational curriculum graduates (see Table A-5).

There was a high association, Cramer's V = 0.488 at $p \leq .001$, between curricula and attendance in postsecondary education. By the rate of almost two to one, the academic graduates attended some type of postsecondary educational program as compared to graduates from the academic and general curricula(see Table A-6).

There was a moderate association, Cramer's V = 0.469 at $p \leq .001$, between the type of curricula and the type of postsecondary education attended. As stated earlier, most of the academic graduates went to four-year colleges, while one-third of the vocational graduates and one-fourth of the general graduates went to four-year colleges. Over 40 percent of the vocational graduates went to private business or trade schools while just over 27 percent of the general graduates went to private business or trade schools, and over 24 percent of the general graduates went to postsecondary vocational schools (see Table A-7).

There was a moderate association, Cramer's V = 0.304 at $p \leq .001$, between curricula and the graduates status in postsecondary education. The dropout rate for the general curriculum graduates (16.67%) was twice the rate of the academic curriculum graduates rate (7.39%), and the general curriculum graduates rate was also higher than the

vocational curriculum graduates rate (11.97%) (see Table A-8).

Question Three

What were the differences between the labor market outcomes of salary, total number of jobs held, total number of hours worked per year, job satisfaction, and mobility and the academic, general, and vocational program graduates?

Selected Demographic Characteristics

Over 91 percent of the graduates lived in rural settings. Over 71 percent did not move, and about 13 percent moved within the county. Less than eight percent moved out of Pennsylvania. Approximately 90 percent had not married (see Table A-4).

Only 31 percent of the graduates were working full-time, and approximately an equal percentage were attending school. Approximately 11 percent were working part-time, about ten percent were working part-time and attending school, while less than seven percent were presently in the military (see Table A-4).

Selected Labor History Characteristics

When examining the labor history of the graduates, to determine the total number of jobs, hours worked, and salary, other questions were asked. From the job descriptions, the Duncan Socio-Economic Index value was determined. Questions were also asked concerning the length of time on the job (in months), hours worked per week, salary (as an hourly rate). how the first job was obtained, self-employment, and job satisfaction. The total number of jobs since graduation was determined from the answered questions, and the hours worked and salary were calculated based on the last ten months, from June 1988 through March 1989.

Over 35 percent of the graduates had held only one job, 31 percent had two jobs, 18 percent had three jobs, and only 15 percent had four jobs (see Table A-9). Over 40 percent found their first job through family or friend referral and another 37 percent asked the employers themselves (see Table A-10).

On the first job there was a significant difference, at $p \leq .05$, on the Duncan SEI value between the vocational curriculum graduates and general curriculum graduates. The mean value for the general curriculum was 15.12 and the mean value for the vocational curriculum was 20.36. There was also a significant difference, at $p \leq .05$, in length of the first job between the academic curriculum and general

curriculum, and between the academic curriculum and vocational curriculum. The median length of a job in months, for the curricula were 3.00 months for the academic graduates, 7.00 months for the general graduates, and 8.00 months for the vocational graduates. There were no significant differences in the hours worked per week between graduates from the three different curricula (see Table 4.2).

For people who had a second job, there was a significant difference, at $p \leq .05$. That was the difference between the academic curriculum graduates and vocational curriculum graduates relative to hours worked per week. The vocational curriculum graduates worked a median of 38 hours per week and the academic curriculum graduates worked a median of 30.00 hours per week (see Table 4.3). No segnificant differences existed between curricula relative to salary, job length and Duncan SEI value.

For the third job, a significant difference at $p \leq .05$, existed between the academic curriculum graduates and general curriculum graduates relative to length of time on the job (in months). The academic curriculum median was 3.0 and the general curriculum median was 8.5 (see Table 4.4). There were no significant differences at $p \leq .05$ among the graduates of the three programs for the fourth job (see Table 4.5).

Less than two percent of the graduates were self-employed on the first job. Only three percent were self-

Table 4.2

Means, Standard Deviations, and Medians of Selected Characteristics of the First Job

Variables	n	Mean		s	Median
Duncan SEI					
Academic	171	17.94	AB	11.82	17
General	93	15.12	A	7.49	15
Vocational	251	20.82	B	13.75	17
Total	515	18.84		12.36	17
Job length (months)					
Academic	167	6.46	A	7.51	3
General	91	10.29	BC	10.74	7
Vocational	242	9.96	C	9.18	8
Total	500	8.85		9.12	6
Hours worked per week					
Academic	170	30.49	A	11.66	30.0
General	93	32.44	A	12.80	34.5
Vocational	249	31.60	A	10.66	32.0
Total	512	31.38		11.41	30.0
Salary (hourly rate)					
Academic	171	4.22	A	1.98	3.50
General	88	4.06	A	1.71	3.50
Vocational	245	3.89	A	1.29	3.50
Total	504	4.03		1.64	3.50

Note. Means of groups followed by the same letter are not significantly different from each other based on the Scheffe Multiple Range Test, $p \leq .05$.

Table 4.3

Means, Standard Deviations, and Medians of Selected Characteristics of Second Job

Variables	n	Mean		s	Median
Duncan SEI					
Academic	108	18.99	A	12.05	17
General	53	18.94	A	9.55	17
Vocational	170	22.21	A	15.59	17
Total	331	20.63		13.97	17
Job length (months)					
Academic	106	6.61	A	5.85	4
General	49	5.78	A	5.42	4
Vocational	164	9.10	B	9.13	5
Total	319	7.76		7.77	5
Hours worked per week					
Academic	109	27.20	A	12.62	30
General	53	31.83	AB	11.70	35
Vocational	168	32.60	B	11.48	38
Total	330	30.69		12.12	35
Salary (hourly rate)					
Academic	106	4.35	A	1.83	3.63
General	51	3.92	A	0.86	3.70
Vocational	163	4.74	A	2.76	4.00
Total	320	4.48		2.27	4.00

Note. Means of groups followed by the same letter are not significantly different from each other based on the Scheffe Multiple Range Test, $p \leq .05$.

Table 4.4

Means, Standard Deviations, and Medians of Selected Characteristics of Third Job

Variables	n	Mean	s	Median
Duncan SEI				
Academic	61	21.56 A	13.70	17
General	27	22.00 A	12.65	19
Vocational	84	22.99 A	15.77	17
Total	172	22.33	14.54	17
Job length (months)				
Academic	59	5.20 A	4.65	3.0
General	26	10.00 B	9.16	8.5
Vocational	81	7.75 AB	6.07	6.0
Total	166	7.20	6.41	5.0
Hours worked per week				
Academic	59	27.88 A	12.57	30
General	27	33.19 AB	11.52	38
Vocational	83	33.23 B	12.10	40
Total	169	31.36	12.38	35
Salary (hourly rate)				
Academic	59	4.56 A	1.80	3.90
General	26	4.17 A	1.05	3.78
Vocational	79	4.51 A	1.76	4.00
Total	164	4.47	1.71	3.93

Note. Means of groups followed by the same letter are not significantly different from each other based on the Scheffe Multiple Range Test, $p \leq .05$.

Table 4.5

Means, Standard Deviations, and Medians of Selected Characteristics of Fourth Job

Variables	n	Mean		s	Median
Duncan SEI					
Academic	23	23.26	A	17.90	17
General	14	23.50	A	15.26	17
Vocational	37	26.05	A	17.26	18
Total	74	24.70		16.94	17
Job length (months)					
Academic	23	5.83	A	5.48	4.0
General	13	8.23	A	5.79	8.0
Vocational	36	7.11	A	6.44	4.5
Total	72	6.90		6.01	5.0
Hours worked per week					
Academic	23	26.83	A	14.74	30
General	14	35.00	A	11.52	40
Vocational	37	33.11	A	9.83	39
Total	74	31.51		12.14	38
Salary (hourly rate)					
Academic	23	4.69	A	2.80	3.75
General	13	5.08	A	2.92	4.00
Vocational	35	5.02	A	2.59	4.50
Total	71	4.92		2.69	4.00

Note. Means of groups followed by the same letter are not significantly different from each other based on the Scheffe Multiple Range Test, $p \leq .05$.

employed on both the second and third jobs, and approximately seven percent were self-employed on the fourth job (see Table A-11).

Job Satisfaction

On the first job, over 59 percent were either very satisfied or quite satisfied with their first job, while over 64 percent were either very satisfied or quite satisfied on the second job. On the third job, 65 percent were either very satisfied or quite satisfied and the fourth job held the highest percentage of graduates (over 68%) who were either very satisfied or quite satisfied (see Table A-12). However, there were no significant differences between job satisfaction and curricula at $p \leq .05$ for any jobs.

Mobility

There were significant relationships in job mobility and the curricula at $p \leq .05$. However, the relationship was low with a Cramer's V = 0.141. About four out of five academic graduates did not move while, about two out of three of the general and vocational graduates did not move (see Table 4.6). There were no significant relationships between curricula and whether they moved out of the county or out of the state.

Table 4.6

Association Between Curricula and Residence Change Since High School

Type of Move	Curricula: Academic n	Academic %	General n	General %	Vocational n	Vocational %
None	177	81.19	73	66.97	187	64.93
Moved within the county	11	5.05	20	18.35	54	18.75
Moved out of the county	15	6.88	8	7.34	22	7.64
Moved out of the county	15	6.88	8	7.34	25	8.68
Totals	218	100.00	109	100.00	288	100.00

Cramer's V = 0.141 $p \leq .001$

Total Jobs Since Graduation

There were no significant differences at $p \leq .05$ between graduates from the different curricula and the total number of jobs held since graduation. The median of all three curricula was two and the means varied little (see Table 4.7).

Total Hours Worked Per Year
Based on the Past Ten Months

There were significant differences at $p \leq .05$ between the academic curriculum and general curriculum, and also between the academic curriculum and vocational curriculum. The academic curriculum graduates had a median of 630, the general curriculum graduates had a median of 1184, and the vocational curriculum graduates' median was 1360, over twice as large as that of the academic curriculum graduates. The mean of the vocationa. curriculum was also the largest (see Table 4.7).

Total Salary Based on the
Past Ten Months

There were several significant differences, at $p \leq .05$, between the academic curriculum and vocational curriculum

Table 4.7

Means, Standard Deviations, and Medians of Selected Labor History Characteristics

Variables	n	Mean		s	Median
Total jobs since graduation					
Academic	171	2.13	A	1.05	2
General	94	2.03	A	1.10	2
Vocational	251	2.17	A	1.04	2
Total	516	2.13		1.06	2
Total hours (bases on 10 months)					
Academic	160	764.96	A	492.42	630
General	85	1170.78	BC	636.73	1184
Vocational	235	1283.26	C	593.45	1360
Total	480	1090.57		615.15	1100
Total salary (based on 10 months)					
Academic	160	3662.80	A	3474.85	2630.40
General	84	5454.90	BC	4406.39	4660.50
Vocational	232	6021.04	C	3726.37	5747.72
Total	476	5128.44		3913.95	4416.00

Note. Means of groups followed by the same letter are not significantly different from each other based on the Scheffe Multiple Range Test, $p \leq .05$.

and between the academic curriculum and general curriculum. The vocational graduates had the highest salaries for the previous ten months earning over $2350.00 more than the academic graduates, and over $566.00 more than the general graduates. The median of the vocational graduates was over $3117 more than the academic graduates, and over $1087 more than the general graduates (see Table 4.7).

Regression Model

The General Linear Model (GLM) was used for the regression models to analyze the labor market outcomes of salary, total number of jobs held since graduation, and total hours worked. Specifically the models were,

Salary = f (curricula, gender, age, race, SES, location, marital status, special needs classification, and self-employment);

Total number of jobs held since graduation = f(curricula, gender, age, race, SES, location, marital status, special needs classification, and self-employment);

Total hours worked = f (curricula, gender, age, race, SES, location, marital status, special needs classification, and self-employment).

Due to the low number of self-employed graduates, the self-employment variable was deleted from the regression models. Also, first-order interactions were examined but

Table 4.8

Final Regression Model for Total Salary (n=188)

Variable	B	t	p
Gender			
Female	-1821.3843	-3.47	0.0007
Male	0.0000	.	.
Age			
18	-6859.7672	-4.76	0.0001
19	-5941.5003	-4.78	0.0001
20	-4487.8033	-3.62	0.0004
21	-4975.0184	-3.89	0.0001
22	-3607.7713	-2.72	0.0071
23	0.0000	.	.
Marital status			
Single	-2416.7371	-3.18	0.0017
Married	0.0000	.	.
Constant	15961.5375		

R^2 = 0.2740
df = 7, 180
$p \leq 0.001$

none surfaced. Tables A-13 through A-15 have the initial values for the models.

The final regression model for salary had an $R^2 = 0.274$ and $p \leq .0001$ (see Table 4.8). The variables that were significant were gender, age and marital status. In the model for total salary, the data results indicate males tended to have a "higher" total salary than did females. The results also indicate that the older graduates tended to earn more, and also single people tended to earn less than those who were married.

The final regression model for total hours worked had an $R^2 = 0.1664$ and $p \leq .0001$ (see Table 4.9). The variables that were significant were gender, age, father's education level, and residence. In the regression model for total hours worked, females tended to work fewer hours than males, and younger people worked fewer hours than older people. The graduates whose fathers were high school graduates or less tended to work more hours than those whose fathers had two or more years of college. The regression model also indicated that rural residents worked more hours than urban residents.

The final regression model for total jobs since graduation had an $R^2 = 0.0902$ and $p \leq .01$ (see Table 4.10). The variable that was significant was age. The regression model for total jobs since graduation indicated that younger graduates had held fewer jobs than older graduates.

Table 4.9

Final Regression Model for Total Hours Worked (n=189)

Variable	B	t	p
Gender			
Female	-149.2309	-2.12	0.0354
Male	0.0000	.	.
Age			
18	-507.9188	-2.68	0.0081
19	-456.3085	-2.76	0.0064
20	-222.8469	-1.35	0.1777
21	-262.9044	-1.53	0.1274
22	-187.0163	-1.05	0.2941
23	0.0000	.	.
Fathlev			
High school or less	296.5770	2.68	0.0080
Some college and above	0.0000	.	.
Residence			
Rural	322.8387	2.58	0.0108
Urban	0.0000	.	.
Constant	1385.2950		

$R^2 = 0.1664$
$df = 8, 180$
$p \leq 0.0001$

Table 4.10

Final Regression Model for Total Number of Jobs Since Graduation (n=179)

Variable	B	t	p
Age			
18	-1.2888	-3.27	0.0013
19	-0.9800	-2.83	0.0051
20	-0.8038	-2.33	0.0208
21	-0.7571	-2.11	0.0358
22	-0.3285	-0.89	0.3730
23	0.0000	.	.
Constant	2.9000		

R^2 = 0.0902
df = 5, 187
$p \leq 0.01$

Discussion

The research represents a comparative analysis of the academic, general, and vocational curricula graduates from 1984 through 1988. The study examined the graduates secondary educational experiences, postsecondary educational experiences, and selected labor market outcomes. This comparison was done through an examination of information relative to three research questions.

Question One

Question One: What was the difference between the secondary school students grade point average, total credits in English, total credits in mathematics, and total credits in science, total credits in vocational education for the academic, general, and vocational program graduates?

The academic curriculum graduates had the highest grade point average. The vocational curricula served 84 percent of the special needs students, vocational curricula graduates had the second highest grade point average, and they also had the same grade point average mode of 3.00, that the academic curriculum graduates had. The general curriculum graduates had the lowest grade point average and also the lowest mode.

There were no significant differences in English credits completed by graduates of the three curricula. All

the school districts met Pennsylvania Chapter 5 requirements. The differences in mathematics, science, and vocational education credits completed by graduates reflect the purposes of the three curricula. The academic curricula graduates had completed more mathematics and science credits, due largely to college entrance requirements. The vocational curricula naturally required more vocational education credits which was reflected in graduates having completed substantially more vocational education credits. However, the vocational curricula of the Venango County Area Vocational-Technical School has recently undergone a thorough curricula evaluation, and based on the curricula evaluation partial mathematics credit is currently being granted to vocational students.

Question Two

Question Two: What was the difference between the postsecondary education experiences of attendance at two-year and/or four-year institutions of higher learning, program completion, and enlistment in the armed services for the academic, general, and vocational program graduates?

Over 60 percent of the graduates from 1984-1988 went on to some type of postsecondary education. Almost 92 percent of the academic curriculum graduates went on to some type of postsecondary education, and of these academic curriculum

graduates, 88 percent went to four-year colleges or universities.

While the vocational curriculum prepares students for the world of work, it was not perceived as a "dead end" education for a large percentage of graduates. Over 40 percent of the vocational curriculum graduates went on to some type of postsecondary education. Of the vocational curriculum graduates who continued their education, approximately 45 percent went to two-year and/or four-year colleges, and approximately 50 percent went to some type of postsecondary vocational education including private business or trade schools and public postsecondary vocational education. The vocational curriculum graduates who did not go on to further educational programs had probably acquired entry-level job skills through their vocational education programs.

Based on the high school curricula descriptions, the general curriculum was for the students who intended to go to work, but not on to college. The general curriculum graduates probably do not graduate from high school with as many entry-level job skills as the vocational graduates. Half of the general curriculum graduates entered the labor force upon graduation, and the other half went on to some type of postsecondary education. Of the general curriculum graduates who went on to postsecondary education, 24 percent went to four-year colleges, 9.25 percent went to two-year colleges, 27.7 percent went to private business or trade

schools, and 24 percent went to public postsecondary vocational education programs.

Fully 75 percent of the general curriculum graduates could have been better served by the vocational curriculum. Half of the general curriculum graduates could have had marketable job skills if they had been in the vocational curriculum, and the fourth of the general curriculum graduates who paid for some type of postsecondary vocational education (private business or trade schools and postsecondary vocational education programs) could probably have saved their money and taken the courses in the vocational programs that were offered by their high school or the Venango County Area Vocational-Technical School. The quarter of the general curriculum graduates who went to four-year colleges could have been better served in the academic curriculum.

A majority of the students who went on to some type of postsecondary education, 81 percent, went to school in Pennsylvania. This was substantiated by the mobility data which indicated that less than eight percent moved out of the state. The graduates tended not to leave the area or Pennsylvania.

Approximately 90 percent of those attending postsecondary education have remained with it and almost 19 percent have already completed their programs. This tends to indicate that the graduates are very serious relative to their postsecondary educational plans.

The general curriculum graduates tended to enlist in the armed services at almost twice the rate of the academic curriculum graduates and vocational curriculum graduates.

Question Three

Question Three: What was the difference between the labor market outcomes of salary, total number of jobs held, total number of hours worked per year, job satisfaction, and mobility for the academic, general, and vocational program graduates?

As reported earlier, over 91 percent of the graduates live in rural settings, and over 70 percent did not move with another 13 percent moving within the county. The economy of the area is not reflected in the six percent local unemployment rate. The welfare rate of the county is 14.5 percent, based on the 1980 census figures (62,000), and many others have exhausted their employment benefits.

Only 31 percent of the graduates were employed full-time. This was similar, but slightly lower, than the William T. Grant Foundation (1988) findings. There are few full-time jobs in the area, and the findings support that. The hours worked per week for the first job reflect less than full-time employment. The salaries for the first job also tend to indicate that much of the employment was for minimum wage or a little more, since the median hourly rate was $3.50. The jobs for the academic curriculum graduates

reflect summer employment due to the length of time on the first job, approximately three months.

The length of time for the second job, at four months, for the academic curriculum graduates also reflects summer employment. This was the approximate length of their summer breaks.

On the second job, vocational curriculum graduates and general curriculum graduates had full-time jobs, with the vocational curriculum graduates earning more than the general curriculum graduates. This finding tends to indicate that education and experience helped the vocational curriculum graduates on the second job.

Job three still reflects summer employment for the academic curriculum graduates, and the salary increase reflects increased responsibility on the job. The vocational curriculum graduates earn about the same hourly rate as the academic curriculum graduates earn, but the vocational curriculum graduates work about a third more hours. The general curriculum graduates worked fewer hours and earned less than the vocational curriculum graduates.

The fourth job still reflects summer employment for the academic curriculum graduates, in job length. The academic curriculum graduates hourly rate has been surpassed by the general curriculum graduates and vocational curriculum graduates. The vocational curriculum graduates also have the highest median salary.

There were no significant differences between curricula and job satisfaction on any of the four jobs. There were also no significant differences between curricula and the number of jobs held since graduation. However, the vocational curriculum graduates worked more hours than the academic curriculum graduates and also more than the general curriculum graduates. The vocational curriculum graduates also earned more than the academic curriculum graduates and the general curriculum graduates.

The final regression model for salary indicated that males had higher salaries than females, that earlier graduates tended to earn more than more recent graduates, and single people tended to earn less than married people. This tends to reflect the economy of the area and the lack of mobility on the part of the graduates. The graduates tended to stay in the area, the earlier graduates tended to have better jobs, and the earlier graduates were probably married.

The variables for the final regression model for total hours worked were gender, age, residence, and father's education level. Gender and age could be expected from the salary regression model. Since the graduates did not tend to relocate to an urban area, they tended to work more hours to stay even with the urban residents.

Age was the single significant variable in the final regression model for total jobs held since graduation. This

tended to indicate that recent graduates had fewer jobs than earlier graduates.

As reported earlier, only 10 percent of the industries in the area employ over 100 people. Without a larger industrial base, the salaries of the area would probably remain low. While the economic future of the graduates was not bright at this time, the graduates tended to stay in the area. They appeared to have a high work ethic, and they appeared to be satisfied with living in the area. Since the graduates tend not to leave the area, an educational market has been created within the area for postsecondary vocational education. Over 26 percent of the graduates who went on to postsecondary education attended some form of postsecondary vocational education, either public or private.

CHAPTER 5

SUMMARY, CONCLUSION, RECOMMENDATIONS

Summary

The need for factual data for use in making decisions is very important. Determining the achievement of graduates is fundamental in the process of curriculum evaluation. The evaluation of curriculum is an essential part in the allocation of scarce educational funds.

The findings of this study can provide data for future planning and program decisions. These results may assist the school boards and school administrations when considering future curricula development for the participating schools.

Purpose of the Study

The study compared graduates from three high school curricula, academic, general, and vocational, to determine if there were any advantages for graduates in the labor market. To investigate if one curriculum had an advantage over another, three research questions were asked. The questions dealt with (1) secondary educational experiences, (2) postsecondary educational experiences, and (3) labor market outcomes.

Question One: What was the difference between the secondary school students grade point average, total credits in English, total credits in mathematics, total credits in science, total credits in vocational education for the academic, general, and vocational program graduates?

Question Two: What was the difference between the postsecondary education experiences of attendance at two-year and/or four-year institutions of higher learning, program completion, and enlistment in the armed services for the academic, general, and vocational program graduates?

Question Three: What was the difference between the labor market outcomes of salary, total number of jobs held, total number of hours worked per year, job satisfaction, and mobility for the academic, general, and vocational program graduates?

Methodology

A questionnaire was constructed, based on the review of literature, to accomplish the purpose of this research. The Dillman (1978) Total Design Method (TDM) was partially utilized in the questionnaire construction and data collection phases.

The population for this study consisted of all the 1984 through 1988 high school graduates from the participating school districts of the Venango County Area Vocational Technical School. The participating districts were

Cranberry, Forest Area, Franklin, Oil City, Titusville, and Valley Grove. There were seven high schools in the districts: Cranberry Senior High School, East Forest High School, West Forest High School, Franklin Area Junior-Senior High School, Oil City Senior High School, Titusville Senior High School, and Rocky Grove High School.

While the school districts may have other vocational programs in operation, only graduates from state approved vocational programs were used. The state approved vocational programs were listed in the Pennsylvania Vocational Education Management Information System (VEMIS), and these reports were used to identify the study's vocational subjects. The academic and general curricula graduates were identified by the high school guidance departments.

There were a total of 4,769 graduates in the study years. There were 1,920 vocational graduates, 978 general graduates, and 1,871 academic graduates. Proportional stratified random samples were used for each of the years. Each high school's proportion of the yearly total of graduates was determined and used as their proportion of the entire sample. The strata were based on the curricula, academic, general, and vocational. The sample size for the vocational graduates (n=729) by respective graduation years was 100 percent of 1988, 60 percent of 1987, 30 percent of 1986, 20 percent of 1985, and 10 percent of 1984. A random sample of equal numbers of academic (n=365) and general

(n=364) students was selected for each year. Thus the sample included equal numbers of vocational, academic, and general graduates.

The questionnaire was mailed via first class postage to the subjects. There was a cover letter from the graduates' high school guidance counselors and a return, postage-paid envelope included with the questionnaire in the first mailing. The first mailing consisted of 1,458 survey forms, cover letters and return envelopes. There were 1,050 postcard reminders sent via first class postage after three weeks. After five weeks, another mailing of 848 survey questionnaires was mailed to nonrespondents. There were 19[illegible] people who could not be contacted due mainly to the expiration of forwarding addresses. A telephone follow-up of non-respondents was conducted. The response rate for the entire survey was approximately 50 percent.

SAS Full-Screen Edit was used for the data entry, and SAS was used for the statistical analysis. The data were analyzed through descriptive statistics and multiple regression procedures.

Limitations

The research was conducted in a geographic area of northwestern Pennsylvania that is rural. There are few large manufacturers in the area, and less than 10 percent of the industries in the area employ over 100 employees (Oil

City Chamber of Commerce, 1988). This may provide limited applicability of the results to more urban areas due to the rural location and small industrial base. A limitation of the regression models resulted from a relatively small number of the sample. Due to the small number of cases, there were limited findings of the regression equations including no first-order interactions.

Findings

Question One: What were the differences between the secondary school students grade point average, total credits in English, total credits in mathematics, total credits in science, and total credits in vocational education for the academic, general, and vocational program graduates?

The academic curriculum graduates had the highest grade point average followed by the vocational curriculum graduates and the general curriculum graduates. The significant differences, at the .05 level, for grade point average were the difference between the grade point averages of the academic curriculum graduates and general curriculum graduates, between the academic curriculum graduates and the vocational curriculum graduates, and between the vocational curriculum graduates and the general curriculum graduates.

There were no significant differences between graduates from the three curriculua relative to the total number of credits in English. There were significant differences, at

the .05 level, between graduates from all three curricula in the total number of mathematics credits completed. There were significant differences, at the .05 level, between graduates from all three curricula in the total number of science credits completed. There were significant differences, at the .05 level, between graduates from all three curricula in the total number of vocational education credits completed.

Question Two: What were the differences between the postsecondary education experiences of attendance at two-year and/or four-year institutions of higher learning, program completion, and enlistment in the armed services for the academic, general, and vocational program graduates?

There was a high association, at the .05 level, between curricula and attendance in postsecondary education. By the rate of almost two to one, the academic graduates as compared to the vocational and general graduates, attended some type of postsecondary educational program. There was a moderate association, at the .05 level, between the type of curricula and the type of postsecondary education attended. There was a moderate association, at the .05 level, between curricula and the graduates' status in postsecondary education. The postsecondary education dropout rate for the general curriculum graduates was twice that of the academic curriculum graduates, and it was also higher than the rate for vocational curriculum graduates.

There was a low association, at the .05 level, between curricula and whether or not the graduates entered the armed services. General curriculum graduates entered the armed services at twice the rate of both the academic curriculum graduates and vocational curriculum graduates.

Question Three: What were the differences between the labor market outcomes of salary, total number of jobs held, total number of hours worked per year, job satisfaction, and mobility for the academic, general, and vocational program graduates?

There were no significant differences in graduates' job satisfaction for any curricula for the first through the fourth job held. There were significant relationships, at the .05 level, between mobility and the three curricula. The relationship was low. About four out of five academic curriculum graduates did not move, while about two out of three general curriculum graduates and vocational curriculum graduates did not move.

The final regression model for salary was significant at the .001 level with R^2=0.2740, and the significant variables in the model were gender, age and marital status. In the model for total salary, the data results indicated that males tended to have a higher total salaries than did females. The results also indicate that the earlier graduates tended to earn more, and also single people tended to earn less than the married people.

The final regression model for total hours worked was significant at the .0001 level with R^2=0.1664, and the significant variables were gender, age, father's education level, and residence. In the model for total hours worked, females tended to work fewer hours than males, and younger people worked fewer hours. Those whose father was a high school graduate or less tended to work more hours than did those whose father had two or more years of college. The model also indicated that rural residents worked more hours than urban residents.

The final regression model for total jobs since graduation was significant at the .01 level with R^2=0.0902, and the single significant variable was age. The model for total jobs since graduation indicated that more recent graduates had fewer jobs than earlier graduates.

Conclusions

This research was a comparative analysis of the academic, general, and vocational curriculum graduates from 1984 through 1988. The research examined the graduates secondary educational experiences, postsecondary educational experiences, and selected labor market outcomes. This comparison was done through an examination of information related to three research questions.

Academically speaking, the graduates of the study tended to be typical of what could be expected.

The academic curriculum graduates had the highest grade point average of the three curricula. The vocational curricula served 84 percent of the special needs students, and the graduates had the second highest grade point average, and also had the same grade point average mode 3.00, that the academic curriculum graduates had. The general curriculum graduates had the lowest grade point average and also the lowest grade point average mode of the three curricula.

The significant differences in the number of credits in science and mathematics probably reflects the overall purpose of the curriculum: preparation for continuing education or preparation for work. There were no significant differences in English credits completed between the graduates from the three curricula.

Continuing education was perceived as important by the graduates.

Over 60 percent of all the graduates from 1984-1988 went on to some type of postsecondary education. This was higher than the state average of 52 percent (Pennsylvania Department of Education, 1988). While the vocational curriculum prepares students for the world of work, it was

not perceived as a "dead end" education for a large percentage of graduates. Over 40 percent of the vocational curriculum graduates went on to some type of postsecondary education. Of the vocational curriculum graduates who went for further their education, approximately 45 percent went to two-year and/or four-year colleges, and approximately 50 percent went to some type of postsecondary vocational education including private business or trade schools and public postsecondary vocational education.

Approximately 90 percent of those attending postsecondary education have remained with it, and almost 19 percent have already completed their programs. This tends to indicate that the graduates are very serious in their postsecondary educational plans.

The general education curriculum tended not to be effective in meeting the needs of the general curriculum graduates.

Based on the course descriptions, the general curriculum was for the students who intended to go to work, but not on to college. The general curriculum graduates probably do not graduate with as many entry-level job skills that could help them obtain employment, yet half of the general curriculum graduates entered the labor force upon graduation, and the other half attended some type of postsecondary education. Fully 75 percent of the general

curriculum graduates could have been better served by the vocational curriculum. Half of the general curriculum graduates would have had marketable job skills if they had been in the vocational curriculum. The general curriculum graduates who paid for some type of postsecondary vocational education (private business or trade schools and public postsecondary vocational education programs) could probably have saved their money and taken similar courses in the vocational programs that were offered by their high schools or the Venango County Area Vocational-Technical School. The quarter of the general curriculum graduates who went to four-year colleges could have been better served in the academic curriculum. The general curriculum graduates tended to enlist in the armed services at almost twice the rate of the academic curriculum graduates and vocational curriculum graduates.

The vocational curriculum tended to be effective in preparing the graduates for the jobs that existed in the area.

The economy of the area was not reflected in the six percent local unemployment rate. The welfare rate of the county is 14.5 percent, based on the 1980 census figures (62,000).

Over 91 percent of the graduates live in rural settings, and over 84 percent did not move or moved within

the county. Approximately 31 percent of the graduates were employed full-time.

Overall, vocational curriculum graduates tended to work more hours than the academic curriculum graduates and also more than the general curriculum graduates. The vocational curriculum graduates also tended to earn more than the academic curriculum graduates and the general curriculum graduates.

On the second job, vocational curriculum graduates and general curriculum graduates had full-time jobs, with the vocational curriculum graduates earning more than the general curriculum graduates. This tends to indicate that education and experience helped the vocational curriculum graduates on the second job.

Recommendations

Recommendations for the Area

1. The results of this research should be examined by the school boards, school administrators, and guidance counselors to help serve the students in their future decisions concering curriculum choice. The results should also be made available to the parents of the students when it is time to make a curriculum decision.

2. The study suggests that the general curriculum had lower value in the labor market outcomes of total salary and total hours worked. While it could be easy to discontinue the general curriculum, based on these findings, the curriculum still serves a purpose. Students who are at risk of dropping out can be served by the general curriculum as can students who have not made the career choice of furthering their education or entering the labor force.

The research was conducted after the graduation of the students but it could be used as a basis for more counselor-intensive decisions in the future. Half of the general curriculum graduates enter the labor force upon graduation from high school, and approximately half of the general curriculum graduates who continue their education enroll in some type of postsecondary vocational education. Since three-quarters of the general graduates could have been served better by vocational education. future curriculum choice decisions should be based on the greater use of guidance counselors. This could include increasing the number of guidance counselors in the high schools to help with these critical curriculum decisions. Better curriculum decisions earlier could have saved the students some of the direct cost of enrolling in postsecondary vocational education. Additionally, the students from the general curriculum who went on to higher education could also have been better served by being counseled into the academic curriculum.

3. If the decision was made to eliminate the general curriculum, there should be greater flexibility incorporated into both the academic and vocational curricula to allow for the students who decide to change. This could possibly be accomplished by restructuring the course descriptions and the course scheduling.

4. More counselor-intensive decisions should be made with regard to the career development of all of the students. Information should be provided for decision making to avoid sex stereotyping by curriculum.

5. Since the research indicated that people tended not to leave the area, research should be done to identify what specific types of industry should be either started or brought into the area.

Recommendations for Future Research

Based on the limitations encountered in this study, the following recommendations for future research are offered.

1. The welfare rate of the area was high at 14.5 percent of the population, and the county ranked sixth or higher in the state in cash assistance, food stamps,

and medical assistance. The research area was also rural with few large industries. The research should be replicated in an area that has a welfare rate and industrial base that may be more reflective of the overall Pennsylvania economy.

2. Using the data from this study as an information source, it is recommended that the study be replicated in the area in another five years to determine if the curricula offered at that time provide any labor market advantages for the graduates.

3. The study should be replicated utilizing different methodology which could include, but not be limited to, telephone follow-ups.

4. A longitudinal study data base should be developed to facilitate future comparative studies of this type.

5. Further research should be conducted into the effect of the extent of vocational curricula participation and the labor market benefits derived from this participation.

6. Further research should be conducted to examine the individual curriculum within the vocational education

offerings to ascertain if any provide greater labor market benefits to the participants.

7. Research into the effects of cooperative education on vocational education outcomes should also be examined?

8. The value of educational programs should examined by labor market outcomes and additional criteria. These broader criteria should include the social atmosphere in the area and also the quality of life in the area.

BIBLIOGRAPHY

Bishop, J., Blakemore, A., & Low, S. (1985). High school graduates in the labor market: A comparison of the class of 1972 and 1980. Columbus, OH: The Ohio State University, The National Center for Research in Vocational Education. (ERIC Document Reproduction Service No. ED 268 328)

Boydston, J.A. (Ed.). (1979). John Dewey: the middle works, 1899-1924 (Vol 8:1915). Carbondale, IL: Southern Illinois University Press.

Brandt, W.E., Ferguson, J.L., & Guinn, J.N. (1987) Final report - longitudinal follow-up of 1981 high school graduates. Columbia, MO: Missouri Testing and Evaluation Service, College of Education, University of Missouri-Columbia.

Bureau of Vocational and Adult Education (1988) Guidelines for submission of applications for vocational education funds: July 1,1988-June 30,1989. Harrisburg, PA: Author, Department of Education, Commonwealth of Pennsylvania.

Business Week (1988, May 2). Business and education: the demand for partnership. Business Week, pp. 124-135.

Campbell, P.B., Elliot, J., Hotchkiss, L., & Laughlin, S. (1987) Education and labor market experience of vocational students from three types of secondary schools. Columbus, OH: The Ohio State University, The National Center for Research in Vocational Education. (ERIC Document Reproduction Service No. ED 282 031)

Campbell, P.B., Elliot, J., Laughlin,S., Seusy, E., Farkas, G., Hotchkiss, L., & Stromsdorfer,E.(1987) Dynamics of vocational education effects on labor market outcomes. Columbus, OH: The Ohio State University, The National Center for Research in Vocational Education.

Campbell, P.B., Mertens, D.M., Seitz, P., & Cox, S. (1982). Job satisfaction--antecedents and associations. Columbus, OH: The Ohio State University, The National Center for Research in Vocational Education. (ERIC Document Reproduction Service No. ED 227 312)

Campbell, P.B., & Puleo, N.F. (1986, October). What happens to high school students? Vocational Education Journal, pp. 21-22.

Cook, J. (1986, March 24). The knack... and how to get it. Forbes, pp.56-66.

Copa, G. (1984). Vocational education and youth employment. Columbus, OH: The Ohio State University, The National Center for Research in Vocational Education.

Desy, J., Campbell, P.B., & Gardner, J.A. (1984). High school vocational education experiences: in school and in the labor market. Columbus, OH: The Ohio State University, The National Center for Research in Vocational Education.

Desy, J., Mertens, D.M., & Gardner, J.A. (1984). The long-term effects of vocational education: earnings, employment, education, and aspirations. Columbus, OH: The Ohio State University, The National Center for Research in Vocational Education.

Dewey, J. (1916). Democracy and education: an introduction to the philosophy of education. Norwood, MA.: Norwood Press.

Dillman, D. (1978) Mail and telephone surveys. New York: Wiley & Sons.

Fry Communications, Inc. (1988). Pennsylvania code reporter. Mechanicsburg, PA.

Gardner, W.E. (1985, July). American education: implications from the information age. Paper presented at the World Assembly of the International Council on Education for Teaching, Vancouver, British Columbia, Canada. (ERIC Documents Reproduction Service No. Ed 264 196)

Ghazalah, I.A. (1987) Long term follow-up of vocational education graduates: a study based on federal income tax data. Athens, OH: Department of Economics, College of Arts and Sciences, Ohio University. (ERIC Document Reproduction Service No. ED 282 044)

Goodlad, J.A., (1984). A place called school. New York: McGraw-Hill.

Herr, E.L., (1972) Review and synthesis of foundations for career education. Columbus, OH: The Ohio State University, Center for Vocational and Technical

Education. (ERIC Document Reproduction Service No. ED 059 402)

Kang, S., & Bishop, J. (1984). The effect of curriculum on labor market success immediately after high school. Columbus, OH: The Ohio State University, The National Center for Research in Vocational Education. (ERIC Document Reproduction Service No. ED 259 118)

Karwatka, D. (1988, December). Technology's past: George Washington the surveyor. School Shop, 48(5), 42.

Missouri Testing and Evaluation Service (1983). Longitudinal follow-up of 1981 missouri high school graduates: technical report. Columbia, MO: Author, College of Education, University of Missouri-Columbia.

National Commission on Excellence in Education (1983). A nation at risk: the imperative for educational reform. Washington, D.C.: Author.

Northwest Pennsylvania Training Partnership Consortium, Inc. (1989). Planning report labor market and population analysis. Franklin, PA: Author.

Office of Federal Regulations (1984). Pennsylvania public school code of 1949. Harrisburg, PA: Author, Pennsylvania Department of Education.

Oil City Area High School, (1988). Curriculum guide. Unpublished booklet.

Oil City Chamber of Commerce, (1988). Directory of industries in the Venango County area. Oil City, PA: Author.

Pennsylvania Department of Education (1984). Status report on education in Pennsylvania: a statistical summary. Harrisburg, PA: Author.

Pennsylvania Department of Education (1985). Status report on education in Pennsylvania: a statistical summary. Harrisburg, PA: Author.

Pennsylvania Department of Education (1986). Status report on education in Pennsylvania: a statistical summary. Harrisburg, PA: Author.

Pennsylvania Department of Education (1988). Status report on education in Pennsylvania: a statistical summary. Harrisburg, PA: Author.

Pennsylvania Department of Education (1985). Vocational education statistics, 1983-84. Harrisburg, PA: Author.

Pennsylvania Department of Education (1986). Vocational education statistics, 1984-85. Harrisburg, PA: Author.

Pennsylvania Department of Education (1987). Vocational education statistics, 1985-86. Harrisburg, PA: Author.

Pennsylvania Department of Education (1988). Vocational education statistics, 1986-87. Harrisburg, PA: Author.

Pennsylvania Department of Education (1985). Secondary vocational education statistics, 1983-84. Harrisburg, PA: Author.

Pennsylvania Department of Public Welfare (1989). Internal reports. Unpublished report.

Powers, M.G. (Ed.). (1982). Measures of socioeconomic status - current issues. Boulder, CO: American association for the Advancement of Science.

Prosser, C.A. Vocational education in a democracy. Chicago: American Technical Society, 1949.

Riche, M.F. (1988, February) America's new workers. American Demographics, 34-41.

Rocky Grove High School (1988). Student Handbook. Unpublished booklet.

Rumbaugh,W.A. (1986) Final report for follow-up program improvement a six-year longitudinal study, part two, one year after leaving school. Salem, OR: Oregon State Department of Education, Division of Vocational Education. (ERIC Document Reproduction Service No.ED 276 899)

State Board for Vocational Education (1986). Vocational education philosophy and beliefs. Harrisburg, PA: Author.

Wagenaar, T.C. (1986) The high school diploma as a terminal degree. (OERI Publication No. OE-300-83-0257). Washington, D.C.: Office of Educational Research and Improvement U.S. Department of Education Center for Statistics.

Welch, F.G. (1989, April). Industrial education beyond the Reagan years. School Shop.

William T. Grant Foundation Commission on Work, Family and Citizenship. (1988). The forgotten half pathways to success for America's youth and young families: final report, youth and America's future. Washington, D.C.: Author.

William T. Grant Foundation Commission on Work, Family and Citizenship. (1988). The forgotten half pathways to success for America's youth and young families: interim report on the school-to-work transition. Washington, D.C.: Author.

Appendix A

DATA TABLES

Table A-1

Distribution of Selected Personal Characteristics

Variables	n	%
Gender		
Female		
Academic	130	20.87
General	42	6.74
Vocational	175	28.09
Total	347	55.70
Male		
Academic	91	14.61
General	69	11.08
Vocational	116	18.62
Total	276	44.30
Total	623	100.00
Race		
White		
Academic	221	35.47
General	111	17.82
Vocational	290	46.55
Total	622	99.83
Asian or Pacific Islander		
Academic	0	0.00
General	0	0.00
Vocational	1	0.16
Total	1	0.16
Total	623	100.00

Table A-1

Continued

Variables	n	%
Age (years)		
18		
Academic	38	6.17
General	17	2.76
Vocational	51	8.28
Total	106	17.21
19		
Academic	87	14.12
General	45	7.31
Vocational	83	13.47
Total	215	34.90
20		
Academic	44	7.14
General	22	3.57
Vocational	79	12.82
Total	145	23.54
21		
Academic	27	4.36
General	10	1.62
Vocational	40	6.49
Total	77	12.50
22		
Academic	18	2.92
General	10	1.62
Vocational	26	4.22
Total	54	8.77
23		
Academic	5	0.81
General	7	1.14
Vocational	7	1.14
Total	19	3.08
Total	616	100.00

Table A-1

Continued

Variables	n	%
Father's education level		
Less than high school		
Academic	20	3.35
General	19	3.18
Vocational	73	12.23
Total	112	18.76
High school graduate		
Academic	113	18.93
General	66	11.06
Vocational	175	29.31
Total	354	59.30
Two-years of college		
Academic	22	3.69
General	10	1.68
Vocational	16	2.68
Total	48	8.04
Four-years of college		
Academic	36	6.03
General	7	1.17
Vocational	6	1.01
Total	49	8.21
More than four-years of college		
Academic	25	4.19
General	2	0.34
Vocational	7	1.17
Total	34	5.70
Total	597	100.00

Table A-1

Continued

Variables	n	%
Mother's education level		
Less than high school		
Academic	7	1.15
General	14	2.30
Vocational	51	8.39
Total	72	11.84
High school graduate		
Academic	133	21.88
General	75	12.34
Vocational	192	31.58
Total	400	65.79
Two-years of college		
Academic	32	5.26
General	12	1.97
Vocational	22	3.62
Total	66	10.86
Four-years of college		
Academic	24	3.95
General	3	0.49
Vocational	11	1.81
Total	38	6.25
More than four-years of college		
Academic	22	3.62
General	4	0.66
Vocational	6	0.99
Total	32	5.26
Total	578	100.00

Table A-2

Distribution of Selected High School Characteristics

Variables	n	%
Curricula		
Academic	221	35.47
General	111	17.82
Vocational	291	46.71
Total	623	100.00
Graduation year		
1984		
Academic	12	1.93
General	8	1.28
Vocational	16	2.57
Total	36	5.78
1985		
Academic	20	3.21
General	7	1.12
Vocational	27	4.33
Total	54	8.67
1986		
Academic	38	6.10
General	14	2.25
Vocational	45	7.22
Total	97	15.57
1987		
Academic	65	10.43
General	33	5.30
Vocational	91	14.61
Total	189	30.34
1988		
Academic	86	13.80
General	49	7.87
Vocational	112	17.98
Total	247	39.65
Total	623	100.00

Table A-2

Continued

Variables	n	%
High school		
Cranberry		
Academic	34	5.46
General	15	2.41
Vocational	48	7.70
Total	97	15.57
East Forest		
Academic	9	1.44
General	6	0.96
Vocational	7	1.12
Total	22	3.53
Franklin		
Academic	46	7.38
General	31	4.98
Vocational	62	9.95
Total	139	22.31
Oil City		
Academic	49	7.87
General	19	3.05
Vocational	54	8.67
Total	122	19.58
Rocky Grove		
Academic	24	3.85
General	18	2.89
Vocational	36	5.78
Total	78	12.52
Titusville		
Academic	49	7.87
General	13	2.09
Vocational	64	10.27
Total	126	20.22
West Forest		
Academic	10	1.61
General	9	1.44
Vocational	20	3.21
Total	39	6.26
Total	623	100.00

Table A-2

Continued

Variables	n	%
Special needs		
Handicapped		
Academic	0	0.00
General	2	0.32
Vocational	4	0.64
Total	6	0.96
Disadvantaged		
Academic	1	0.16
General	7	1.12
Vocational	54	8.67
Total	62	9.95
Limited English proficiency		
Academic	0	0.00
General	1	0.16
Vocational	1	0.16
Total	2	0.32
None		
Academic	220	35.31
General	101	16.21
Vocational	232	37.24
Total	553	88.76
Total	623	100.00

Table A-2

Continued

Variables	n	%
Total English credits		
Two credits		
Academic	0	0.00
General	1	0.16
Vocational	2	0.32
Total	3	0.48
Three credits		
Academic	220	35.31
General	110	17.66
Vocational	288	46.23
Total	618	99.20
Four credits		
Academic	1	0.16
General	0	0.00
Vocational	1	0.16
Total	2	0.32
Total	623	100.00

Table A-2

Continued

Variables	n	%
Total credits in mathematics		
One credit		
Academic	11	1.77
General	40	6.42
Vocational	166	26.65
Total	217	34.83
Two credits		
Academic	62	9.95
General	42	6.74
Vocational	94	15.09
Total	198	31.78
Three credits		
Academic	142	22.79
General	29	4.65
Vocational	30	4.82
Total	201	32.26
Four credits		
Academic	6	0.96
General	0	0.00
Vocational	1	0.16
Total	7	1.12
Total	623	100.00

Table A-2

Continued

Variables	n	%
Total science credits		
None		
Academic	0	0.00
General	1	0.16
Vocational	6	0.96
Total	7	1.12
One credit		
Academic	16	2.57
General	49	7.87
Vocational	221	35.47
Total	286	45.91
Two credits		
Academic	49	7.87
General	32	5.14
Vocational	53	8.51
Total	134	21.51
Three credits		
Academic	110	17.66
General	29	4.65
Vocational	10	1.61
Total	149	23.92
Four credits		
Academic	42	6.74
General	0	0.00
Vocational	1	0.16
Total	43	6.90
Five credits		
Academic	4	0.64
General	0	0.00
Vocational	0	0.00
Total	4	0.64
Total	623	100.00

Table A-2

Continued

Variables	n	%
Total vocational education credits		
None		
Academic	109	17.50
General	33	5.30
Vocational	0	0.00
Total	142	22.79
1-2 credits		
Academic	70	11.23
General	15	2.41
Vocational	1	0.16
Total	86	13.81
3-4 credits		
Academic	32	5.14
General	29	4.66
Vocational	25	4.01
Total	86	13.80
5-6 credits		
Academic	10	1.60
General	29	4.66
Vocational	106	17.01
Total	145	23.27
7-8 credits		
Academic	0	0.00
General	5	0.80
Vocational	91	14.61
Total	96	15.41
Over 8 credits		
Academic	0	0.00
General	0	0.00
Vocational	68	10.92
Total	68	10.92
Total	623	100.00

Table A-3

Distribution of Education Since High School

Variables	n	%
Attended any type of school since high school graduation		
No		
Academic	16	2.60
General	56	9.09
Vocational	169	27.44
Total	241	39.12
Yes		
Academic	203	32.95
General	54	8.77
Vocational	118	19.16
Total	375	60.88
Total	616	100.00
Attended school out of Pennsylvania		
No		
Academic	162	43.67
General	42	11.32
Vocational	100	26.95
Total	304	81.94
Yes		
Academic	40	10.78
General	10	2.70
Vocational	17	4.58
Total	67	18.06
Total	371	100.00

Table A-3

Continued

Variables	n	%
Type of school attended		
Postsecondary vocational technical school		
Academic	3	0.80
General	13	3.48
Vocational	10	2.67
Total	26	6.95
Private business, technical or trade school/institute		
Academic	9	2.41
General	15	4.01
Vocational	48	12.83
Total	72	19.25
Community college & two-year program at branch campus		
Academic	4	1.06
General	5	1.43
Vocational	15	4.01
Total	24	6.42
Four-year college or university (including branch campuses)		
Academic	179	47.86
General	13	3.48
Vocational	38	10.16
Total	230	61.50
Other		
Academic	7	1.87
General	8	2.14
Vocational	7	1.87
Total	2	5.88
Total	374	100.00

Table A-3

Continued

Variables	n	%
Current program status		
Completed		
Academic	16	4.28
General	17	4.55
Vocational	38	10.16
Total	71	18.98
Enrolled full-time		
Academic	170	45.45
General	21	5.61
Vocational	57	15.24
Total	248	66.31
Enrolled part-time		
Academic	2	0.53
General	7	1.87
Vocational	8	2.14
Total	17	4.55
No longer attending		
Academic	15	4.01
General	9	2.41
Vocational	14	3.74
Total	38	10.16
Total	374	100.00

Table A-4

Distribution of Selected Demographic Characteristics

Variables	n	%
Current residence		
Rural		
Academic	191	31.21
General	102	16.67
Vocational	267	43.63
Total	560	91.50
Urban		
Academic	27	4.41
General	6	0.98
Vocational	19	3.10
Total	52	8.50
Total	612	100.00
Armed services		
No		
Academic	204	33.01
General	95	15.37
Vocational	266	43.04
Total	565	91.42
Yes		
Academic	15	2.43
General	16	2.59
Vocational	22	3.56
Total	53	8.58
Total	618	100.00

Table A-4

Continued

Variables	n	%
Marital status		
Never married		
Academic	211	33.87
General	102	16.37
Vocational	242	38.84
Total	555	89.09
Married		
Academic	10	1.61
General	7	1.12
Vocational	43	6.90
Total	60	9.63
Divorced		
Academic	0	0.00
General	1	0.16
Vocational	2	0.32
Total	3	0.48
Separated		
Academic	0	0.00
General	1	0.16
Vocational	4	0.64
Total	5	0.80
Total	623	100.00

Table A-4

Continued

Variables	n	%
Residence change (since high school)		
None		
Academic	177	28.78
General	73	11.87
Vocational	187	30.41
Total	437	71.06
Moved within county		
Academic	11	1.79
General	20	3.25
Vocational	54	8.78
Total	85	13.82
Moved out of county		
Academic	15	2.44
General	8	1.30
Vocational	22	3.58
Total	45	7.32
Moved out of PA		
Academic	15	2.44
General	8	1.30
Vocational	25	4.07
Total	48	7.80
Total	615	100.00

Table A-4

Continued

Variables	n	%
Current status		
Working full-time		
Academic	27	4.33
General	40	6.42
Vocational	130	20.87
Total	197	31.62
Working part-time		
Academic	9	1.44
General	22	3.53
Vocational	37	5.94
Total	68	10.91
Working part-time and attending school		
Academic	39	6.26
General	7	1.12
Vocational	16	2.57
Total	62	9.95
Unemployed		
Academic	4	0.64
General	9	1.44
Vocational	26	4.17
Total	39	6.26
Unable to work due to health problem		
Academic	1	0.16
General	2	0.32
Vocational	4	0.64
Total	7	1.12

Table A-4

Continued

Variables	n	%
Attending school		
Academic	127	20.39
General	17	2.73
Vocational	41	6.58
Total	185	29.70
Armed services		
Academic	12	1.93
General	11	1.77
Vocational	18	2.89
Total	41	6.58
Homemaker		
Academic	1	0.16
General	2	0.32
Vocational	16	2.57
Total	19	3.05
Other		
Academic	1	0.16
General	1	0.16
Vocational	3	0.48
Total	5	0.80
Total	623	100.00

Table A-5

Association Between Curricula and Service in Armed Services

	Curricula					
	Academic		General		Vocational	
Response	n	%	n	%	n	%
No	204	93.15	95	85.59	266	92.36
Yes	15	6.85	16	14.41	22	7.64
Totals	219	100.00	111	100.00	288	100.00

Cramer's V = 0.098 $p \leq .05$

Table A-6

Association Between Curricula and Attendance in Postsecondary Education

	Curricula					
	Academic		General		Vocational	
Response	n	%	n	%	n	%
No	16	7.31	56	50.91	169	58.89
Yes	203	92.69	54	49.09	118	41.11
Totals	219	100.00	110	100.00	287	100.00

Cramer's V = 0.488 $p \leq .001$

Table A-7

Association Between Curricula and Type of Postsecondary Education Institution

Type of Institution	Curricula: Academic n	Academic %	General n	General %	Vocational n	Vocational %
Postsecondary vocational school	3	1.49	13	24.07	10	8.47
Private business, trade school/ institute	9	4.46	15	27.78	48	40.68
Community college & two-year college programs	4	1.98	5	9.26	15	12.71
Four-year college	179	88.61	13	24.07	38	32.20
Other	7	3.47	8	14.81	7	5.93
Totals	202	100.00	54	100.00	118	100.00

Cramer's V = 0.469 $p \leq .001$

Table A-8

Association Between Curricula Status in Postsecondary Education Programs

Program Status	Curricula: Academic n	Academic %	General n	General %	Vocational n	Vocational %
Completed	16	7.88	17	31.48	38	32.48
Enrolled full-time	170	83.74	21	38.89	57	48.72
Enrolled part-time	2	0.99	7	12.96	8	6.84
No longer attending	15	7.39	9	16.67	14	11.97
Totals	203	100.00	54	100.00	117	100.00

Cramer's V = 0.304 $p \leq .001$

Table A-9

Distribution of Selected Labor History Characteristics

Variables	n	%
Total jobs since graduation		
One		
Academic	62	12.02
General	40	7.75
Vocational	80	15.50
Total	182	35.27
Two		
Academic	48	9.30
General	26	5.04
Vocational	86	16.67
Total	160	31.01
Three		
Academic	38	7.36
General	13	2.52
Vocational	47	9.11
Total	98	18.99
Four		
Academic	23	4.46
General	15	2.91
Vocational	38	7.36
Total	76	14.73
Total	516	100.00

Table A-10

Distribution of Selected Methods Used in Obtaining the First Job

Variables	n	%
First job referral		
Cooperative education		
Academic	0	0.00
General	0	0.00
Vocational	37	7.64
Total	37	7.64
Guidance counselor referral		
Academic	0	0.00
General	1	0.21
Vocational	5	1.03
Total	6	1.24
High school teacher referral		
Academic	4	0.83
General	0	0.00
Vocational	5	1.03
Total	9	1.86
Family or friend referral		
Academic	74	15.29
General	46	9.50
Vocational	74	15.29
Total	194	40.08
Newspaper ad		
Academic	4	0.83
General	3	0.62
Vocational	16	3.31
Total	23	4.75

Table A-10

Continued

Variables	n	%
State employment office or training program		
Academic	5	1.03
General	3	0.62
Vocational	11	2.27
Total	19	3.93
Asked employer on own		
Academic	67	13.84
General	32	6.61
Vocational	81	16.74
Total	180	37.19
Other		
Academic	8	1.65
General	3	0.62
Vocational	5	1.03
Total	16	3.31
Total	484	100.00

Table A-11

Distribution of Self-Employment Status for Various Jobs

Variables	n	%
Job one		
No		
Academic	167	32.75
General	90	17.65
Vocational	245	48.08
Total	502	98.43
Yes		
Academic	3	0.59
General	2	0.39
Vocational	3	0.59
Total	8	1.57
Total	510	100.00
Job two		
No		
Academic	104	31.52
General	54	16.36
Vocational	162	49.09
Total	320	96.97
Yes		
Academic	5	1.52
General	0	0.00
Vocational	5	1.52
Total	10	3.03
Total	330	100.00

Table A=11

Continued

Variables	n	%
Job three		
No		
Academic	57	33.14
General	27	15.70
Vocational	83	48.26
Total	167	97.09
Yes		
Academic	3	1.74
General	1	0.58
Vocational	1	0.58
Total	5	2.91
Total	172	100.00
Job four		
No		
Academic	21	28.00
General	15	20.00
Vocational	34	45.33
Total	70	93.33
Yes		
Academic	2	2.67
General	0	0.00
Vocational	3	4.00
Total	5	6.67
Total	75	100.00

Table A-12

Distribution of Job Satisfaction Characteristics for Various Jobs

Variables	n	%
Job one		
Very satisfied		
Academic	38	7.48
General	19	3.74
Vocational	66	12.99
Total	123	24.21
Quite satisfied		
Academic	73	14.37
General	30	5.91
Vocational	78	15.35
Total	181	35.63
Somewhat dissatisfied		
Academic	47	9.29
General	32	6.30
Vocational	81	15.94
Total	160	31.50
Very dissatisfied		
Academic	11	2.17
General	11	2.17
Vocational	22	4.33
Total	44	8.66
Total	508	100.00

Table A-12

Continued

Variables	n	%
Job two		
Very satisfied		
Academic	29	8.84
General	8	2.44
Vocational	53	16.16
Total	90	27.44
Quite satisfied		
Academic	45	13.72
General	22	6.71
Vocational	56	17.07
Total	123	37.50
Somewhat dissatisfied		
Academic	21	6.40
General	16	4.88
Vocational	37	11.28
Total	74	22.56
Very dissatisfied		
Academic	12	3.66
General	8	2.44
Vocational	21	6.40
Total	41	12.50
Total	328	100.00

Table A-12

Continued

Variables	n	%
Job three		
Very satisfied		
Academic	20	11.63
General	7	4.07
Vocational	29	16.86
Total	56	32.56
Quite satisfied		
Academic	21	12.21
General	8	4.65
Vocational	27	15.70
Total	56	32.56
Somewhat dissatisfied		
Academic	15	8.72
General	11	6.40
Vocational	21	12.21
Total	47	27.33
Very dissatisfied		
Academic	4	2.33
General	2	1.16
Vocational	7	4.07
Total	13	7.56
Total	172	100.00

Table A-12

Continued

Variables	n	%
Job four		
Very satisfied		
Academic	10	13.33
General	5	6.67
Vocational	14	18.67
Total	29	38.67
Quite satisfied		
Academic	5	6.67
General	5	6.67
Vocational	12	16.00
Total	22	29.33
Somewhat dissatisfied		
Academic	8	10.67
General	4	5.33
Vocational	9	12.00
Total	21	28.00
Very dissatisfied		
Academic	0	0.00
General	1	1.33
Vocational	2	2.67
Total	3	4.00
Total	75	100.00

Table A-13

Initial Regression Model for Total Salary (n=187)

Variable	B	t	p
Curricula			
Non-vocational	650.8033	1.08	0.2838
Vocational	0.0000	.	.
Gender			
Female	-1737.4978	-3.26	0.0013
Male	0.0000	.	.
Age			
18	-6740.4513	-4.62	0.0001
19	-5921.1864	-4.67	0.0001
20	-4250.7531	-3.30	0.0012
21	-4856.2930	-3.67	0.0003
22	-3599.3885	-2.66	0.0087
23	0.0000	.	.
Race	0.0000	.	.
Fathlev			
High school or less	513.8709	0.58	0.5595
Some college and above	0.0000	.	.
Mothlev			
High school or less	-464.7441	-0.54	0.5913
Some college and above	0.0000	.	.
Residence			
Rural	-924.7441	-0.97	0.3322
Urban	0.0000	.	.
Marital status			
Single	-2437.3214	-3.13	0.0020
Married	0.0000	.	.
Special needs			
Handicapped, Disadvantaged, Limited English	-273.0207	-0.34	0.7358
None	0.0000	.	.
Constant	16447.4201		

R^2 = 0.2860
df = 12, 174
$p \leq 0.001$

Table A-14

Initial Regression Model for Total Hours Worked (n=189)

Variable	B	t	p
Curricula			
Non-vocational	18.8096	0.23	0.8179
Vocational	0.0000	.	.
Gender			
Female	-153.5438	-2.14	0.0334
Male	0.0000	.	.
Age			
18	-452.7368	-2.30	0.0228
19	-432.2541	-2.52	0.0126
20	-190.9034	-1.10	0.2740
21	-258.9289	-1.45	0.1479
22	-161.5530	-0.89	0.3771
23	0.0000	.	.
Race	0.0000	.	.
Fathlev			
High school or less	319.4559	2.69	0.0078
Some college and above	0.0000	.	.
Mothlev			
High school or less	-64.7979	-0.56	0.5792
Some college and above	0.0000	.	.
Residence			
Rural	329.0900	2.56	0.0112
Urban	0.0000	.	.
Marital status			
Single	-119.7008	-1.15	0.2499
Married	0.0000	.	.
Special needs			
Handicapped, Disadvantaged, Limited English	-63.5425	-0.58	0.5606
None	0.0000	.	.
Constant	1498.4129		

R^2 = 0.1766
df = 12, 176
$p \leq 0.001$

Table A-15

Initial Regression Model for Total Number of Jobs Since Graduation (n=192)

Variable	B	t	p
Curricula			
Non-vocational	-0.0665	-0.39	0.6968
Vocational	0.0000	.	.
Gender			
Female	0.0526	0.35	0.7256
Male	0.0000	.	.
Age			
18	-1.3223	-3.19	0.0017
19	-1.0360	-2.87	0.0046
20	-0.8512	-2.33	0.0212
21	-0.8258	-2.21	0.0287
22	-0.4160	-1.09	0.2785
23	0.0000	.	.
Race	0.0000	.	.
Fathlev			
High school or less	0.0977	0.39	0.6939
Some college and above	0.0000	.	.
Mothlev			
High school or less	-0.0378	0.16	0.8768
Some college and above	0.0000	.	.
Residence			
Rural	0.0378	0.13	0.8999
Urban	0.0000	.	.
Marital status			
Single	-0.0063	-0.03	0.9768
Married	0.0000	.	.
Special needs			
Handicapped, Disadvantaged, Limited English	-0.3592	-1.57	0.1190
none	0.0000	.	.
Constant	2.8444		

R^2 = 0.0998
df = 12, 179
p ≤ 0.084

Appendix B

DATA COLLECTION INSTRUMENTS

Name: _____

Address: _____

_____

_____ Case Number: _____

_____

Phone Number: _____

TRANSCRIPT INFORMATION

Case Number: _____

High School:

1 CRANBERRY
2 EAST FOREST
3 FRANKLIN AREA
4 OIL CITY AREA
5 ROCKY GROVE
6 TITUSVILLE
7 WEST FOREST

Graduation year:

1 1984
2 1985
3 1986
4 1987
5 1988

Gender:

1 FEMALE
2 MALE

Special needs:

1 H
2 D
3 LEP

Race:

1 WHITE (not Hispanic)
2 BLACK (not Hispanic)
3 HISPANIC
4 ASIAN OR PACIFIC ISLANDER
5 AM. INDIAN OR ALASKA NATIVE

Curriculum:

1 ACADEMIC
2 GENERAL
3 BUSINESS EDUCATION
4 HEALTH OCCUPATIONS
5 MARKETING AND DISTRIBUTIVE ED.
6 TECHNICAL EDUCATION
7 TRADE & INDUSTRIAL
8 OCCUPATIONAL HOME ECONOMICS ED.

Grade Point Average:

_____

English Credits:

10th _____

11th _____

12th _____

Total _____

Math Credits:

10th _____

11th _____

12th _____

Total _____

Science Credits:

10th _____

11th _____

12th _____

Total _____

Voc. Ed. Credits:

10th _____

11th _____

12th _____

Total _____

number 89-_____
This number is only used to follow-up non-respondents

Pennsylvania Follow-up of 1984-1986
High School Graduates--Northwest Region

Please complete all questions that apply to you.

Section I- General Information

1. What year did you graduate from high school? 198___

2. What is your present age?
   _____YEARS

3. What is your present marital status? (Check One)
   ____ NEVER MARRIED
   ____ MARRIED
   ____ DIVORCED
   ____ SEPARATED

4. What are you presently doing?
   (Check All That Apply)
   ____ WORKING AT A FULL-TIME JOB
   (35 or more hours a week)
   ____ WORKING AT A PART-TIME JOB
   (less than 35 hours a week)
   ____ UNEMPLOYED
   ____ UNABLE TO WORK DUE T
   HEALTH PROBLEM
   ____ ATTENDING SCHOOL
   ____ IN THE ARMED SERVICES
   ____ HOMEMAKER
   ____ OTHER (please specify)_____

   _____

5. Did you serve in the armed services? (Check One)
   ____ NO
   ____ YES... Year entered 198____
   Year discharged 198____

6. Since graduation from high school, has your permanent residence changed? (Check One)
   ____ NO
   ____ YES, MOVED WITHIN THE COUNTY
   ____ YES, MOVED OUT OF THE COUNTY
   ____ YES, MOVED OUT OF PENNSYLVANIA

7. What is your current residence? (Check One)
   ____ RURAL (country, small city or town)
   ____ URBAN (large city)

8. What is the highest level of education that your parents have completed?
   (Check One Choice in Each Column)

FATHER	MOTHER	
____	____	LESS THAN HIGH SCHOOL
____	____	HIGH SCHOOL GRADUATE
____	____	2 YEARS OF COLLEGE
____	____	4 YEARS OF COLLEGE
____	____	MORE THAN 4 YEARS OF COLLEGE

Section II - Education Since High School

9. Have you attended any type of school since you graduated from high school? (Check One)

   ____ NO ... if No Go To Section III

   ____ YES ... if Yes Go To Question 10

10. Was the first school you attended out of state?
    (Check One)
    ____ NO
    ____ YES

11. What type of school have you attended?
    (Check All That Are Appropriate)
    ____ POST SECONDARY VOCATIONAL TECHNICAL SCHOOL
    ____ PRIVATE BUSINESS, TECHNICAL OR TRADE SCHOOL / INSTITUTE
    ____ COMMUNITY COLLEGE
    ____ TWO YEAR PROGRAM AT A BRANCH CAMPUS OF A UNIVERSITY
    ____ FOUR YEAR COLLEGE OR UNIVERSITY (including branch campuses)
    ____ OTHER: please specify _____

    _____

12. What is your current status in your program of study?
    (Check One)
    ____ COMPLETED
    ____ PRESENTLY ENROLLED FULL-TIME
    ____ PRESENTLY ENROLLED PART-TIME
    ____ NO LONGER ATTENDING

Section III - Employment History

Please list in order from earliest to present, all the jobs you have held since high school graduation. List first the job you held immediately before graduation, if applicable.

FIRST JOB

13. Job Title: _____

    Brief description of work performed _____

    _____

14. Job held from _____ (month/year) to _____ (month/year)

15. What were the average hours you worked per week? _____HOURS

16. What was the salary of your first job before deductions? (Do Not Include Overtime)

$_____ . _____ per
(Check One)
____ HOUR
____ WEEK
____ EVERY TWO WEEKS
____ TWICE MONTHLY
____ ANNUALLY

17. How did you find your first job? (Check One)
____ COOPERATIVE EDUCATION (CO-OP) PROGRAM
____ GUIDANCE COUNSELOR REFERRAL
____ HIGH SCHOOL TEACHER REFERRAL
____ FAMILY OR FRIEND REFERRAL
____ NEWSPAPER AD
____ STATE EMPLOYMENT OFFICE OR TRAINING PROGRAM
____ WENT TO EMPLOYER MYSELF AND ASKED
____ OTHER, Please specify _____

_____

SECOND JOB

18. Job Title: _____

Brief description of work performed _____

_____

19. Job held from _____ to _____
(month/year) (month/year)

20. What were the average hours you worked per week? _____HOURS

21. What was the salary of your second job before deductions? (Do Not Include Overtime)

$_____ . _____ per
(Check One)
____ HOUR
____ WEEK
____ EVERY TWO WEEKS
____ TWICE MONTHLY
____ ANNUALLY

THIRD JOB

22. Job Title: _____

Brief description of work performed _____

_____

23. Job held from _____ to _____
(month/year) (month/year)

24. What were the average hours you worked per week? _____HOURS

25. What was the salary of your third job before deductions? (Do Not Include Overtime)

$_____ . _____ per
(Check One)
____ HOUR
____ WEEK
____ EVERY TWO WEEKS
____ TWICE MONTHLY
____ ANNUALLY

FOURTH JOB

26. Job Title: _____

Brief description of work performed _____

_____

27. Job held from _____ to _____
(month/year) (month/year)

28. What were the average hours you worked per week? _____HOURS

29. What was the salary of your fourth job before deductions? (Do Not Include Overtime)

$_____ . _____ per
(Check One)
____ HOUR
____ WEEK
____ EVERY TWO WEEKS
____ TWICE MONTHLY
____ ANNUALLY

The next two questions deal with all of the jobs you have held.

30. Were you self-employed in any of your jobs? (Check One In Each Column)

First Job	Second Job	Third Job	Fourth Job	
___	___	___	___	NO
___	___	___	___	YES

31. How satisfied were you with your jobs? (Check One In Each Column)

First Job	Second Job	Third Job	Fourth Job	
___	___	___	___	VERY SATISFIED
___	___	___	___	QUITE SATISFIED
___	___	___	___	SOMEWHAT DISSATSFIED
___	___	___	___	VERY DISSATISFIED

Thank you for completing the questionnaire. Please place the questionnaire in the enclosed postage paid envelope and mail it.

VITA

Robert Peter Garrity

Birthdate and Place:

Easton, Pennsylvania; June 30,1951.

Education:

Phillipsburg High School, Phillipsburg, New Jersey, 1969
Rider College, Lawrenceville, New Jersey
Bachelor of Science in Commerce, 1973
University of Pittsburgh, Pittsburgh, PA
Master of Education, Vocational Education, 1976

Employment Record:

Assistant Store Manager, K-mart Corporation; employed in Pittsburgh and Philadelphia, 1973-75.
Marketing and Distributive Education Instructor, Cooperative Education Coordinator, Chief Researcher/Coordinator at Venango County Area Vocational Technical School
Oil City, PA, 1975 to present.

Honorary Societies:

Omicron Tau Theta, Charter Member
Iota Lambda Sigma
Phi Delta Kappa

Abstract

A Comparative Analysis of Academic, General, and Vocational Education Graduates from 1984 Through 1988
Robert Peter Garrity
Ph. D.; August 1989
The Pennsylvania State University
Frederick G. Welch, Thesis Adviser

The study compared graduates from three high school curricula--academic, general, and vocational--to determine if there were any advantages for the respective graduates in the labor market. To investigate if graduates from one curriculum had an advantage over those from another, three research questions were asked, dealing with (1) secondary educational experiences, (2) postsecondary educational experiences, and (3) selected labor market outcomes.

The secondary education experiences examined were grade point average, total English credits, total mathematics credits, total science credits, and total vocational education credits.

The postsecondary educational experiences examined were attendance at two-year and/or four-year institutions of higher learning, program completion, and enlistment in the armed services.

Labor market outcomes examined were total salary per year, total hours worked per year, and total jobs held since graduation. Mobility and job satisfaction were also examined.

The findings were as follows: There were significant differences in secondary educational experiences with academic graduates having the highest grade point averages followed by the vocational and general graduates; There were significant differences in the number of credits in science, mathematics, and vocational education courses; There were associations, low through high, between curricula and postsecondary educational experiences, with over 60 percent of all graduates going on to some type of postsecondary education; the vocational graduates earned more and worked more hours than either academic or general curriculum graduates; there were no significant differences in total number of jobs since graduation or job satisfaction; there was very little mobility, with over 84 percent not moving or moving within the county.